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**Management, Economics and Marketing
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Marketing Strategy for Launching New Food Product to the Spanish Market

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Abstract

The European Food Safety Authority commission (EFSA, January 2018) authorized the use of some edible insects under the novel food law and the regulation has finally clearly included insects under the scope of application. The cricket is approved in Spain and is for everyone's benefit including producers and importers. Nowadays, athletes are constantly looking for nutritional products that help them get stronger, faster and perform better. In a market packed with options that use unwanted extra ingredients, looking for a high-performance and eco-friendly nutritive products full of protein sources is strongly recommendable. Insects such as powder of cricket could be of great interest as a possible solution due to their capability to satisfy two different requirements: (i) they are an important source of protein and other nutrients; (ii) their use as food has ecological advantages over conventional meat and, in the long run, economic benefits (FAO, 2018). Cricket powder is very high in protein; crickets can actually be up to 70% protein in the packet of 100g which is hugely exciting (FAO, 2018). The benefit of having cricket protein is that it has all the same qualities as premium whey protein in terms of nutrition, containing all 9 essential amino acids. Additionally, the Packed contains vitamin B12, iron, calcium, omega 3&6 oils and fibers which can be used to produce energy bars, snacks and food supplements. The company "G-Profood" aims to develop a food dietary supplement and performing nutrition for athletes with the desire to get the best natural protein source from "insects" which could be one of the best workout innovative foods in the Spanish market. This thesis proposes the elaboration of an accordance series of stages which the company could follow in its product development and launch process that would clarify the entire marketing strategy used for launching a successful product to the market.

Keywords: food innovation, new product development, product launch stages, marketing strategy, spanish market

1. INTRODUCTION

The consumption of nutritional food products has undergone significant changes over recent years. At the present time, Spanish society is becoming more concerned about health and environment. Plus, the exigencies and qualities of products with high proteins and vitamins are demanded much more [1]. The European Union new food regulation under the parliament commission (January 2018) authorized some edible insects under the novel food regulation (according to the legal status of edible insects); the cricket is approved and is for everyone's benefit including producers and importers of insects [2]. Currently, there are already more than 20 companies in western Spain that produce insects for human consumption (mainly the production and utilization of cricket powder). In Murcia as an example, there is a specialized company of expert researchers that started to produce more than two million insects a year in a farm of 40.000 m² [3]. Furthermore, actually there is an established farm consulting equipment with experts that help Spanish farmers who want to set up their insect farms such as proteinsecta (www.proteininsecta.es) Additionally, there are some famous Spanish companies, who sell worldwide, a range of different insect products, such as Exotic Food in Madrid (www.exoticfood.es) and Insectum in Barcelona

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(www.insectum.es). Foods that stimulate health and satisfy consumer expectations are needed. In a consumer's perspective, products that provide several kinds of health benefits, without any call for major changes in their behaviour are needed on the market. With this increasing interest in health-promoting food products, one of the biggest challenges for the food companies is to find the right position on the market and the supply opportunities that could suit their customers to enter the market successfully. New products which added health values can be developed as a daily nutritive supplement, the identification of interested ingredient can lead the product to take a credible brand position on the market [4].

Due to the existing trend of a healthy diet in the Mediterranean, G-Profood Company studied the possibility of integrating insects in its new innovative product. Note that, the protein content of cricket powder is 58%, contains no saturated fat [5]. The purpose with the new product based on insects is to look for a healthy, efficient and environmentally friendly diet that is able to support long-time physical efforts of professional athletes who are struggling with finding new supplements with high proteins. For that, thinking about edible insects as an ingredient which has a huge potential benefit as a fantastic choice. Beyond the myriad of health and performance benefits for athletes, cricket powder, also known as cricket flour, is one of the most sustainable sources of complete protein in the world. Besides, every 100 grams of cricket contains 69 grams of protein, which means that 1g of cricket contains 0.69 g of proteins compared to the same portion's 43 grams in beef or 31 grams in chicken, according to [6].

Food processing companies nowadays, invest in new product development (NPD) to ensure future success in the market. However, new food products are often more likely to fail than to succeed. Many observers cite failure rates as high as 90 to 95 percent uses a much more restrictive definition of new products and say that up to one-third of new food products are successful [7]. Whatever the failure rate, a substantial amount of new product development spending can be wasted; by one estimate, 46 percent of all new product development costs go into products which fail [8]. Product launch as a term and what it includes varies slightly within the literature. Successful new product introduction is difficult to achieve, the new product failure rate is substantial and it involves high costs for the company, which makes it crucial to know what is important for consumers when they buy a new product [9].

The main question on top of manager mind is how to ensure the new product development launch success? This is and for a good reason while being one of the costliest parts in the innovation of product development process, the product launches and their performance are the foundation of any company long-term profitability. To fill the gap, this master thesis describes a structural methodology based on tactical stages which would clarify and examine the entire product innovation. The research questions are built to support the objective of this thesis and lead to an end product which is practical to understand and use. Thus, the focal purpose of this research is to determine the place and the role of innovative marketing and R&D based on innovation process concept of a new product.

1.1. Innovation and R&D inside of a company

R&D may take months or years to yield fruitful results. Manufacturers of a variety of products utilize this process for new product development and innovation. While each company or industry may have its own unique research methodology. In this purpose, R&D includes the main following points defined in the manual [10]. Successful innovation is in large measure an issue of identifying and controlling risk. The smaller the business, the more likely it is that survival will depend on effective risk management. Every year there are hundreds of businesses that launch new products which fail with 35% of the products launched are withdrawn from the market [11]. On the strategic nature of product innovation, its formalization is done through processes of innovation management, involving the steps of planning, identification, analysis, monitoring and control of risks in order to increase the likelihood of positive events and decrease the probability of adverse events to the project [12]. Many developments have become impossible due the high degree of uncertainty in the early stages of the product development, given the high number of resources that are immobilized [13].

1.2. Role of R&D and innovation investments on firm performance

In practice, the innovation process of a company can be represented as a relationship where inputs such as (R&D both internal and external and benchmarking) lead to obtaining an output which is the new product that will be ready to launch phase. Therefore, according to the last approach of the innovation process from Frascati manual (2015), it can easily be understood that there are three differentiated phases in the innovative company: The first is the search for ideas to obtain new products, would correspond to the research (*R of the binomial R+D*), the second phase is the formal creation of these new products, would correspond to the development (*D of the binomial R+D*). These two phases of R&D in some companies would be complemented by No-R&D activities. Plus, studies have found that this complementation is very common in Spanish companies. Finally, the third phase would be the launch of new products to the market, which includes both the planning phase of this launch and its development or practical execution.

1.3. The current situation of R + D + I around the world

One of the important lessons of the past two decades has been the pivotal role of innovation in economic development. The build-up of innovation capacities has played a central role in the growth dynamics of successful developing countries [14]. The current economic and social environment is marked by major changes and significant challenges. These have defined a high level of complexity and competitiveness for companies and countries within the international context. When faced with this environment, the ability of a society to innovate becomes the main source of generating productivity, diversity and value for companies [15].

1.4. The current situation of R + D + I in Spanish companies

The values of 2016 innovation indicators are still very far from those of 2008. The number of companies that declared themselves innovative during the 2014-2016 period according to [16] was 18,475, 1.1% more than in 2015 but it only represents 12.5% of current Spanish companies, when in 2008 they were 20.8%, which is bigger because in 2008 the number of companies was 30% higher than in 2016. One of the characteristics of the Spanish innovation system is the lack of geographical homogeneity. Companies of less than ten employees active in R&D are basically start-ups or spin-off of the public research system or large innovative companies, so that their contribution to the research effort is not negligible [17]. The R&D that companies develop is the one that has the most consequences for the innovation. The knowledge created or assimilated by companies through R&D activities should lead to higher value-added innovations and will surely make the company detects new opportunities to innovate. It is an anomaly in the global context that in Spain SMEs runs around of half of the business expense in R&D [18].

2. METHODOLOGY APPROACH FOR NEW PRODUCT DEVELOPMENT BY THE COMPANY

New products are crucial for company growth, when we're developing a new product or service, there is a process that is common to this development, and it can help to ensure that we make the best product or service for the target audience. Today, more than ever, we hear the phrase "*innovate or die*". So, understanding the necessity of each stage of NPD can give the company confidence to stick with it [19]. To realize the methodology approach for launching new product development by the company G-Profood, going through literature and statistical review to convey the reader and give more knowledgeable value about the idea that we are going to establish is crucial.

In the literature and statistical review, a comprehensive exploration of marketing strategies employed for the creation and launch of new products in the market was conducted. Utilizing internet resources and books containing fundamental concepts and terminologies, valuable insights were gathered to guide the development of a new product and determine optimal establishment strategies. Examined books included "creation and launch of new products" by Luis Miguel Rivera Vilas (2016), "creation of new foods: the product strategy developer's guide" by ISC (2001), "Oslo Manual" by OECD (3rd edition 2005, 4th edition 2018), and "Frascati Manual" (3rd edition, 2015 & 4th edition 2018). For statistical data, official databases such as the national institute of statistics (INE) in Spain, OECD official website (Statistical DATA), Ministry of Education, Culture and Sport in Spain, Ministry of Agriculture, Fisheries and Food in Spain, and Ministry of Commerce and Tourism in Spain were consulted. Additionally, on-site inspections and research were conducted within small and large Spanish food companies.

2.1. Major steps of new product development

The strategy of the work in general, is divided into six important stages advised in the process of creating a new product before its launch. The structural scheme of the generic methodology used by the Company G-Profood is demonstrated in the (Fig1) below.

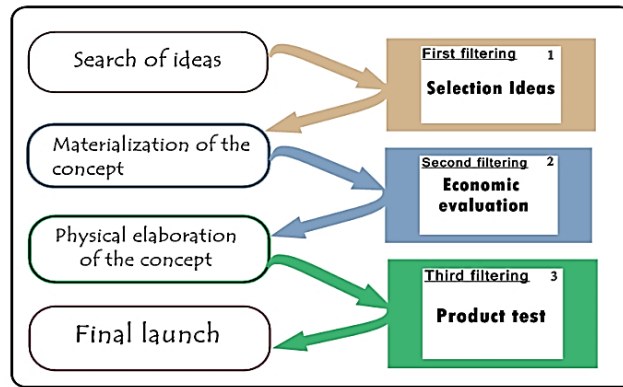


Fig. 1. Methodology of NPD process
Source: (Rivera, 2016, modified by the author)

- *New Product Development Strategy*

The detail analyses of each of these phases constitute the central axis to which the study will be dedicated: ideas generation, ideas screening, materialization of the concept, economic evaluation, physical elaboration, product test & final launch.

- *Searching and generating ideas*

The first important stage to highlight in this methodology is that the development of new product starts with *searching ideas or generating concepts*. The NP idea generation stage aims at increasing the number of good new product ideas; in addition, many ideas from varied contributors increase the chances of finding valuable ones [20].

- *Selecting and screening ideas “first filtering”*

The second step in new product development process is the *idea screening*. Screening is the stage of product development that eliminates the greatest number of ideas from further consideration. It is the critical part of the development activity [21]. If a poor product idea is allowed to pass through the screening stage, it wastes efforts, money and time, plus, the company would like to go ahead only with those product ideas that will turn into profitable products.

- *Materialization of the concept*

The new stage is the *materialization of the best idea or concept*. To go on in the new product development process, attractive ideas must be developed into a product concept which is a detailed version of the new-product idea stated in meaningful consumer terms [22].

- *Economic evaluation “second filtering”*

In this stage, only those ideas or concepts that have passed the first filtering will be materialized. The materialization will consist in a meticulous verbal description of the concept and, therefore, it will continue to be an intangible product that will be subjected to a *second filtering evaluation of economy type* [23].

- *Physical evaluation of the concept*

Note that, only if the *economic evaluation* was well filtered, the product will be *physically elaborated*. Once the initial idea become tangible and concrete, the new product is declared as a physical concept. As a result, this generic methodology advises to launch to the market only those ideas that have passed at least two previous tests or filters [24].

- *Product test “third filtering”*

Sometimes, the market test constitutes the stage in which the product is introduced to a more realistic market environment [25]. Accordingly, the last stage before the commercialization of new product development process is *test marketing*. In this stage, the product and its proposed marketing program are tested in realistic market settings [26].

- *Product launch*

Finally, when a product has made it all the way through the new product development stage, the only thing left to do is introduce it to the market. Once this is done, good product life cycle management will ensure the manufacturer makes the most of all their effort and investment [27]. Thousands of new products go on sale every year and manufacturers invest a lot of time, effort and money in trying to make sure that any new product they launch will be a success [28]. In view of the investment and risk, the actual statistics affirm that nearly 30 to 35% of the companies fall flat during first year and rises during successive years to 45% [29].

3. MATERIAL APPROACH USED BY THE COMPANY

The materials and tools utilized throughout the various stages of the new product development process are systematically outlined as follows: The process initiates with Brainstorming Sessions facilitated through ezTalks, fostering collaborative idea generation. Morphological Matrices are then employed, offering a powerful tool for generating ideas by exploring potential variations and combinations in problem characteristics, aiding in creative product shaping [30]. The Analytical Hierarchy Process (AHP) becomes instrumental in complex decision-making, utilizing pair-wise comparisons to synthesize results and ensuring consistency in evaluations, thus mitigating bias [31].

Financial decision-making is facilitated through NPV (Net Present Value) and IRR (Internal Rate of Return) calculations, providing insights into the worthiness of launching a product based on forecasted future events. Graphic design and packaging are integral aspects, with Adobe software tools such as Adobe Premiere Pro, Adobe After Effects CC Full HD, Adobe Illustrator, and Photoshop playing a crucial role in creating realistic and impactful representations of the new product's design and packaging. Mockups aid in presenting the design packaging effectively, using prototypes created with Photoshop and Illustrator.

4. RESULTS

4.1. Missions, Visions & Values of G-Profood Company

The company G-Profood has an international purpose which is developing original services through the creation of different innovative products that offer new and unique benefits to the end users. A startup company located in Spain specialized in marketing and sales of new food products. The expertise in the sector and production units meets the quality and safety standards of the products launched on the market. The company is named “G-Profood” and all the products are marketed under this brand.

"G-Profood" is on a mission to develop a diverse product range that harmonizes Spanish origins with global diversity, focusing on continuous innovation to meet varied consumption needs. Committed to delivering high-quality and sustainable products at an optimal quality-to-price ratio, the company envisions daily customer satisfaction through an extensive selection of innovative, high-content items. Guided by values such as responsibility, customer passion, and a collaborative team spirit, "G-Profood" aims to make a positive impact, create substantial customer value, and move collectively towards common goals.

4.2. Ideas generation for the creation of new business opportunities by the company ‘G-Profood’

Believing that to create trust with customers and gain market share more rapidly, product launch fails should be avoided, this can be controlled by analysing more carefully each stage of the product development and launch process. For this reason, coming up with unique ideas to the company is a challenging endeavor. While business strive to introduce new product that grab the attention of potential customers and help them gain competitive edge. The first step in NPD which the company will start dealing with, is the generation of new business ideas.

4.3. Approach to generation of ideas by the Company ‘G-Profood’

Generating new product ideas is a creative task that requires a specific way of thinking. Ideas for new products can be obtained from customers, the company’s R&D department, competitors, focus groups, employees, sales people, trade shows, or through a policy of open innovation. Formal idea generating techniques include attribute such as brainstorming and morphological matrix analysis. the business model canvas (BMC) can be a really powerful tool to get the creative (ideation), the key to using the BMC by the company for ideation is that it’s best to start with a current business model. In our case, the approach to generate ideas by the SME is shown in (Table 1).

Table 1. Methodology for ideas generation by the Company G-Profood

Description	Free Association	Structured association	Combination techniques	Confrontation Techniques	Imagination techniques
Approach Description	*Free ideation *Participants are inspired by a team	*Look at an issue from different perspectives	*New solutions are generated by combining solution elements	*Creative thinking facilitation	*Abstract the key problem, find solutions on irrational level
Tools used	*Brainstorming technique	*Brain-writing technique	*Morphologic Matrix	*Confrontation with existing ideas and pictures in Internet	*Free Imagination and skills development

4.4 The importance of experts in the creation of new product development (NPD)

At this stage of the creation of ideas, the experts have to actively intervene both in the construction of the appropriate relevant methodologies to look for new ideas. It is also helpful for the team to keep important aspects of the future product in mind such as how scalable it is and how much returns it can generate. There are many ideas at this point, which will be analyzed in detail in the next stages. For this reason, finding experts with enough experience in marketing strategies is highly recommended to ensure the product launch success. Using a morphological matrix technique is a powerful tool for generating ideas with many different possibilities to answer a ‘how we can’ question and to shape a new products and services. The commencement started by the realization of one general matrix with 336 possible combinations (check table 2.3.4 below).

Table 2. Morphological matrix representing a fraction of ‘32’ possible combination made by Expert n°1

Function	Expert decision N°1			
	Solution option			
Key parameters	Option 1	Option 2	Option 3	Option 4
Value offered	Pleasant	Vigorous	Environment	Exotic
Place of use	Gym	Entertainment		
Type of users	Bodybuilder	Prescriber	Fashion	Vegetarian

Table 3. Morphological matrix representing a fraction of ‘36’ possible combinations made by Expert n°2

Function	Expert decision N°2			
	Solution option			
Key parameters	Option 1	Option 2	Option 3	Option 4
Value offered	Experience	Vigorous	Environment	Exotic
Place of use	Gym	House	Entertainment	
Type of users	Bodybuilder	Healthcare	Prescriber	

Table 4. Morphological matrix representing a fraction of ‘40’ possible combinations made by Expert n°3

Function	Expert decision N°3				
	Solution option				
Key parameters	Option 1	Option 2	Option 3	Option 4	Option 5

<i>Value offered</i>	Spiritual	Vigorous	Environment	Exotic	Experience
<i>Place of use</i>	Gym	Special events			
<i>Type of users</i>	Bodybuilder	Prescriber	Vegetarian	Tourist	

Table 5. Example of the chosen morphological matrix representing a fraction of “24” possible combinations

<i>Function</i>	Final decision of the experts “Made by three experts” Matrix options			
	Option 1	Option 2	Option 3	Option 4
<i>Key parameters</i>	Option 1	Option 2	Option 3	Option 4
<i>Value offered</i>	Pleasant	Vigorous	Environment	Exotic
<i>Place of use</i>	Gym	Entertainment		
<i>Type of users</i>	Health care	Prescriber	Bodybuilder	

4.5. Brainstorming technique for new product ideas generation (PID)

At this stage an active and passive generation of new product ideas takes place. The company decided to use brainstorming technique to generate a lot of new ideas quickly. This methodology involves diverse people who are willing to give several thoughts. From each combination generated, we used *ezTalks* meeting, which is an online tool and one of excellent software that provides easily, professional online brainstorming service without wasting time or money. Working with a mixed group for a period of 3 weeks (two days a week) was very huge step; everyone in the group had the chance to state whatever ideas come to mind. Each session was about one hour half past.

4.6. Ideas screening process and selection of criteria

As the company's idea box fills up, the crucial 'First Filtration' step begins – deciding which ideas align with business goals. Subsequent stages aim to trim down the ideas, focusing only on those with potential for profitability. Swiftly discarding less viable concepts is crucial to maintaining excellence and managing development costs. For the filtration of ideas generation, the analytic hierarchy process (AHP) is a structured technique used by companies for organizing and analyzing decisions, it has a particular application in group decision making.

4.7. Application of the analytic hierarchy process method (AHP)

The expert team recommends evaluating ideas based on five key criteria: 1) Originality, assessing if the idea is novel or incremental; 2) Feasibility, considering resource availability, time, budget constraints, and required skills; 3) Competitors, examining the risk of competition for market share growth; 4) Product image, evaluating the perceived mental image and associated beliefs; 5) Usability, determining the idea's value in both short and long terms, its usefulness for consumers, and tangible benefits to the organization (Table 6).

Table 6. Criteria’s choice for the first ideas selection

Criteria’s for ideas selection				
<i>Originality</i>	<i>Feasibility</i>	<i>Competitors</i>	<i>Product image</i>	<i>Enduring</i>
Idea 1	Idea 1	Idea 1	Idea 1	Idea 1
To	To	To	To	To
Idea 48	Idea 48	Idea 48	Idea 48	Idea 48

Determining the relative importance of different criteria with respect to the goal, for that it’s imperative to pass by the pair wise comparison matrix. This pair wise comparison matrix is created with the help of relative importance, extracted from Saaty methodology (1980), demonstrated in (Table 7).

Table 7. Scale of relative importance of different criteria’s

Verbal expression of preference	Numerical value
<i>General ‘equal’ importance</i>	1
<i>Moderate importance</i>	3

<i>Strong importance</i>	5	
<i>Very strong importance</i>	7	2
<i>Extreme importance</i>	9	4
<i>Intermediate values</i>	2, 4, 6, 8	6
<i>Values for inverse comparison (a=1/a)</i>	1/3, 1/5, 1/7, 1/9	8

Source: AHP (Saaty methodology, 1980)

The land of pair wise matrix is equivalent to the number of criteria used in the decision making process. The question that should be asked is, how important originality with respect to feasibility? The experts see that originality is of a strong importance than market feasibility. If feasibility is X value then originality is 5X value (row element / column element). Additionally, how important is originality with respect to competitors? Experts consider that originality is of moderate to strong importance than competitors.

Otherwise, according to experts, originality is of moderate to strong importance than competitors, in this case if competitors are X value, then originality is 4X values. Moreover, how important is competitors with respect to feasibility, the experts see that competitors are of equal to moderate importance than feasibility, in this case if competitors are 2X value than feasibility is of X value etc. As it's shown in (Table 8).

Table 8. Pair wise comparison matrix of criteria's weight by experts

Pair wise comparison matrix with "experts decision "					
CRITERIA	Originality	Competitors	Feasibility	Usability	Product image
Originality	1	5	4	7	6
Competitors	0,2	1	0,50	3	2
Feasibility	0,5	2	1	0,33	0,2
Usability	0,14	0,33	0,20	1	0,5
Product image	0,17	3	2	2	1
Sum	2,01	11,33	5,70	13,33	09,07

The normalized pair wise comparison matrix is calculated by dividing the all elements of the column by the sum of each column (e.g. $1/2.79 = 0.4$) and the criteria weight was calculated by averaging the elements existing in the row then dividing them by the number of criteria (See Table 9 and Table 10).

Table 9. Normalized pair wise comparison matrix of criteria's weight by experts

Normalized pair wise comparison matrix with experts decision						
CRITERIA	Originality	Competitors	Feasibility	Usability	Product image	Criteria weight
Originality	0,4	0,59	0,70	0,53	0,57	0,4
Competitors	0,08	0,12	0,09	0,23	0,19	0,3
Feasibility	0,10	0,24	0,18	0,3	0,05	0,2
Usability	0,06	0,04	0,04	0,07	0,10	0,08
Product image	0,36	0,01	0,09	0,15	0,80	0,07

Calculating the consistency to check whether the calculated values are correct or not. For this reason, it's a necessity to take the pair wise comparison matrix which is not normalized. Then multiplying each value in the column with the criteria value (e.g. $0.4 * 1$).

Table 10. Table Consistency of the pair wise comparison matrix

Verification of the choice					
Consistency of the pair wise comparison matrix					
Criteria weight	0,4	0,3	0,2	0,08	0,07
CRITERIA	Originality	Competitors	Feasibility	Usability	Product image
Originality	0,40	0,31	0,71	0,032	0,013
Competitors	0,24	0,35	0,63	0,024	0,018
Feasibility	0,17	0,29	0,60	0,023	0,015

Usability	0,15	0,20	0,30	0,020	0,012
Product image	0,05	0,15	0,10	0,016	0,090
Sum	2,45	0,91	1,05	0,690	0,740
Sum / 5	0,50	0,42	0,22	0,070	0,040

The weighted sum value (WSV) is calculated by taken the sum of each value in the row by the sum of criteria (e.g. $0.40+0.31+0.71+0.032+0.013 = 1.46$ (See Table 11).

Table 11. Verification of the realised choice

Criteria weight	Wight sum value	WSV/WC
0,40	0,50	1,46
0,30	0,42	1,30
0,20	0,22	1,12
0,08	0,07	0,83
0,07	0,04	0,55
Sum		5.26

WSV: Wight sum value; WC: Wight sum

$$\lambda_{\max} = 5,26, IC = \frac{(\lambda_{\max} - n)}{n} = \frac{5.26-5}{4} = 0,065$$

In the decision-making process, Λ signifies the maximum value in the pairwise comparisons matrix, while n represents the number of elements under consideration. The consistency ratio is determined by dividing the Consistency Index (CI) by the Random Index (RI). For a scenario involving 5 criteria, Saaty's standard table designates the Random Index as "1.12" (as seen in Table 29), providing a benchmark for assessing the consistency of the decision matrix. Consistency ratio = $0,065/1,12 = 0,006 < 0, 10$ (See Table 29). Hence, the matrix is *reasonably consistent* (Saaty's Random Index). The (Table 12) below illustrates the ranking of the five criteria selected before according to their weights.

Table 12. Criteria weight ranking result

Ranking	The criterias weight ranking	Criteria weight result
1	<i>Originality</i>	0,4
2	<i>Feasibility</i>	0,3
3	<i>Competitors</i>	0,2
4	<i>Product image</i>	0,08
5	<i>Usability (Enduring)</i>	0,07

4.8. Experts screening and evaluation

Experts often have to make hard decisions, and the team must constantly evaluate what idea or prototype to move forward. Every time a decision is made, the risk increases. No matter how much data was accumulated or how much research was done, something will be missed. What is important is the development of a language of justification; whether the idea has succeeded or failed, we need to be able to let others know why we choose one path over another. Likewise, the next stage after calculating the weight of criteria is the evaluation of the 48 ideas that we generated in the antecedent step with the intervention of experts which we consider mandatory. Consequently, the main points included in the (Table 13) of weighted multi-criteria analysis with the evaluation of experts are as follow:

Table 13. Weighted multicriteria analysis and decision making evaluation

EXPERT N°1
Weighted multi criteria analysis and decision making
IDEA 1 : Fascinating fresh paper

CRITERIAS	W	G 3P	M 2P	W 1P	TSW
<i>Originality of the idea</i>	0,4		2		0,8
<i>Feasibility of the idea</i>	0,3	3			0,9
<i>Competitors</i>	0,2			1	0,2
<i>Product image</i>	0,08		2		0,16
<i>Usability of the idea</i>	0,07		2		0,14
		<i>W : Weight / TSW : Total weighted score</i>			2,2

4.9. The choice of criteria (Go or Not Go)

The average (mean) and standard deviation (SD) are calculated by opting for a simple solution, which consists in calculating the average value and the standard deviation of the total weighted scores attributed by each expert participating in the evaluation of the ideas. Accordingly, (Table 13) above shows that the data is concentrated and characterized by small standard deviation which means that the value in the statistical data set, is close to the mean of the data set on average.

As it's illustrated, ideas "8; 12; 42; 48" have an average score higher than 2.5 but they didn't pass because they don't fit the objective of the Company G-Profood. In total 15 ideas were chosen with a simple decision made by experts: >2.50 => GO, <2.50 => NOT GO. Each expert chose five (5) ideas which seem interesting, before making the last decision of selecting only one idea. Accordingly, idea '14' scored better on average (3.08) plus it has a small standard deviation of (0.12) which indicates that the concentrated data is around the mean; the more concentrated, the smaller the standard deviation. Hence, this analysis fit well with the objective of the filtration.

4.10. Materialization of the new product development 'Concept development'

The activity that has passed the first filtering and reaches the third stage which is the materialization of the new product, is developed in a way to give a true picture of the product concept most wanted. The concept achieves this stage with a low level of development (lack of details) about the features needed to materialize the product expected to be launched if the concept reach to overcome the second filtering.

4.11. Value proposition and segment market of the new product development

4.11.1. Positioning and marketing mix

The total positioning of a brand is called a value proposition, that is, the complete mix of benefits with which the brand differentiates and position itself. Positioning has come to mean the process by which the company tries to create awareness and positioning in the minds of their target market for its product. Marketing mix- 4P is the most tangible and the most flexible tool to create the desired positioning.

4.11.2. Mapping the market

Mapping the market involves identifying and staking out the most relevant customer segments. It enables us to establish and potentially control how the product is viewed in terms of provided benefit (the advantage conveyed by the product to the target customer based on his compelling reason to buy) and differentiation (the singling out of the one element that creates a benefit and makes the Company a unique in the marketplace). Accordingly, we are positioning the product desired by the company with two unique features: *Benefit (value)*: economically viable source of high nutrients and *differentiation*: environmentally sustainable sound.

4.11.3. Materialization of the activity: Product design development and brand design description

The brand is the perceived emotional corporate image as a whole of a specific product that consumers connect with, by identifying the name, logo, slogan or design of the company which owns the idea. The logo is a symbol of G-Profood identity; it creates the customer first impression about the company. The logo formed and the colors used tries to send a significant message to customers about the considerable values of the company and it reflects the brand impression by giving a sign of more professional image for G-Profood. The brand "G-Profood" is crafted with

thoughtful symbolism. "G" stands for "Green," signifying the purity of its ingredients. "Profood" embodies the company's professionalism, emphasizing the high quality of its products.

The use of green color conveys a connection to nature and sustainability, while red represents energy and strength. Yellow is chosen to evoke feelings of freshness and remembrance. Together, these elements create a brand identity that aligns with the company's values and product characteristics. Company's slogan is "Go green ... High protein" The function of the company's slogan is to get across the new product identity in a way that positions the brand in the minds of consumers.



Figure. 2. Monochrome and logo design of the Company

4.11.4. New product development packaging

Labeling is the written information about the product on the package (calculated by the help of expert (nº2) specialised in food processing). The written labels on the package cover important information about the NPD which needs to be communicated to a customer such as the nutritional value contained in "100 grams" and the basic ingredients used.



Figure. 3. Labelling of the NPD

Table 14. Nutrition facts content per "100 g" edible portion in beef, chicken and cricket

Daily value	Energy Kcal 2000	Protein (g)	Nutrient content per 100g edible portion		
			Fat (g)	Saturated fat (g)	Sodium (mg)
Beef (100 g)	169	43	9,9	3,8	60
Chicken (100 g)	150	31	7,2	1,81	80
Cricket (100 g)	153	69	5,06	2,28	152

Source: (FAO, 2018)

4.11.5. Prototype for the new product development

The prototype helps to create a photorealistic image about the product desired and see approximately how a physical version of the design packaging will look like. Since the company G-Profood knows its target customers, considering how to package the new product development for launch success is a crucial decision.

Below are four (4) different product designs created by the company G-Profood with the help of its designers, demonstrated in (Fig 3 and Fig 4) successively.



Figure.4.Design model packaging



Figure. 5. Design mockup of the NPD

4.11.6 Sketch concept decision for the new product development

Designing a beautiful package is not sufficient to make the final decision choice, for that, consulting expert team to guarantee the perfect packaging design is essential. Expert team nominated the model n°1 (See Fig 5, Fig 6 and Fig 7) consecutively. Without reliefs and with reliefs (engraving decorative).



Figure. 6. Design decision of the NPD
 “Cheese boosting vitamins”
 “Model 1” without reliefs



Figure. 7. Design decision of the NPD
 “Cheese boosting vitamins”
 “Model 1” without reliefs

4.11.7. Financial budget estimation for the new production development

In first instance, knowing the elaboration costs for the dairy base process of the new product development ‘cheese boosting vitamins’ of type “Gouda” made by using the best quality milk of *type Holstein*, as its shown in (Table 15).

Table 15. Variable costs of cheese base processing «Type Gouda»

Dairy cheese base		Unit cost
Raw material & materials		
Sodium hydroxide		0,0135
Phenolphthalien		0,0151
Calcium chloride		0,0161
Sifters canvases		0,53
Milk of Holstein (Its)		0,57
Enzymes (Milk rennet)		0,014
Perservatives (Sodium sorbate)		0,0122
Water (Its)		0,01
Variable cost per unit		1,18 €

*According to (USDA-AIPL, 2017), milk of Holstein contains: FAT: 3.65 %, Protein : 3.07 %, F.P : 1.19

Additionally, the cost of packaging material (based on the production quantity) has been considered, as shown in the following (Table 16).

Table 16. Variable costs of the packaging material for the NPD

Packaging material	Unit cost
Transparent cellophane film for cheese 60cm * 120m	0,010
Natural honey bee wax (3g)	0,032
Food coloring	0,0069
Identification paper label (etiquette)	0.0189
Variable cost per unit	0,06 €

Considering all the charges mentioned above, which are part of the production cost of the new product “cheese boosting vitamins” the total variable unit cost is determined in (Table 17) below.

Table 17. Total variable cost per unit for the NPD

Cheese boosting vitamins “NPD”	Total variable cost per unit
Dairy base processing of the new product	1,18
Ingredients and flavor of the new product	0,36
Packaging material of the new product	0,06
Total variable cost per unit	1,60 €

For the implementation of the desired new product development, it's also indispensable to consider the calculation of fixed costs, including the creation and registration of the company, equipment and machinery requirements, employees and advertising that will contribute to the development of marketing plan strategy. (Table 18) below shows the necessary costs needed for the constitution registration of the business and renting of the local in the place chosen.

Table 18. Constitution and registration of the Company

Constitution and registration of the company		300,00
Notary fees	150,00	
Registration fees	150,00	
Local renting	275,00	3360,00
Water, electricity, internet	100	1080
Other administration charges		300
Printer, desk, other material	300	300
Total fixed cost		5340,00 €

The company G-Profood, needs an industrial 3D food printer for designing the packaging of the new product development, note that the fixed cost of the machine is illustrated in (Table 19) below.

Table 19. Fixed costs for Machines

Packaging manufacturing machine	Unit	Cost
Pro. Commercial food printer	1	3503,00
Fixed cost per year		3503,00 €

The working capital needed for the company G-Profood is limited to three employees, an administrator assistant with part time job and a technician operator in charge of the packaging machine with limited timing, plus, a

freelancer digital marketer designer which are mentioned in the summary table of capital working salaries of the first year planned for five months (See Table 20) *First year starting from month 6th.

Table 20. Fixed costs for employees

Employees	Number	Annual salary
Administrator (Part time)	1	2050,00
Technician operator (Part time)	1	3200,00
Digital marketer designer (Freelancer)	1	3500,00
Total cost per year	3	8750,00 €

Source: (Own elaboration)

The promotion campaign which the enterprise will carry out during the first year will be divided into two types of advertising. Digital advertising. Traditional (offline) advertising. The costs of publicity are revealed in the (Table 21).

Table 21. Store renting for the new product

Marketing and advertising	Cost / month	Cost / year
Local renting	390,00	4680,00
Commercial registration		300,00
Sanitary registration and other charges		410,00
Bills (Water and electricity)	80,00	960,00
Industrial Freezer	600,00	600,00
Total cost per year		6950,00 €

Table 22 .Fixed costs for marketing

Marketing and advertising	Cost / year
[Design]	
⇒ Logo of the Company	1300,00€
⇒ Website creation	
⇒ Products design	
[Outdoor advertising]	
⇒ National billboard type Static	16480,00€
⇒ Bus advertising type digital	
⇒ Bus stop & shelter advertising	
[Online advertising and digital marketing]	
⇒ Adwords & application development	
⇒ Storytelling, content creation	
⇒ Catalog creation	
⇒ Youtube channel videos	
⇒ Facebook fan page	19299,00€
⇒ Other social media network (Twitter, linkedIn)	
⇒ Using influencers and bloggers	
[Store renting]	
⇒ Product testing through events organization	
⇒ For product selling	6950,00€
[Other charges]	
⇒ Decorative packaging material	2000,00€
⇒ Printing material	
Total cost per year	46029,00 €

Table 23. Total fixed costs per year for the NPD

	Total fixed costs / year
Creation and registration of the company	53640,00
Material & machines	3503,00
Employees	8750,00
Advertising	46029,00
Total fixed costs / year	63742,00 €

To estimate the population of athletes in the identified segment according to INE (2018), Ministerio de Cultura y Deporte - Consejo Superior de Deportes, O.A., a national data was required to extrapolate the statistical number of Spanish athletes who practice sport regularly during the week; the segment is exposed in (Fig 8).

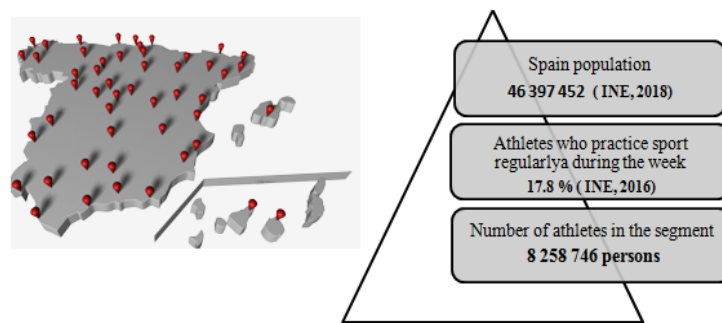


Figure 8. Segment identification of athletes

The statistical national data regarding the number of athletes in the segment is large to make a proper estimation about how many people are really in the target segment (looking for the minimum credible value); therefore, searching for a sub segment that can lead to accurate number is crucial. According to Spanish ministry of agriculture food and environment, the percentage of athletes who purchase regularly energetic products with high proteins is estimated to 10.8% [32]. From this statistical proportion, we can forecast the sales concerning “Cheese boosting vitamins”, as its refers in (Fig 9).

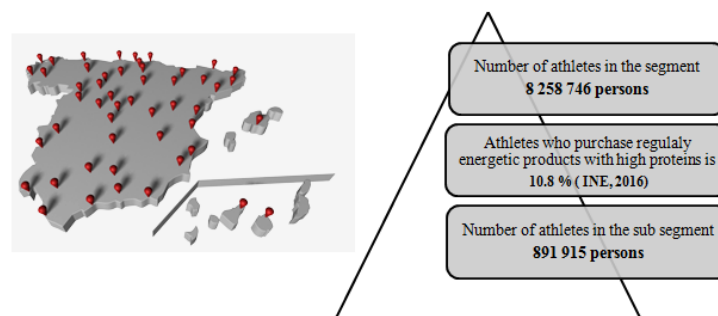


Figure 9. Sub-segment identification of athletes

Forecasting of sales for the new product development is analyzed through the establishment of two scenarios: Normal scenario and Pessimistic scenario.

1. Normal scenario

H1. The experts estimated that 3% of people in the target segment will buy the new product.
Number of buyers is: $891915 * 0.03 = 26\ 757$ Persons.

By multiplying the estimated repeat purchased units by the probability of repeat purchases, it’s feasible to find possible additional units (cheeses) for the sales forecast. For that reason, experts decided to estimate the percentage of people buying more than one cheese, in another way the probability that each person will buy 3 cheeses per month (15 units per 5 months / year). During the first six (6) months, the company G-Profood will not sell the product, *the launch start from the end of July of the first year.* The business should start slowly and surely, because

the fast growth can be unsupportable, so, taking a careful time to put a plan without missing details before releasing the new product is a huge step (expert's team tactic).

The strategy of not launching the product from the beginning of the year is related to the fact that the new product needs more time to priorities the channel selection and get feedback from it. This way, can help to position the new product as a significant innovation. More specifically, it's about giving more time to choose the promotion and e-advertising channels that work the best.

- *Total cost per unit (TC/u)*

The cost per unit is derived from the variable and fixed costs incurred by a production process, divided by the number of units produced. It's given by the formula below.

$$TC_u = VC_u + \frac{FC_{assigned}}{Sales}$$

Where; TC_u : Total Cost/ unit (€)

and VC_u : Variable Cost/ unit (€), $TC_u = 1.60 + \frac{63472}{401355} = 1.60 + 0.16$

$TC_u = 1.76$ Euros

- *Retail price calculation (RP)*

The retail price (RP) is the total price charged for a product sold to a customer, which includes the manufacturer's cost plus a retail markup. It's obtained under the formula below.

$$Retail\ price = \frac{TC_u}{(1-m)}$$

Where; m : Profit margin

$RP = 1.601 - 0.25 = 2.35$ Euros.

Profit margin is one of the commonly used effectiveness ratios to gauge profitability of a business activity. It represents how much percentage of sales has turned into profits. Assuming that, the Company G-Profood wants to obtain a margin of 25%, this means that for every euro invested, the company earns 25 centimes.

The Food Marketing Institute reports that profit margin in food industry has rarely risen above 30 percent due to high competition and the recommended margin range values for a new product development used in practice is between 20 to 30 percent [32]. For instance, assuming the business reports that it will achieve 25 percent profit, it means that for each euro of sales that will be generated, the company G-Profood earns a net income of 0.25€.

- *Benefit calculation (B)*

The profit is the benefit quantified in terms of the amount of money generated and known by the formula written below.

$$Profit = (Price - VC_u) * Sales - Fixed\ costs\ assigned$$

$$Profit = (Price - VC_u) * Q - Fixed\ costs\ assigned$$

$$Profit = (2.35 - 1.60) * 401355 - 63742$$

$$Profit = 237544.25\ Euros.$$

2. Pessimistic scenario

Similar process for the calculation of the pessimistic scenario was maintained. But in this case the experts supposed to have two hypotheses (H1) and (H2). The experts estimated that 5% of people in the target segment will buy the new product.

*Number of buyers is: $891915 * 0.05 = 44596$ Persons.*

H1. The probability with 5% that each person will may buy 1 unit of cheese per month (12 units per year).
*Number of cheese units per year is: $44596 * 0.05 * 12 = 26758$ Units.*

H2. The probability with 5% that each person will may buy 2 units of cheese per month (24 units per year).
*Number of cheese units per year is: $44596 * 0.05 * 24 = 53515$ Units.*

Then, the sum of:

Hypothesis (1) + hypothesis (2) = 26758+ 53515 = 80 273 Units.

- Total cost per unit calculation (TC / Unit)

$$TC_u = VC_u + \frac{FC_{assigned}}{Sales}$$

$$TC_u = 1.60 + \frac{63742}{82073} = 1.60 + 0.77, TC_u = 2.37 \text{ Euros.}$$

- Retail price calculation (RP)

$$\text{Retail price} = \frac{TC_u}{(1-m)}$$

$$RP = \frac{2.37}{(1 - 0.25)} = 3.15 \text{ Euros.}$$

In this Scenario as well, the company G-Profood assumes 25% of margin. This percentage indicates that, the business is managing to generate profits worth of 25 cents for every euro worth of sale. Consequently, in both scenarios, it becomes a fine balancing act for the business operators to adjust pricing, volume and cost controls.

- Benefit calculation (B)

$$\text{Profit} = (\text{Price} - VC_u) * \text{Sales} - \text{Fixed costs assigned}$$

$$\text{Profit} = (\text{Price} - VC_u) * Q - \text{Fixed costs assigned}$$

$$\text{Profit} = (3.15 - 1.60) * 80273 - 63477$$

$$\text{Profit} = 60\ 946.15 \text{ Euros.}$$

The Summary of the first year forecasting price and sales strategy for the new product development “cheese boosting vitamins” is described in (Table 24).

Table 24. Summary of the 1st year forecasting strategy for the NPD

Target segment	Number of people in the segment	Sales €/ year (Production)	Number of units they will buy (cheeses)	Probability they will buy (%)	Retail price for one unit of (250) gm	Benefit €/year
Normal Scenario	891 915	401355 €	3 units / month 15 units / 5 months	3%	Margin 25 % 2.35 €	237 544,25 €
Pessimist Scenario	891 915	80 273 €	H1: 1 units / month 12 units / year H2 : 2 units / year 24 units / year	5%	Margin 25 % 3.15 €	60 946,15 €

Experts decision / Source: (Made by the author)

- Promotion

The purpose of the following promotion plan used by the company G-Profood to launch its new product composed of two parts “online advertising and offline advertising”, as it was indicated before to have a wide range of purposes, including sales increases, new product acceptance and creation of brand equity.

- Business Website of the Company G-Profood

Have a good image presentation and consistent website with smart and organized design is very important for the company G-Profood, the website created is defining what information users will see when they arrive at the pages of the website and make sure it’s attractive platform to generate important sales (Fig 10).



Figure. 10. Website capture of the company G-Profood



Figure. 11. Screen capture of the Company G-Profood Website
Source: (Own elaboration)

- *Social media networking*

G-Profood company is using Facebook, Twitter, LinkedIn, Instagram and YouTube to create possible videos and specific advertisement by promoting messages and contents to interact with consumers with the purpose of creating a worthy discussion (Fig 12).



Figure. 12. Facebook fan page for G-Profood Company

- *Application android in play store for the company G-Profood*

It is important to provide a level of value to the clients. For that, building an application is very important for the company G-Profood since it helps to enhance the accessibility of the NPD and increase customer loyalty, as well mobile app offers a great way to reward an add value to consumers as its illustrated through (Fig 13).



Figure. 13. Application android for G-Profood Company

- *Google AdWords: Search Engine Marketing*

Google AdWords (Fig 14) is a very popular form of advertising currently. This service has a big advantage which allows the company to be in the top positions in Google by getting more traffic for the online store and helps to increase sales. Place ads in online magazines for athletes and sports amateurs, nutrition sites, Social media, La Tienda.com, iberianfoods.esp.

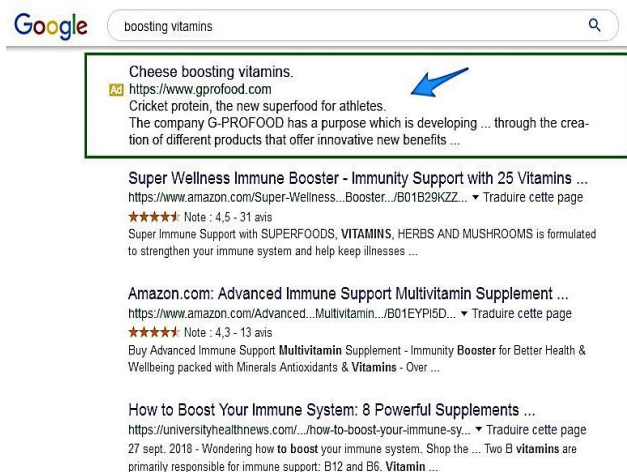


Figure. 14. Google Adwords script for G-Profood Company

- *Product catalog for the NPD “Cheese boosting vitamins”*

Most people nowadays prefer to read printed catalogs while searching for products online. Hence, creating an ad campaign with a product catalog by offering them a deep description about the value added of the new product can yield to higher profits (See Fig 15).



Figure. 15. Product catalog for the NPD

- *Storytelling content and video advertising for the NPD*

With YouTube ads (Fig 16) and storytelling messages (Fig 17), we can reach potential customers and have them take action when customers watch or search for videos on YouTube.



Figure. 16. Video advertising about the NPD in Youtube channel

- *New product development trial: “Offline advertising”*

Have a booth as its shown in (Fig 51) at amateur sports events in different communities around Spain, this can help to offer free trials to taste the cheese. Organising occasional events by using [Eventbrite.es](https://www.eventbrite.es) platform to invite and attract new people who are interested to test the new product for free; this is another way to interact with customers and improve the reputation of the company G-Profood.

- *New product development trial: “Modern advertising”*

The company G-Profood will use an outdoor advertising as a broad term to reach consumers outside of home by using billboard advertising in the big streets, plus, the use of bus stations as its illustrated in the following (Fig 16, Fig 17 and Fig 18) successively.



Figure. 17. Street Billboard advertising



Figure. 18. Outdoor advertising display in bus station

In addition, the use of advertising panels by using buses that will be spread around different Spanish communities to promote the new product development, see (Fig 19).



Figure. 19. Bus advertising campaign

- *Sales promotion incentives by the Company G-Profood*

G-Profood company will facilitate payment methods as it's shown in (Fig 20); the principle is to accept all kind of payment methods such as credit card and PayPal, this tactic regarding sales promotion will help the company to catch the attention of other consumers.

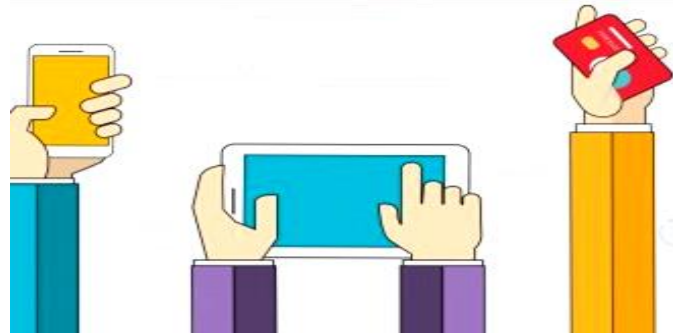


Figure. 20. Offer payment facilities for customers

- *Make bundles and packaging design with the new product*

Launch the same product with identical price but with new design (See Fig 21) to attract consumers and increase sales, people will have the choice to buy the product with the packaging desired, and this promotion tactic will help the company to generate more sales.



Figure. 21. Bundles & packaging bag design for the NPD

- *Place*

Place refers to the distribution and accessible location to target customers. The company G-Profood is focusing on both direct selling as a good starting point in its distribution channel strategy, the advantage of selling the product directly is the ability to get more personal feel of the direct market because of the strong interaction with consumers and e-selling that can be easily adaptable to control the product pricing and the production quantity on which it should be sold.

- *Economic evaluation ‘Second filtering’*

Calculating the NPV for the normal and pessimistic scenarios: NPV is used in capital budgeting and investment planning to analyze *the profitability of the projected investment by the company* and it compares the present value of money today to the present value of money in the future taking inflation and returns into account. In other side, it’s the difference between the present value of cash inflows and the present value of cash outflows over a period of time.

The following formula is used to calculate NPV:

$$NPV = \sum_{t=0}^n \frac{CF_t}{(1+r)^t}$$

Where:

CF_t= cashflow infutureperiod

n = number of periods (years)

r = the periodic rate of return or interest (also called the discount rate or the required rate of return)

NPV > 0, the investment will be accepted, NPV < 0, the investment will be rejected.

- *Net present value “Time of the cash flow”*

In order to cover all the effort and risk that will go into launching a good; defining the years of life for the new product development is compulsory. The Company G-Profood, decided to go through the product life cycle stages as any new product development which is *advisable to use 4-5 years* (Rouse, 2016).

- *Net Present Value “Discount Rate”*

The company estimates the future cash flows of the project and discounts them into present value amounts using a *discount rate of 4%* which represents the project cost of capital and its risk. Not that, the most desirable percentage used as a discount rate for a new product development is between *4 to 8 %* in the case the initial investment is equal to zero. In Spain, loans from traditional lenders, such as banks or credit unions, can have annual percentage rates (APRs) ranging from *4% to 13%* [33].

As a part of the company strategy, the NPV and IRR are calculated and analyzed by using both scenarios: *“Normal Scenario” and “Pessimistic Scenario”*. That is, in this second filtering, it is advisable to use both situations: the normal case and the pessimistic case that tries to answer the question 'if the normal scenario cannot be achievable? What is the worst thing that could happen to this activity? It would simply be a question now of recalculating the NPV and IRR values of benefits concerning the new scenario. This is the assumption that has been raised (where the sales for the pessimistic scenario have been considered lower than the initials of the normal scenario).

Is the scenario where the company has a high probability of occurrence; therefore it turns out to be the most probable and realistic scenario for the life of the new product development (Table 25, Fig 22).

Table 25. NPV & IRR calculation for the Normal scenario

	AÑO 0	AÑO 1	AÑO 2	AÑO 3	AÑO 4	AÑO 5
<i>Initial investment</i>	-					
<i>Unit sale price €</i>		2,35 €	2,35 €	2,55 €	2,55 €	2,67 €
<i>Unit variable costs €</i>		1,60 €	1,80 €	2,00 €	2,10 €	2,20 €
<i>Expected sales units</i>		401 355,00	521 762,00	626 144,00	563 529,00	450 823,00
<i>Fixed costs assigned Product €</i>		63472,00 €	65 607,00 €	68 677,00 €	70 767,00 €	73 877,00 €
<i>Annual benefits €</i>		237 544,25 €	221 362,10 €	275 702,20 €	182 821,05 €	138 009,81 €
<i>ACTUALIZED BENEFITS €</i>	0,04	237 544,25 €	212 848,17 €	254 902,18 €	162 527,25 €	117 971,36 €
<i>Discount Rate %</i>						
<i>Accumulated actualized benefits €</i>		237 544,25 €	450 392,42 €	705 294,61 €	867 821,85 €	985 793,22 €

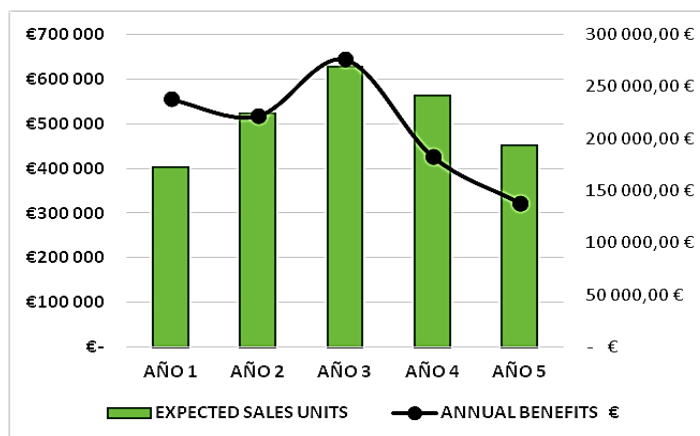


Figure 22: Expected sales & benefits from Normal Scenario

The second scenario aims to quantify the worst result that could be given for this activity, being desirable to use the definition of the 2nd scenario associated with a modification of *one single variable (expected sales)*, which also allows to estimate the sensitivity of the solution (NPV+IRR) to this variable. This situation is an alternative hypothesis which tries to describe for G-Profood company the worst realistic situation that could happen, this approach could help a lot in controlling the new product. As consequence, the company G-Profood should be ready for an alternative plan, where the expected sales are more aggressive than what is predictable to be in the normal scenario (Table 26, Fig 23).

Table 26. NPV & IRR Pessimistic scenario

	AÑO 0	AÑO 1	AÑO 2	AÑO 3	AÑO 4	AÑO 5
Initial investment	-					
Unit sale price €		2,35 €	2,35 €	2,55 €	2,55 €	2,67 €
Unit variable costs €		1,60 €	1,80 €	2,00 €	2,10 €	2,20 €
Expected sales units		191 121,00	248 456,00	273 302,00	245 971,00	227 343,00
Fixed costs assigned product €		63 742,00 €	65 607,00 €	68 677,00 €	70 767,00 €	73 877,00 €
Annual benefits €		79 598,75 €	71 043,80 €	81 639,10 €	39 919,95 €	32 974,21 €
Actualized benefits €	0,04	79 598,75 €	68 311,35 €	75 479,94 €	35 488,69 €	28 186,49 €
Discount rate %						
Accumulated actualized benefits		79 598,75 €	147 910,10 €	223 390,03 €	258 878,72 €	287 065,22 €

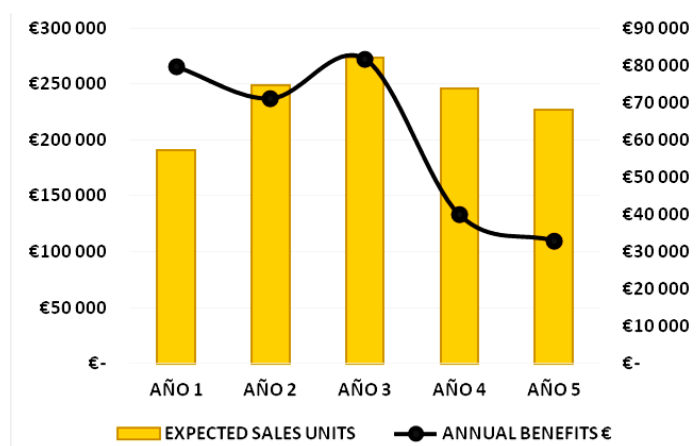


Figure 23: Expected sales & benefits from Pessimistic Scenario

- *Commercialisation*

The final stage in the new product development process of “cheese boosting vitamins” is *commercialization*. Test marketing has given the information needed to make the final decision: *launch the new product to the Spanish market*. In all of these steps of the new product development process, the most important focus is on creating superior customer value, only then; the product can become a success in the market. Merely very few products actually get the chance to become a success, since the risks and costs are simply too high to allow every product to pass each stage of the new product development process.

5. CONCLUSION

The conclusions drawn from the New Product Development process highlight its significance in meeting customer expectations and ensuring company growth and survival. The challenges throughout the product life cycle, such as changing marketing dynamics, customer preferences, and potential pitfalls in design and targeting, emphasize the need for a well-structured approach. The case study, focused on launching a new protein-rich cheese product named 'Cheese Boosting Vitamins,' underscores the importance of a thorough seven-step development process, encompassing idea generation, screening, materialization, economic evaluation, physical elaboration, testing, and final launch. The establishment of the brand "G-Profood" and a comprehensive marketing plan, particularly emphasizing digital strategies for an online international presence, is crucial. The post-launch phase, often underestimated, is highlighted as vital for understanding product acceptance and client satisfaction.

The methodology employed proves effective in risk reduction, though flexibility is advised for adaptation to specific cases. The involvement of skilled experts throughout the process is fundamental, requiring careful selection and engagement. Experimental control, though expensive and slow, is recommended for validating hypotheses and predicted values. Forecasting the specifications and sales values of new products is acknowledged as challenging, suggesting the use of multiple methods and scenario analysis. The difficulty in making qualitative and quantitative decisions during product development is emphasized. The overall strategy and outcomes indicate the importance of aligning product concepts with expert team coordination for efficient and timely development. The conclusions prompt reflection on the need for a conducive environment, marked by co-responsibility and adequate training, to foster innovation within the company.

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The Role of Retention of Borrowers and Female Managers in Microfinance Lending

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Abstract

The study analyzes the impact of borrower retention and female participation in management on the profitability and social outreach of microfinance institutions (MFIs). As lending institutions, MFIs face the risk of strategic default by borrowers due to asymmetric information. However, repeat borrowers can provide MFIs with the opportunity of updating information pertaining to the credit worthiness of borrowers. Hence, a higher retention rate of existing borrowers would enable MFIs to collect additional information about borrowers over time. High retention rate of borrowers would allow MFIs to benefit from a lower rate of default and better repayment rate. Microfinance primarily targets women borrowers with the goal of providing them with economic empowerment. Having women managers who understand the unique challenges and specific needs of female borrowers can lead to more effective and tailored loan products and financial services. In addition, diversity in leadership can better equip an MFI in the effective management of risk. As such, women managers can contribute to a more balanced risk assessment strategy in lending operation and foster a culture of social responsibility and ethical practice, which can lead to increased confidence in long-term financial sustainability by donors and investors. Using a panel of 1,055 MFIs over a period of nine years, this study provides empirical evidence of a positive effect of borrower retention on both profitability of MFIs and on their outreach. In addition, it so shows that a larger composition of female managers has a positive impact on both the financial performance and depth of outreach of MFIs.

Keywords: Borrower Retention, Female Managers, Microfinance, Outreach, Performance

1. INTRODUCTION

Microfinance finance institutions (MFIs) allocate relatively smaller loans to poor borrowers often without requiring any collateral assets. Due to asymmetric information, the MFI as a lender has to consider the risk of both involuntary and strategic default by the borrower. Repeat borrowing over time, provides the lender with an opportunity to update the initial limited information pertaining to the borrower's credit risk. Hence, a relatively higher retention rate of existing borrowers would gradually provide the lender with more information over time. On average, MFIs with a higher retention rate of borrowers should experience a lower rate of default and better repayment rate. In fact, this may allow the lender to be able to lend an even larger amount of loan to its existing borrowers. This implies that a higher rate of retention of borrowers would result in better profit margin rate and as such better financial performance of the MFI. In the context of

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credit risk, credit history and reliable repayment record can play an important role in mitigating the problem of asymmetric information. For example, financial institutions disburse smaller loans and gradually increase the loan size for borrowers that repay in a timely manner. Hence, MFIs would continue to retain past borrowers with excellent credit history. In other words, the retention rate of borrowers would be a good indicator of an MFI's repayment rate. Borrowers with excellent credit may still choose to borrow from a competing local MFI or may graduate to borrowing larger loans from formal financial institutions.

The retention rate is a measure of the proportion of borrowers who continue to remain active borrowers in the following year. In the case of retention after loan repayment, it indicates that the MFI considers the borrower in good standing and the borrower prefers to continue borrowing from the same MFI. A higher retention rate generally leads to increased profits for a MFI, as more borrowers repay their loans, and it can continue to lend to retained borrowers and new borrowers. Furthermore, a high retention rate may also indicate a lower risk of default, which can help to lower the overall costs of lending.

There are several benefits for borrowers who borrow repeatedly from the same bank. One benefit is that the bank may be more willing to offer favorable loan terms, such as lower interest rates or higher loan amounts, to repeat customers. Additionally, repeat customers may be able to take advantage of loyalty or rewards programs offered by the bank, which can help to reduce the cost of borrowing. Repeat customers also may have established trust and a good relationship with the bank, which can make the loan application process quicker and more efficient. Furthermore, having a good record of repaying loans on time with the bank can help to improve the borrower's credit score and make it easier for them to obtain financing in the future.

There is a negative correlation between retention and credit risk, as borrowers who continue to use services of the same MFI are less likely to default on their loans or miss payments in comparison to first time borrowers. Lending institutions consider borrowers who have a history of borrowing and repaying on time with lower credit risk. Additionally, lenders can use the information from these borrowers to improve their underwriting process and assess credit risk more accurately. This can be beneficial for lenders in terms of managing credit risk.

When higher retention is the result of lack of competition, it is possible for higher retention to augment profitability it may not improve the welfare of the borrower. In this study, the primary focus is how borrower retention rate affects the profitability of an MFI.

Research has shown that the presence of female managers in MFIs results in a positive impact on the efficiency of these organizations. MFIs with a higher proportion of female managers had lower administrative costs and higher portfolio growth rates. This suggests that female managers may be more effective at managing resources and growing the business. Additionally, women tend to be more risk-averse than men are, and this trait can be beneficial in the microfinance industry where credit risk is a key concern. Female managers may be more likely to adopt conservative lending practices, which can help to reduce the risk of loan defaults and improve the overall financial performance of the MFI. Furthermore, having a diverse management team can also help MFIs better serve their clients, as female managers may be more in tune with the needs and challenges of female borrowers, who constitute a large percentage of microfinance clients.

Female managers are in a unique position to cater to the needs of microfinance borrowers since almost two-thirds of all borrowers are female. Some past studies have argued that female managers pursue a conservative credit strategy that mitigates the credit risk of MFIs. While MFIs have always had a substantial female representation in its staff and among loan officers, the rise in the proportion of female managers a more recent phenomenon. Female managers can effectively influence policy decisions in addition to being aware of the needs of female borrowers. Hence, the composition of female managers can have a positive effect on the financial performance of MFIs.

2. LITERATURE REVIEW

In a comprehensive survey spanning more than two dozen industries, Dawkins and Reichheld (1990) discovered that a mere five percent boost in customer retention could translate to profit increases ranging from 25 to 80 percent. Reichheld and Dawkins (1996) are renowned for their research on the advantages of customer retention. They contend that retaining clients is more cost-effective than acquiring new ones, and it results in a more consistent revenue stream, lower operational expenses, and increased revenue from existing clients. According to Heskett et al (1999) Research has demonstrated that maintaining an existing customer and fostering an ongoing relationship can be as much as ten times more cost-effective than acquiring a new one. Therefore, it is advisable to direct efforts and allocate resources toward customer retention, with the aim of reducing customer attrition.

Gupta and Zeithaml (2006) discovered that customer acquisition, customer margin, and customer retention are pivotal factors contributing to a company's growth and overall profitability. According to Rhyne (2011), client retention rates serve as a practical quantitative measure for MFIs to monitor their social performance. For quite some time, practitioners have held the belief that a high client retention rate is a sign of a thriving microcredit program. Undoubtedly, from a business standpoint, this holds true. Higher client retention leads to reduced administrative expenses, as loan officers swiftly process loan renewals and spend less time on client recruitment. Furthermore, client retention also serves as a positive social gauge when it indicates that clients are content with the services and are benefiting from their borrowing experience. This is why client retention is included as one of the quantitative metrics in assessing Social Performance.

Clients who are content with the services offered by their MFIs may have no reason to shift their financial dealings to another institution, except if they happen to fall within the minority of microbusinesses that expand into small and medium-sized enterprises necessitating commercial financial services (Ahlin et al., 2010). Stewart et al. (2010) present evidence from Sub-Saharan Africa that highlights a concerning pattern: the advantages of micro-credit seem to diminish, and in some cases even turn negative, as clients remain enrolled in a program for an extended period. They argue that the continued participation in a microcredit program is beneficial primarily for clients who can use the credit to enhance their income, particularly through business expansion. However, if clients primarily use credit for consumption, over time, they may find themselves trapped in chronic debt dependence, with an increasing portion of their income going toward loan repayment.

Mia, Pellegrina, and Wong (2022) identified empirical evidence suggesting that female managers and loan officers might have a somewhat adverse impact on the financial performance of MFIs. However, it is important to note that the empirical support for this finding is somewhat limited. Strøm, D'Espallier, and Mersland (2014) contend that the presence of female leadership in MFIs leads to improved financial performance.

3. DATA AND VARIABLES

The research employs an unbalanced panel consisting of 1055 Microfinance Institutions (MFIs) across 101 countries, covering the period from 2010 to 2018, with 2,960 observations. The source of all the variables utilized in the study is MIX Market, which is publicly accessible through the World Bank Data Catalogue. MIX Market curates a comprehensive database containing financial and outreach information for a majority of the world's MFIs. It is noteworthy that all monetary variables considered in this study are in US dollars.

This research adopts the profit margin rate as the metric for assessing financial performance, aligning with the approach of Quayes (2012, 2015) and Quayes and Hasan (2014). These scholars have employed three distinct indicators of financial performance, with profit margin rate defined as the ratio of net operating income to total financial revenue.

Retention rate is the ratio of the number of active borrowers at the end of the reporting period to the total of active borrowers at the beginning of the reporting period and new borrowers during the reporting period. The percentage of previous year's borrowers that continue to receive loan in the current year largely determines the retention rate. While some previous borrowers may not seek loans because they either do not require a loan or have decided to borrow from a different source, we can easily argue that an MFI would allocate new loans only to borrowers that have had good repayment rates. The retention rate also reflects the borrowers who are still repaying their existing loans. The other factors affecting retention notwithstanding, a larger retention rate indicates a higher composition of borrows with good repayment rate. Hence, a higher retention rate is likely to have a positive association with profitability.

Female management rate the proportion of managers who are female. First, arguably gender diversity in management increases management efficiency and results in better financial performance. In the context of microfinance, female managers can play a crucial role since a large majority of borrowers is females themselves. In addition to enhancing the loan portfolio choices for female borrowers and facilitating better coordination and monitoring of female borrowers, female managers can also play a significant role in lowering credit risk. Hence, a higher composition of female managers can reduce cost and increase the profitability of MFIs. Following similar logic, we can expect a larger composition of female loans officer to have a positive effect on financial performance.

If MFIs exhibit economies of scale, the financial performance will have a positive correlation with the size of the firm, measured by the gross loan portfolio (GLP). Core, Holthausen, and Larcker (1999), along with Core, Guay, and Rusticus (2006), as well as Quayes (2012, 2015) and Quayes and Hasan (2014), assert that the size of a firm plays a crucial role in determining its performance. Hartaska (2005) and Mersland and Strom (2009) have utilized size to explain variability in financial performance.

Quayes and Hasan (2014) demonstrate that an increase in the total expense ratio (TER) negatively affects the profitability of a firm. In another approach, Mersland and Strom (2009) employ the proportion of the portfolio with over 30 days in arrears as a proxy for portfolio risk. As for Cost per borrower (CPB), we can expect it to have a negative effect on profitability.

Table 1. Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Profit Margin Rate	0.1100	0.2044	-0.9878	1
Gross Loan Portfolio	83,981,070	280,459,493	1979	6,911,691,994
Total Expense Ratio	0.2387	0.1231	0	0.9722
Cost per Borrower	266.3789	485.0796	0	11145
Average Loan Balance	1,887	4,048	2	102,250
Female Borrowers	0.6414	0.2563	0	1
Retention Rate	0.7605	0.1400	0	1
Female Managers	0.3565	0.2862	0	1
Female Loan Officers	0.3792	0.2817	0	1
Sample Size	2,924			

The average loan balance per borrower reflects the size of loans disbursed by an MFI at the time of origination. A lower average loan balance suggests the distribution of smaller loans, indicating greater depth of outreach. Given the inclusion of data from numerous countries in the sample, the normalization for income variation across countries is achieved by using the ratio of average loan balance per borrower to the gross national income per capita (ALB). While smaller loans can lead to higher costs per dollar of disbursed loans, potentially affecting an MFI's profitability negatively. However, if borrowers with small loans demonstrate a superior repayment rate, it can positively influence profitability. In this scenario, an improved repayment record from small borrowers, offsetting the higher administrative expenses associated with smaller loans, can lead to increased profitability through an expanded outreach. Weber (2013) emphasizes the significance of evaluating the impact of microfinance in relation to social return on investment, urging a perspective that goes beyond merely scrutinizing the outcomes in isolation.

Building on the findings of Quayes (2012, 2015), and Abdullah and Quayes (2016), which demonstrated a detrimental impact of rising average loan balances on financial performance, our approach involves employing average loan balance as a metric for assessing social outcomes. Contrary to the notion that a focus on financial performance by conflicts with outreach objectives, Daher and Le Saout (2013) argue that such an emphasis does not entail a tradeoff.

Most MFIs are profitable and the average profit margin rate across the sample of 1055 MFIs is approximately eleven percent. On an average, sixty percent of the borrowers in this sample of MFIs are female borrowers, and female managers account for thirty six percent of the total management and female loan-officers account for thirty eight percent of the loan officers. The MFIs in this sample enjoy a high retention rate; the average retention rate is seventy-six percent.

4. EMPIRICAL MODEL AND RESULTS

I estimate the following equation using panel regression models to test three hypotheses:

$$PMR_{it} = \alpha_i + \beta_1 GLP_{it} + \beta_2 TER_{it} + \beta_3 CPB_{it} + \beta_4 ALB_{it} + \beta_5 WBR_{it} + \beta_6 RET_{it} + \beta_7 FMG_{it} + \beta_8 FLO_{it} + \varepsilon_{it} \quad (1)$$

where, PMR = Profit margin rate

GLP = Log of gross loan portfolio

TER = Total expense ratio

CPB = Log of Cost per borrower

ALB = Log of average loan balance per borrower divided by per capital GNI

WBR = Proportion of Female Borrowers

RET = Retention rate

FMG = Proportion of female managers

FLO = Proportion of female loan officers

The results reported in table 2 show increasing returns to scale, as the estimated coefficient of gross loan portfolio is positive and statistically significant at the five percent level.

The estimated coefficient of retention rate is 0.1025 and it is statistically significant at the one percent level. This implies that an increase of 0.10 in the rate of retention would result in an increase in the profit margin rate of about 0.01. Retention of prior borrower indicates that the lending institution is satisfied with the creditworthiness of the borrower and as such, retention rate being positively associated with better profit margin rate makes intuitive sense. The estimated coefficient of retention is statistically significant the one percent level in both the random effects model and the Hausman-Taylor model addresses possible endogeneity between profit margin and average loan balance.

A higher proportion of female managers, results in higher level of predicted profit margin rate, and this is in accordance with the notion that diversity in management results in better efficiency and a consequence of better efficiency is better profit margin rate. Although one would expect a positive impact of female loan officers on financial performance, the results indicate to the contrary. The estimated negative coefficient of female loan officers is statistically significant at the five percent level.

As expected, both expense ratio and cost per borrower have a negative effect on the profitability of an MFI. While many past studies have not only failed to find a trade-off between outreach and financial performance but have also shown a positive complementary association between outreach and financial performance, this study shows a tradeoff between depth of outreach and profitability, as shown by the statistically significant positive estimated coefficient of average loan balance per borrower.

Following the result of the Hausman test, the inferences made above have relied on the results of the fixed effects model. Since the fixed effects model cannot include time invariant regional dummy variables, I utilize the random effects model and the Hausman-Taylor models to analyze possible country effects on the profitability of MFIs.

To account for unobserved heterogeneity across countries and secular change over time, I carried out the estimations including time fixed effects and country fixed effects. While the magnitude of varies marginally, the statistically significant positive estimated coefficient of retention clearly indicates the impact of borrower retention on the profit margin of MFIs. Across the different models, the magnitude of the estimated slope coefficients of female managers ranges from 0.03 to 0.065. This indicates that if the composition of female managers increased form the current level of 35% to 50%, then we can expect the profit margin to increase from 0.005 to 0.01.

Table 2. Retention, Female Managers, and Financial Performance

Variable	Fixed Effect	Random Effect	Year Fixed Effect		Country Fixed Effect	
			Fixed Effect	Random Effect	Random Effect	Hausman Taylor
Gross Loan Portfolio	0.015*** (2.15)	0.0029 (1.05)	0.0279*** (2.96)	0.0043*** (1.45)	0.0029 (1.02)	0.0066** (1.98)
Total Expense Ratio	-0.9405*** (-14.73)	-0.8214*** (-19.33)	-0.9499*** (-14.84)	-0.8235*** (-19.36)	-0.8713*** (-18.78)	-0.829*** (-16.13)
Cost per Borrower	-0.0517*** (-4.89)	-0.0094 (-1.59)	-0.0486*** (-4.44)	-0.0095 (-1.61)	-0.0523*** (-6.83)	-0.0543*** (-5.84)
Average Loan Balance	0.0499*** (4.02)	-0.0077 (-1.27)	0.0378*** (2.70)	-0.0088 (-1.45)	0.0321*** (3.81)	0.0458*** (4.05)
Female Borrowers	0.1321*** (3.12)	0.0561** (2.33)	0.1214*** (2.86)	0.0559** (2.32)	0.1249*** (4.74)	0.1618*** (5.55)
Retention Rate	0.1025***	0.112***	0.0896***	0.1075***	0.1212***	0.1323***

	(3.85)	(4.88)	(3.35)	(4.69)	(5.43)	(5.71)
Female Managers	0.0653***	0.0386**	0.065***	0.0392***	0.0285*	0.0354**
	(3.31)	(2.54)	(3.31)	(2.58)	(1.91)	(2.28)
Female Loan Officers	-0.0654**	-0.0343*	-0.0720**	-0.0361**	-0.0453**	-0.0464**
Constant	0.2407*	0.1717***	0.01	0.1511**	0.7266***	-1.7972**
	(1.79)	(2.93)	(0.05)	(2.37)	(3.86)	(-2.49)
Observations	2,924	2,924	2,924	2,924	2,924	2,924
Number of MFIs	1,055	1,055	1,055	1,055	1,055	1,055
Overall R^2/χ^2	0.1352	0.1787	0.1403	0.1816	0.3723	1,085.61

t statistic in parentheses below coefficient estimates

*, **, *** indicates statistically significant at the one percent, five percent, and ten percent respectively

5. CONCLUSION

The study utilized a panel of 1,055 MFIs over a period of eleven years and showed that higher borrower retention rate results in better financial performance that is robust to the choice of estimation models or measure of financial performance. This indicates that using the process of retaining creditworthy repeat borrowers has proven to be an excellent strategy in terms of achieving financial performance. Furthermore, the empirical results indicate that gender diversity in management results in efficiency and greater profitability of MFIs.

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A Fuzzy Decision Framework for Green Supplier Selection Problem: A Case Study in White Goods Industry

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Abstract

The objective of green supply chain management is to take into consideration environmental concern in all processes of the chain, from the beginning of the supply of raw materials needed for the production of goods and services that satisfy the requirements of consumers to the final result. A green supply chain aims to use natural resources efficiently, prevent environmental pollution and reduce waste. The green supply chain starts with green purchasing and includes an environmentally friendly approach in which integrated green practices exist across the entire value chain, from supplier to producer. In supplier selection, the green supply chain evaluates suppliers' environmental footprints and compliance with sustainability standards. This paper introduces a fuzzy multi-criteria decision making approach for selecting the best green supplier alternative. For that purpose, a multi-criteria decision framework is constructed and fuzzy TOPSIS methodology is employed in order to identify the best performing supplier.

Keywords: Green supply chain management, green supplier selection, multi-criteria decision making, fuzzy decision making

1. Introduction

Until the 1960s, businesses viewed supply as meeting basic needs such as storage and transportation. However, businesses realized that supply affected other production functions and began to make efforts to manage this process more effectively, and during this period, attempts to combine supply functions under an independent department emerged. With the increase in globalization and competitive environment, businesses had to develop low cost and high quality production strategies, and thus the concept of supply chain management emerged. Traditional supply chain management has evaluated criteria such as cost, time, quality and flexibility in the process of purchasing raw materials and materials from suppliers, incorporating them into production activities and delivering the final product to consumers through distribution channels in order to meet the needs of consumers [1].

In the 1990s, rapid developments in production technologies and the desire of businesses to sell more led to significant increases in production quantities. This situation has brought with it the problem of environmental pollution and the danger of depletion of resources. Although air and water pollution resulting from the production activities of businesses was not emphasized much at first, increasing discussions on protecting the natural environment, increased environmental awareness of consumers and the emergence of environmental protection protocols at national/international level have increased environmental responsibilities and pressure on businesses. In addition to the increasing environmental awareness of consumers creating a significant pressure on businesses, legal regulations have been created in many countries to protect the natural environment and many environmental protocols have been signed at both national and international levels. Kyoto Protocol, ISO 14000 Environmental Management System, EMAS (Eco-management and Auditing System) are among the most important environmental protocols signed. In

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order to avoid criminal proceedings and to meet the environmental demands of consumers, businesses have begun to adopt an understanding of environmental awareness in the process starting from the raw material supply phase required for the production of goods and services to sales and after-sales services [2].

Green supply chain management aims to protect the natural environment in all processes of the chain, starting from the very beginning of the supply of raw materials required for the production of goods and services that will meet the needs of consumers, until the final surplus at the end of the consumer's use of the product, and is an approach added to traditional supply chain management with the aim of reducing or eliminating negative environmental impacts. This approach aims to use natural resources efficiently, prevent environmental pollution and reduce waste. The green supply chain starts with green purchasing and includes an environmentally friendly approach in which integrated green practices exist across the entire value chain, from supplier to producer. By adding the adjective "green" to the traditional supply chain, new environmental concepts such as green purchasing, green production/material management, green distribution/marketing, reverse logistics have emerged along with the expanded scope of the supply chain [1,2].

The objective of this work is to propose a fuzzy multi-criteria decision making (MCDM) approach for selecting the most appropriate green supplier alternative. A fuzzy MCDM method is thought to be appropriate because of the complexity of the decision framework, the presence of conflicting criteria which influence green supplier selection problem, and lack of crisp data. In order to select the best alternative, fuzzy TOPSIS methodology is employed by utilizing expert knowledge.

This paper is organized as follows. Section 3 outlines the basic concepts of green supply chain. Section 3 explains fuzzy TOPSIS method. The application of the proposed method to green supplier selection problem is illustrated in Section 4. Finally, conclusions and future research directions are provided in the last section.

2. BASIC CONCEPTS OF GREEN SUPPLY CHAIN

2.1. The Operations of a Green Supply Chain

A green supply chain consists of five operations namely green purchasing, green manufacturing, green distribution, green packaging, and reverse logistics. Moreover, reverse logistics contains four operations named as recycling, reproduction, reuse, and elimination. In this section of the paper, these operations are summarized.

Green Purchasing: Green purchasing decisions are activities to purchase recyclable, reusable or newly recycled materials. Environmentally friendly technologies should be preferred when purchasing technology.

Green Manufacturing: Production processes and technologies are used in production in a recyclable manner. The main purpose; While increasing the effectiveness of brandy, minimizing the effects of waste on the environment.

Green Distribution: Distribution points, type of transportation to be used, control systems are activities that minimize the damage to nature caused by just-in-time production and distribution policies.

The fuel used by the carrying vehicle, transportation frequency, distance to customers and package character (weight, shape, material) are the factors taken into consideration.

Green Packaging: Paying attention to the size and shape of the packages and the use of environmentally friendly materials. Thanks to packages designed in this way, material usage is reduced, space in the warehouse is used efficiently and the amount of transportation is reduced.

Reverse Logistics: It is the collection and inspection of products at consumption points, which are no longer usable due to their end of life, or which are returned due to reasons such as poor quality, product recall, warranty, and after-sales service, and adding value to these products and bringing them back into the economy.

2.2. The Managerial of a Green Supply Chain

Green supply chain, which aims to integrate the principle of sustainability into business processes, evaluates the effects of the production, distribution and consumption processes of the company's products and services on the environment and aims to reduce these effects. Green supply chain practices are of great importance in material and supplier selection, which is one of the most important steps of the production phase. It is important that the material used in these selections is recyclable and renewable. In addition, green labeling and certifications are also an important

tool in evaluating materials. Obtaining the wood used for wooden materials from certified forests can be given as an example of these practices.

In supplier selection, the green supply chain evaluates suppliers' environmental footprints and compliance with sustainability standards. With these evaluations, it is aimed to identify suppliers with the least impact on the environment and to increase cooperation with these suppliers. The task of green supply chain applications in production processes is to encourage energy efficiency, waste reduction and the use of renewable energy. Thus, it aims to minimize environmental impact by optimizing production processes. These applications also try to minimize the carbon footprint in terms of transportation and logistics. Using vehicles that produce less emissions and choosing green transportation strategies play an important role in optimizing logistics processes. In consumption processes, the green supply chain encourages the use of environmentally friendly and recyclable packaging and packaging materials. In addition, avoiding, reducing and minimizing harmful chemicals has an important place in the design process of the packaging used. In product recycling and end use, companies aim to minimize waste by encouraging recycling processes, taking into account the life cycle of the products.

2. FUZZY TOPSIS METHODOLOGY

Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), introduced by Hwang and Yoon [3], is a method used for solving MCDM problems. TOPSIS method selects the alternative, which has the shortest distance to ideal solution, and the longest distance to anti-ideal solution. The closeness to the ideal solution maximizes the benefit and minimizes the cost, whereas the distance to the ideal solution maximizes the cost and minimizes the benefit. Fuzzy TOPSIS methodology extends TOPSIS method by providing fuzzy assessments of criteria and alternatives in order to solve MCDM problems under an uncertain environment. The application steps of the proposed approach are listed as follows:

Step 1: Determine the alternatives and the required evaluation criteria

The criteria are determined by carrying out a literature survey and utilizing expert knowledge. There are m alternatives denoted as $A_i = \{A_1, A_2, \dots, A_m\}$, which are evaluated under n criteria, $C_j = \{C_1, C_2, \dots, C_n\}$.

Step 2: Construct the fuzzy decision matrix (\tilde{D}) that denote the evaluation of alternatives with respect to criteria and the weight matrix of criteria (\tilde{W}) as

$$\tilde{D} = \begin{bmatrix} \tilde{x}_{11} & \tilde{x}_{12} & \cdots & \tilde{x}_{1n} \\ \tilde{x}_{21} & \tilde{x}_{22} & \cdots & \tilde{x}_{2n} \\ \vdots & \vdots & \cdots & \vdots \\ \tilde{x}_{m1} & \tilde{x}_{m2} & \cdots & \tilde{x}_{mn} \end{bmatrix} \quad i = 1, 2, \dots, m; j = 1, 2, \dots, n. \tag{1}$$

$$\tilde{W}_j = (\tilde{w}_1, \tilde{w}_2, \dots, \tilde{w}_n) \quad j = 1, 2, \dots, n. \tag{2}$$

where \tilde{x}_{ij} and \tilde{w}_j can be represented as $\tilde{x}_{ij} = (x_{ij}^1, x_{ij}^2, x_{ij}^3)$ and $\tilde{w}_j = (w_j^1, w_j^2, w_j^3)$, respectively, in triangular fuzzy number format.

Step 3: Normalize the fuzzy decision matrix

The normalized fuzzy decision matrix \tilde{R} is constructed as $\tilde{R} = [\tilde{r}_{ij}]_{m \times n}$, $i = 1, 2, \dots, m; j = 1, 2, \dots, n$, where

$$\tilde{r}_{ij} = \begin{cases} \left(\frac{x_{ij}^1 - x_j^-}{x_j^* - x_j^-}, \frac{x_{ij}^2 - x_j^-}{x_j^* - x_j^-}, \frac{x_{ij}^3 - x_j^-}{x_j^* - x_j^-} \right), & x_j^* = \max_i x_{ij}^3, \quad j \in B_j \end{cases} \quad (3)$$

$$\tilde{r}_{ij} = \begin{cases} \left(\frac{x_j^* - x_{ij}^3}{x_j^* - x_j^-}, \frac{x_j^* - x_{ij}^2}{x_j^* - x_j^-}, \frac{x_j^* - x_{ij}^1}{x_j^* - x_j^-} \right), & x_j^- = \min_i x_{ij}^1, \quad j \in C_j \end{cases} \quad (4)$$

B_j represents the set of benefit-related criteria for which the greater the performance value the more its preference, C_j represents the set of cost-related criteria for which the greater the performance value the less its preference

Step 4: Compute the weighted normalized decision matrix, $\tilde{V} = [\tilde{v}_{ij}]_{m \times n}$, as

$$\tilde{v}_{ij} = \tilde{r}_{ij} \tilde{w}_j \quad (5)$$

Step 5: Define the ideal solution $(A^*) = (\tilde{v}_1^*, \tilde{v}_2^*, \dots, \tilde{v}_n^*)$, and the anti-ideal solution $(A^-) = (\tilde{v}_1^-, \tilde{v}_2^-, \dots, \tilde{v}_n^-)$, where $\tilde{v}_j^* = (1,1,1)$ and $\tilde{v}_j^- = (0,0,0)$ for $j = 1, 2, \dots, n$.

Step 6: Compute the distances from ideal and anti-ideal solutions (d_i^* and d_i^- , respectively) for each alternative A_i as

$$d_i^* = d(A_i, A^*) = \sum_{j=1}^n d(\tilde{v}_{ij}, \tilde{v}_j^*) \quad (6)$$

where

$$d(\tilde{v}_{ij}, \tilde{v}_j^*) = \sqrt{\frac{1}{3} \left[\left(v_{ij}^1 - v_j^{*1} \right)^2 + \left(v_{ij}^2 - v_j^{*2} \right)^2 + \left(v_{ij}^3 - v_j^{*3} \right)^2 \right]} \quad (7)$$

and

$$d_i^- = d(A_i, A^-) = \sum_{j=1}^n d(\tilde{v}_{ij}, \tilde{v}_j^-) \quad (8)$$

where

$$d(\tilde{v}_{ij}, \tilde{v}_j^-) = \sqrt{\frac{1}{3} \left[\left(v_{ij}^1 - v_j^{-1} \right)^2 + \left(v_{ij}^2 - v_j^{-2} \right)^2 + \left(v_{ij}^3 - v_j^{-3} \right)^2 \right]} \quad (9)$$

Step 7: Calculate the closeness coefficient (CC_i) of each alternative as follows:

$$CC_i = \frac{d_i^-}{d_i^- + d_i^*}, \quad i = 1, 2, \dots, m \quad (10)$$

Step 8: Rank the alternatives according to CC_i values in descending order. Identify the alternative with the highest CC_i as the best alternative.

3. Case Study

This section illustrates the application of the proposed decision approach through a numerical example of green supplier selection. The example problem involves four supplier alternatives that perform in white goods industry, and five evaluation criteria namely “green purchasing”, “green manufacturing”, “green distribution”, “green packaging”, and “reverse logistics”. The criteria are indicated by reviewing the literature and using expert knowledge. The data used for the evaluation are obtained from three managers of the case company. The experts, which reached a consensus, used the linguistic variables given in Figure 1 to determine the ratings of alternatives with respect to criteria and to give the weights of each criterion.

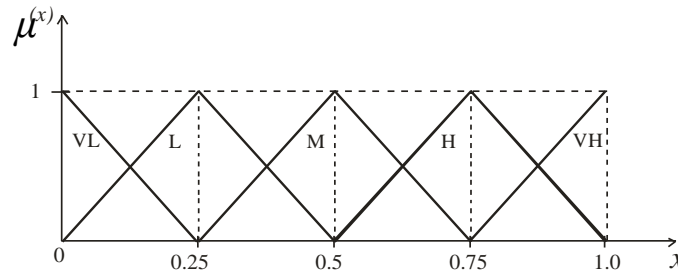


Figure 1. A linguistic term set where VL = (0, 0, 0.25), L = (0, 0.25, 0.5), M = (0.25, 0.5, 0.75), H = (0.5, 0.75, 1), VH = (0.75, 1, 1)

Data related to neuromarketing technology selection problem are given in Table 1.

Table 1. Data related to neuromarketing technology selection

Alternative (<i>i</i>)	Green purchase	Green manufacturing	Green distribution	Green packaging	Reverse logistics
Supplier 1	M	H	VL	L	L
Supplier 2	L	VH	H	VH	H
Supplier 3	VH	M	H	H	M
Supplier 4	M	L	VH	VL	H
Weight (<i>w_j</i>)	L	H	L	M	H

Weighted normalized fuzzy decision matrix and resulting rankings of the alternatives are provided in Table 2 and Table 3, respectively.

Table 2. Weighted normalized fuzzy decision matrix

Alternative (<i>i</i>)	Green purchase	Green manufacturing	Green distribution	Green packaging	Reverse logistics
Supplier 1	(0,0.125,0.375)	(0.25,0.5625,1)	(0,0,0.125)	(0,0.125,0.375)	(0,0.1875,0.5)
Supplier 2	(0,0.0625,0.25)	(0.375,0.75,1)	(0,0.1875,0.5)	(0.1875,0.5,0.75)	(0.25,0.5625,1)
Supplier 3	(0,0.25,0.5)	(0.125,0.375,0.75)	(0,0.1875,0.5)	(0.125,0.375,0.75)	(0.125,0.375,0.75)
Supplier 4	(0,0.125,0.375)	(0,0.1875,0.5)	(0,0.25,0.5)	(0,0,0.1875)	(0.25,0.5625,1)

Table 3. Ranking results of the alternatives

	d_i^*	d_i^-	CC_i	Rank
Supplier 1	3.954	1.514	0.276	4
Supplier 2	3.159	2.420	0.433	1
Supplier 3	3.487	2.099	0.375	2
Supplier 4	3.865	1.645	0.298	3

4. CONCLUSIONS

Green supply chain management has become indispensable in today's business world for the reasons given above and more. In addition to its benefits to the environment, its benefits to companies and employees within the company should not be ignored. In this work, a fuzzy TOPSIS approach, which can be employed in a straightforward manner to identify the most appropriate green supplier alternative, is employed.

The applied approach obtains the most suitable green supplier when the crisp data are not available, helps managers collaborate with the best performing green supplier in their whole supply chain operations. A numerical illustration, which is given by collecting data from three managers working in the case company more than five years, Supplier 2 is considered as the most appropriate alternative, followed by Suppliers 3,4, and 1. Future research will focus on constructing a hierarchical decision framework which takes into account sub-criteria for green supplier evaluation problem.

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Evaluation of the Smart Cities' Components Using an Intuitionistic Fuzzy Mapping Framework

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Abstract

The term "Smart Cities" is used initially by the European Union Working Group in 2007, where the term is officially recognized. With the globalization, the term "smart city" is utilized by various technology companies and applied in different projects. In this study, the components of the smart cities are evaluated, and their importance weights are determined. Intuitionistic fuzzy cognitive map is a suitable tool due to the presence of interrelationships among evaluation criteria, fuzziness, vagueness, and hesitation in data. The application is illustrated through a case study, which is conducted in a city that aims to achieve the goals to be a smart city.

Keywords: Smart cities, intuitionistic fuzzy cognitive map, hesitation

1. INTRODUCTION

Although the emergence of cities dates back to ancient times, the urbanization process began in the 18th century. It accelerated with industrialization in the century. As of today, more than half of the world population live in cities, and according to the United Nations, 68 percent of the world's population will live in cities by 2050. The number of people living in the city is increasing day by day, and thus security, air pollution, infrastructure difficulties, transportation, and traffic problems increase. To find solutions to these problems and to improve human life, the concept of smart cities has emerged [1].

The concept of smart city, dating back to 1997, is a combination of modern technology and innovations. It refers to making cities more effective, efficient and sustainable. These cities have been integrated in various development areas and are constantly evolving with different names. "Smart Cities" is utilized by the European Union Working Group in 2007. With its name, the concept was officially recognized. The term smart city can be applied to different projects. Although it has been around for a long time, according to the literature, the emergence of the smart city idea was determined in 2007. This period also includes various technological developments. It is called the first phase, where companies lead. The second phase is that local governments. It refers to a phase in which planning processes are pioneered. Finally, in the following years, there is one last phase that is expected to emerge: the third phase. This last phase is the public's active. It envisages a planning method that includes participation. In the modern world, smart

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city applications have fully evolved, and the direct participation of the public has increased. The third phase, which we expect to include, has not yet been fully formed [2].

Smart cities aim to facilitate people's daily lives and improve their quality of life. It aims to prevent the complexity of the city and increase social welfare. To achieve these goals, it uses every technologic opportunity in many different areas. These areas, which are from transportation systems to city security, from streetlights to power distribution, can cover every service you can think of, from services to infrastructure. Smart cities, which are seen as the basis of a sustainable and quality life, are included in the European Union. They have six components. These are smart transportation, smart governance, smart life, smart economy, smart environment, and smart people [3].

This work introduces an intuitionistic fuzzy cognitive map (IFCM) technique to determine the importance degrees of these six components of smart cities. The presence of interrelationships among evaluation criteria, fuzziness, vagueness, and hesitation in data led us to employ IFCM methodology as an appropriate tool.

The remaining sections of the paper are organized as follows. Section 2 explains briefly intuitionistic fuzzy cognitive map methodology. The following section illustrates the application via a case study conducted in a city that aims to achieve the abovementioned goals to be a smart city. Final section delineates conclusions and future research directions.

2. INTUITIONISTIC FUZZY COGNITIVE MAP TECHNIQUE

Intuitionistic fuzzy cognitive map (IFCM) technique includes intuitionistic fuzzy numbers into cognitive maps in order to determine the power of cause-and-effect relationships [4]. First, concept nodes and power of causal links among them are defined by obtaining experts' opinions. Second, the power of causal links is represented by intuitionistic fuzzy numbers that are associated with intuitionistic fuzzy scale. Hence, membership, non-membership, and hesitation values are identified. Finally, N x N weight matrix is formed by employing the information collected from the experts.

The following iterative formulation of IFCM is run until the system will be stabilized, in other words, all factor weights will converge [5]. In this way, the concepts' values are computed.

$$A_i^{(k+1)} = f \left(A_i^{(k)} + \sum_{j=1}^N A_j^{(k)} w_{ji}^{\mu} - A_j^{(k)} w_{ji}^{\pi} \right) \tag{1}$$

where $A_i^{(k)}$ is the value of concept C_i at k th iteration, w_{ji} is the weight of the connection from C_j to C_i , w_{ji}^{μ} and w_{ji}^{π} denote the weight matrices that show membership values and hesitation values of causal links, respectively, and f is a threshold function, which is considered as sigmoid function for this work.

3. CASE STUDY

This work presents an IFCM approach for evaluating the importance degrees of six components of smart cities. The case study. The aim of this study is to determine on which components the case city should concentrate mostly to be a smart city. Initially, these six components that are determined by literature review are delineated in Table 1. is conducted in a city that aims to achieve these six goals to be a smart city

Table 1: Six components of smart cities

Label	Concept
C_1	Smart transportation
C_2	Smart economy
C_3	Smart governance
C_4	Smart environment
C_5	Smart life
C_6	Smart people

The three experts, which work on smart cities technologies, provide their opinions by reaching a consensus and they used the linguistic scale shown in Table 2.

Table 2: Linguistic Scale

Linguistic term	Intuitionistic fuzzy number
VH	<0.95,0.05>
H	<0.70,0.25>
M	<0.50,0.40>
L	<0.25,0.70>
VL	<0.05,0.95>

The linguistic data, membership values, non-membership values, and hesitation values for causal relationships, are given in Tables 3, 4, 5, and 6, respectively.

Table 3. Linguistic Data for Causal Relationships

	C_1	C_2	C_3	C_4	C_5	C_6
C_1	-	L	-	H	H	-
C_2	-	-	H	-	VH	-
C_3	-	-	-	-	-	-
C_4	VL	-	VL	-	H	-
C_5	-	-	-	-	-	M
C_6	-	M	L	-	M	-

Table 4. Membership values

	C_1	C_2	C_3	C_4	C_5	C_6
C_1	0	0.25	0	0.7	0.7	0
C_2	0	0	0.7	0	0.95	0
C_3	0	0	0	0	0	0
C_4	0.05	0	0.05	0	0.7	0
C_5	0	0	0	0	0	0.5
C_6	0	0.5	0.25	0	0.5	0

Table 5. Non-membership values

	C_1	C_2	C_3	C_4	C_5	C_6
C_1	0	0.7	0	0.25	0.25	0
C_2	0	0	0.25	0	0.05	0
C_3	0	0	0	0	0	0
C_4	0.95	0	0.95	0	0.25	0
C_5	0	0	0	0	0	0.4
C_6	0	0.4	0.7	0	0.4	0

Table 6. Hesitation values

	C_1	C_2	C_3	C_4	C_5	C_6
C_1	0	0	1	0.05	0.05	1
C_2	1	0	0	0	0	0
C_3	0	0	0	1	0	0
C_4	0	0	0	0	0.05	0
C_5	0	0	0	1	0	0
C_6	1	0	0.05	0	0	0

IFCM technique is employed and importance weights are obtained by running the formulation (1) until it will be stabilized, and the values of concepts will remain same. FCMapper software is used for these operations. The concepts' values are given in Table 7.

Table 7: Importance weights of factors

Label	Concept	Weight
C_1	Smart transportation	0.670080
C_2	Smart economy	0.794276
C_3	Smart governance	0.829091
C_4	Smart environment	0.769406
C_5	Smart life	0.954060
C_6	Smart people	0.778205

4. CONCLUSIONS

To obtain the importance weights of the components of the smart cities, six components are determined through literature survey and then algorithm of the work is reported by considering IFCM technique. Importance weights of concepts are assigned by applying IFCM methodology, smart life is the most important component however smart transportation is the least effective criterion to be a smart city. Future research will focus on proposing group decision making approaches for this evaluation.

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Evaluation of Access to Justice in International Monitoring Mechanisms

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Abstract

Several international fora scrutinize the cornerstones of the national legal systems both at international and European level. These mechanisms play a significant role in fostering human rights, rule of law and compliance with international legal obligations. At the same time, they might contribute to a fruitful and substantial constitutional dialogue between states and international organizations as well. The current study aims to discover how the right to an efficient access to justice is interpreted in these monitoring mechanisms; how the complex theoretical concept appears in the reality of international law. The research extends to country reports of Hungary and Poland (two countries, where several debates have evolved around the judicial systems lately), Germany, France and Belgium (basic examples for “well-established” or “old” democracies) at the level of the United Nations, the Council of Europe and the European Union. The comparative description is complemented with the findings of the relevant secondary literature. This analysis can provide some first conclusions on the understanding of the concept of access to justice in the context of harmonized European and international standards with special regard to the dynamics of international cooperation.

Keywords: access to justice, UPR, rule of law, human rights, monitoring mechanisms, international cooperation

1. INTRODUCTION

National legal institutions exist nowadays in a special dual environment. On the one hand, they shall comply with the requirements of national constitutional law and legal traditions, they shall fit in a social and economic framework, and they are often interpreted in light of public policy developments. On the other hand, they shall align with international standards, the requirements of the international community and they shall be adjusted to the dynamics of technological development, international social, economic and political tendencies. These phenomena result in a special matrix, where national and international legal standards framing legal institutions are interpreted by national and international actors along different legal and non-legal considerations. This is particularly true in case of the instruments ensuring the protection and promotion of human rights, including those fostering an efficient access to justice.

The right to access to justice articulates at the level of fundamental rights the individual’s claim to enforce his rights effectively and independently from his financial and material circumstances, legal knowledge or other possibilities. [1] The right to an effective (in contrast to theoretical or illusory) access to justice presumes a state obligation, ‘the duty to ensure justice.’ In order to fulfil this obligation the state has to introduce procedural measures to facilitate citizens to assert their right. [2] However, when defining the precise methods to achieve this aim, it shall be recalled that the State enjoys a certain margin of appreciation in this regard. [3] Thus, the principle of access to justice cannot be interpreted as

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prescribing specific procedural measures: the efficient and practical possibility of litigation shall be guaranteed in the complex system of procedural law taking the different forms of vulnerabilities of potential or actual litigants into account.

Several international fora scrutinize the cornerstones of the national legal systems both at international and European level. These mechanisms play a significant role in fostering human rights, rule of law and compliance with international legal obligations. At the same time they might contribute to a fruitful and substantial constitutional dialogue between states and international organizations as well. The current study aims to discover how the right to an efficient access to justice is interpreted in these monitoring mechanisms; how the complex theoretical concept appears in the reality of international law.

2. BACKGROUND AND METHODOLOGY

The approach provided in this paper is a rather novel one. The relevant literature analyses the concept of access to justice either from the perspective of constitutional law with special regard to the human rights aspect, [4] or from the point of view of civil procedural law with a focus on the institution of legal aid. [5] Other sources examine the connection with social aspects, protection of vulnerable groups and the compensation of neediness. [6] There are examples in the literature for focused comparison of national legal systems and legislative solutions with respect to access to justice, [7] however a systematic overview on the concept of access to justice in the context of international monitoring mechanisms is rather missing.

As the current research aims to provide a summary on the approach of different monitoring mechanisms with special regard to the evaluation of access to justice, the first methodological question concerns the choice of mechanisms to be assessed. [8] There are several options. One possibility would be to take the scope of the assessment as a basic feature and to pick-out one overarching assessment of the legal systems (e.g. Universal Periodic Review; hereinafter referred to as UPR [9]), one thematic evaluation (e.g. reports prepared in the framework of the Rule of Law Mechanism of the European Union, based on the Rule of Law Report of the European Commission [10]) and one mechanism, where individual measures are examined (e.g. reports adopted by the European Commission for Democracy through Law; hereinafter referred to as Venice Commission [11]). Another possibility would be to approach these mechanisms based on their topic, namely economic analyses (like the European Semester [12]), rule of law related tools (reports by the Venice Commission, Rule of Law Report etc.) and human rights based instruments (UPR, Reporting under the International Covenant on Civil and Political Rights, hereinafter referred to as ICCPR-review [13]). However, in each case, the nature of standards behind the monitoring mechanisms in the different groups might be highly different; therefore, a simpler approach seems to be more useful. Namely, to examine UN, Council of Europe and EU-level monitoring mechanisms in three separate subchapters. In each subchapter it is intended to describe two mechanisms so that an in-depth assessment can be provided on all instruments. (Court procedures are, of course, excluded.)

The next question is to define the scope of countries to be involved in the analysis. It seems to be evident to extend the examination to Hungary and Poland, two countries, where several debates have evolved around the judicial systems lately [14], and therefore, where more extensive findings can be expected on safeguards relating to the judiciary. Furthermore, the inclusion of so-called well-established or old democracies, like France, Germany or Belgium might be beneficial. (Basis of the distinction between “new” and “old” democracies is a terminology used among others by the Venice Commission: “[i]n older democracies, the executive power has sometimes a decisive influence on judicial appointments. Such systems may work well in practice and allow for an independent judiciary because these powers are restrained by legal culture and traditions, which have grown over a long time. New democracies, however, did not yet have a chance to develop these traditions, which can prevent abuse, and therefore, at least in these countries, explicit constitutional and legal provisions are needed as a safeguard to prevent political abuse in the appointment of judges.” [15]). Therefore, the findings formulated in their regard might reflect the application of the requirements stemming from the right to an efficient access to justice over a longer time scale.

Considering that the referred evaluations might deal with the same countries at a very different time, findings formulated at comparable dates shall be in the focus, so that the results might be more coherent. The comparative description is complemented with the findings of the relevant secondary literature. This analysis can provide some first conclusions on the understanding of the concept of access to justice in the context of harmonized European and international standards with special regard to the dynamics of international cooperation.

3. UN LEVEL MONITORING MECHANISMS

Analyzing the UN level monitoring mechanisms, the starting point shall be the UPR. The Resolution of the UN General Assembly No. 60/251 from 15 March 2006 on the Human Rights Council (hereinafter: Resolution 60/251) [16]

established “a universal periodic review, based on objective and reliable information, of the fulfilment by each State of its human rights obligations and commitments in a manner which ensures universality of coverage and equal treatment with respect to all States”. The basic principles governing this mechanism are cooperation, full involvement of the State concerned, genuine and interactive dialogue, [17] the commitment to strengthening the capacity of Member States to comply with their human rights obligations for the benefit of all human beings, [18] as well as the general principles governing the work of the Human Rights Council, including the importance of ensuring universality, objectivity and non-selectivity in the consideration of human rights issues. [19]

The third cycle evaluation report of Hungary demonstrates that access to justice related recommendations were primarily formulated in the context of the protection of certain, specific vulnerable groups (128.59; 128.88; 128.89; 128.151). [20] A similar approach can be perceived in case of Poland (recommendations 114.29; 114.54; 114.63; 114.177; 114.231), [21] Germany (recommendation 155.128) [22] and France (recommendations 45.102; 45.162; 45.163; 45.167; 45.220-222; 45.246-247; 45.259; 45.354) [23] while in case of Belgium, the third cycle UPR report does not contain any reference to the questions of access to justice or, more specifically, legal aid. [24] Neither the national report of Belgium, nor the list of questions posed before the hearing contain similar topics. This approach might be related to the fact that – as shown by the Practical Guidance issued by the Office of the High Commissioner for Human Rights – the UPR review is strongly related to the Sustainable Development Goals. Goal 16 commits States to “[p]romote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels”. In this spirit, the following approach applies: “Realizing the commitment in SDGs to ‘leave no one behind’ and to reach the farthest behind first requires a precise identification of the target populations. It is therefore necessary to systematically collect data that is disaggregated enough to demonstrate the level of access to all groups as specified in the 2030 Agenda, especially the most vulnerable – including children, youth, persons with disabilities, people living with HIV, older persons, indigenous peoples, refugees, internally displaced persons and migrants. Some of the marginalized groups may also be identified through a review of reports and recommendations of human rights mechanisms (including the UPR).”[25] This approach puts the human rights implications of access to justice into center of attention, and focuses on the fact that access to justice – as a basic element of the right to a fair trial – shall be ensured for everyone without discrimination.

These findings can be further refined on the basis of the ICCPR-reviews. The evaluation of Hungary carried out in this framework mentions the need to support access to justice of child asylum seekers and unaccompanied minors, victims of discrimination and gender-based violence as well as persons with disabilities, primarily through legal aid, but it also refers to the fact that “the current constitutional complaints procedure affords more limited access to the Constitutional Court”. [26] Thus, in this context, the efficient access to justice appears as a safeguard of human rights, but also as an element of the proper functioning of the constitutional system. [27] Consequently, access to justice may be understood as an element of rule of law as well. Similar conclusions might be derived from the report on Germany, [28] where significant emphasis is put on the interrelation of an efficient access to justice and the implementation of other rights, e.g. equal treatment (non-discrimination), right to privacy, freedom of expression etc. In case of Poland [29] and France [30] – similarly to the UPR – rather the specific needs of vulnerable groups, e.g. victims of human trafficking, detainees, juveniles etc. are mentioned in the context of access to justice.

From the aforementioned follows that while in case of the UPR, access to justice is scrutinized from the human rights point of view, and appears as a tool fostering the efficient implementation of rights, primarily in case of the most vulnerable, in case of the ICCPR-review, overarching aspects can be detected as well. This interpretation is confirmed, among others by the General Comment 31 on the Covenant, which states that „[w]hile article 2 is couched in terms of the obligations of State Parties towards individuals as the right-holders under the Covenant, every State Party has a legal interest in the performance by every other State Party of its obligations. This follows from the fact that the ‘rules concerning the basic rights of the human person’ are erga omnes obligations and that, as indicated in the fourth preambular paragraph of the Covenant, there is a United Nations Charter obligation to promote universal respect for, and observance of, human rights and fundamental freedoms.” [31] The relevant fact sheet of the Human Rights Committee adds that „a State party must promote or fulfil an individual’s rights, that is take the required steps to create a necessary and conducive environment within which the relevant rights can be fully realized. This again is a “positive” obligation which may require a State party to take substantial steps, including the allocation of appropriate resources, to satisfy its obligations under the treaty.” [32] Furthermore, these conclusions can be based on the Sustainable Development Goals as well. “The achievement of Goal 16 will be assessed against a number of targets, some of which incorporate Rule of Law components, such as the development of effective accountable and transparent institutions (target 16.6) and responsive, inclusive participatory and representative decision making at all levels (target 16.7). However, it is Target 16.3, committing States to “Promote the rule of law at the national and international levels and ensure equal access to justice for all” that offers a unique opportunity for revitalizing the relationship between citizens

and the State”.” [33] In this context access to justice appears as an obligation of the state in the system of human rights protection, as well as a certain prerequisite of the rule of law.

4. THE APPROACH IN THE COUNCIL OF EUROPE

The most important point of reference in rule of law related issues, the Rule of Law Checklist [34] of the Venice Commission seems to rely on the concept of access to justice as a notion summarizing all requirements related to the functioning of the justice system.

The chapter on access to justice encompasses the requirements related to the independence and impartiality of courts, the safeguards of fair trial (which among others contains the assessment of „access to courts”) and reference to constitutional justice. This interpretation is closely linked to the previous findings, namely that access to justice might have – besides the question of actual access to courts – a more abstract, rule of law related meaning.

Similar conclusions follow from the Handbook on European law relating to access to justice by the European Union Agency for Fundamental Rights and Council of Europe, [35] which integrates a fair and public hearing before an independent and impartial tribunal (including the right to access courts, the scope of the right to a fair and public hearing, and alternative paths to justice); legal aid (including the ‘financial and merits’ tests and the ‘interests of justice’ test for criminal proceedings); the right to be advised, defended and represented (including the quality of legal assistance, the right to adequate time and facilities to prepare one’s defense, and the right to waive representation); the right to an effective remedy (including its substantive and institutional requirements, as well as examples of available remedies) and access to justice in select focus areas (regarding which specific principles have been developed, including persons with disabilities, victims of crime, prisoners and pre-trial detainees and environmental law and e-justice) in its interpretation of access to justice in broad sense.

Nevertheless, it might be questionable, whether such an extensive interpretation of access to justice might distract attention from the original aim, by putting politically sensitive questions (like concerns about the independence of the judiciary) into the focus, and pushing into background the importance of the possibility for the individual to enforce his rights effectively and independently from his financial and material circumstances, legal knowledge or other possibilities. As these standards are primarily applied in a systematic manner in EU-level mechanisms (also taking into account the fact that the Venice Commission examines specific pieces of legislation), the next chapter might give more detailed guidance on the implementation of these standards.

5. ACCESS TO JUSTICE IN EU LEVEL MONITORING MECHANISMS

EU level monitoring mechanisms, primarily rule of law reviews provide the best examples, as they intend to offer an overall assessment on the functioning of the judiciary in general and as they integrate legal and political elements. The Proposal of the European Commission for a Council Decision on the determination of a clear risk of a serious breach by the Republic of Poland of the rule of law, [36] a proposal triggered mainly through concerns around the organization and functioning of the judiciary, contains one reference to access to justice as Recital (83) recalls a letter sent by the Polish Ombudsman [37]. Meanwhile in the case of Hungary, where the procedure under Article 7 (1) TEU encompasses a much broader circle of concerns, no substantive reference can be found to the interconnection of the independence of the judiciary and access to justice, neither in the Reasoned Proposal adopted in 2018 [38] nor in the updated version adopted by the European Parliament of 2022. [39]

The Rule of Law Report of the European Commission does not evaluate access to justice in itself either, although the Methodology relies to a considerable extent on the Rule of Law Checklist of the Venice Commission [40]. This can be derived from the questionnaire sent to the Member States, where “accessibility of courts” appears as an element, but in a way that focuses on the most evident obstacles of access to justice: e.g. court/legal fees, legal aid, language. [41] These factors appear in all country chapters, but usually they are analyzed separately from the assessment of the independence of the judiciary and other elements of fair trial. An exception is the country chapter on Belgium, which calls attention to the fact the deficiencies in the allocation of resources to the courts, might undermine the quality of judicial work and the citizens’ access to justice. [42] Furthermore, the country chapter as regards Germany contains a reference to electronic submission of applications to courts and an online procedure providing easier and less costly access to courts, which shows an interconnection between access to justice and digitalization in the justice system. [43] The country chapters on Hungary and Poland address the question of access to justice from the point of view seen in case of the UPR-review, namely that of the most vulnerable groups. [44]

The efficient enforcement of rights of the most vulnerable (particularly victims of crimes) is in the center of assessment by the Fundamental Rights Agency of the European Union carried out in the framework of the Fundamental Rights

Report complemented with the examination of the independence of justice systems. [45] However, in this approach the focus is rather on the possibility to obtain help, to have justice done, not on the concept of access to justice understood in the framework of procedural law, as described above.

These examples seem to confirm the doubts raised in the previous chapter: the more extensive the understanding of access to justice is, the more difficult is to assess its implementation in a systematic, coherent and consistent manner; huge differences in the outcome of the monitoring might arise.

6. CONCLUSIONS

This first cautious analysis has demonstrated that a unified conceptual framework as regards the concept of access to justice cannot be detected in international monitoring mechanisms. Firstly, the current analysis has shown that besides the theoretical meaning of access to justice, it is possible to examine this concept as an overarching notion for all justice-related requirements of a rule of law state. Thus, it might include besides the human rights implications (equal and actual access to courts, necessity of providing legal aid, fostering the efficient enforcement of rights through the system of procedural law etc.) the access to independent and impartial courts (i.e. the safeguards of the independence of the judiciary); and the relation to the efficient protection of other human rights might be integrated into this term. Secondly, as monitoring mechanisms include – primarily if they focus on the principle of rule of law in general – political aspects as well, a unified methodology and terminology is usually not available or is – at least – not applied in a consistent manner. Thirdly, with respect to the content of the term in narrower sense, besides legal aid, other procedural arrangements, like the digitalization of justice systems might be integrated into the analysis of the efficient access to justice. The fragmented and highly diversified outcomes in the monitoring mechanisms analyzed in this paper demonstrate that access to justice, a basic safeguard of human rights and a substantive element of rule of law, should be examined in international monitoring mechanisms in a more transparent, legally and theoretically well-founded and unified manner. In this endeavor, an approach focusing on the access to justice in terms of procedural safeguards of an efficient, unhindered enforcement of rights for all should be the starting point. Such a consistent foundation could provoke a more systematic international action promoting efficient procedural mechanisms, independent and impartial adjudication of legal disputes and overall a more efficient protection of human rights through accessible court procedures.

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Human Resources, an Important Asset for Sustainable Performance

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Abstract

The performance of any business is based on the effectiveness of human resources management. The human resources are different in their professional skills. Regardless of the differences they have, all of them, together contribute to the realization and exceeding of the business objectives. This proves the successful management of human resources, as an important asset for every business. The study investigates the impact of human resource management practices on their job satisfaction. The primary data were collected from the employees of different businesses through questionnaires. The aim is to highlight the most pronounced factors that affect their job satisfaction and therefore individual and organizational performance. The data were processed through the statistical software SPSS. The findings showed that the responsive treatment of employee requests provides a climate that encourages employees to achieve the objective and succeed, thus becoming a comparative advantage and creates conditions for successful business development.

Keywords: HRM, employee request, comparative advantage, organizational performance

1. INTRODUCTION

The business world is dynamic and difficult, too. Difficulties generally refer to the many challenges faced by businesses for survival, growth and development in the face of market competition. The challenges reflect the variability of the environment in which businesses operate. Faced with this environment, businesses are forced to orient their activities in continuous adaptation to environmental conditions.

Flexibility is also conditioned by the condition and development of human resources of the business. The employees enable adaptation the business to the economic environment, because work is an economic - social, developmental operation for every productive activity (for every branch of the economy). The manager alone or as a team must carefully manage human resources with the aim of them being proactive and not just react. This will ensure that the employees face the challenges. The success of human resources is a reflection of business performance. Paauwe, Guest & Wright (2013) admit that: "One of the main goals of Human Resource Management (HRM) is to increase the performance of organizations" Referring to human resources, Johnason (2009) admits that: "It is designed to maximize the performance of employees in the service of a strategic objectives of the employer". For this need to take care of the course of human resources. Paauwe & Boon (2009) highlights a number of relationships that businesses have to employees: "Human resources departments are responsible for overseeing the design of employee benefits, employee recruitment, training and development, performance evaluation and reward management, as management of employee salaries and benefits systems". Care for human resources affects the standard of living and economic growth on a national scale.

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Human resources and their quality constitute a competitive advantage. For Pfeffer (1998) gaining competitive advantage through employees is possible from the importance of certain Human Resources (HR) practices necessary to obtain this advantage.

2. LITERATURE REVIEW

Human capital is one of the basic elements of every production process and must be managed carefully. Human resource management is an early activity. According to Bruce (2001), Pioneering economist John R. Commons mentioned "human resource" in his 1893 book: *The Distribution of Wealth* but did not elaborate. "The expression was used during the 1910s to 1930s to promote the idea that human beings are of worth (as in human dignity); by the early 1950s, it meant people as a means to an end (for employers)". McGaughey (2018). A few years later, Bruce (2008) points out that: "Among scholars the first use of the phrase in that sense was in a 1958 report by economist E. Wight Bakke".

Scott (2023): "Employee engagement is a workplace strategy that encourages employees to remain dedicated to their organizational objectives and perform to the best of their abilities". The good performance is also conditioned by job enrichment.

Based on Brookins (2019): "Frederick Herzberg, an American psychologist, originally developed the concept of 'job enrichment' in 1968, in an article that he published on pioneering studies at AT&T". Job enrichment derives from the work itself. The manager must constantly take care of job enrichment, because in front of it is job dissatisfaction "while job dissatisfaction stems from factors external to the actual work, including company policy and the quality of supervision" (Brookins, 2019). The achievement of job enrichment by the manager focuses on three problems that Feder (2000) calls a three-step technique. Specifically:

1. Turn employees' effort into performance through a supportive corporate culture, recognition, appreciation, and other motivators or skill improvement opportunities, etc.
2. Link employees performance directly to reward.
3. Make sure the employee wants the reward.

The performance of employees is a special focus of the manager's work because of the impact that individual work has on the performance of the organization. Vermeeren, Steijn, Tummers, Lankhaar, Poerstamper & Beek (2014) acknowledge that: "One of the main goals of Human Resource Management (HRM) is to increase the performance of organizations". According to Dwertmann & Boehm (2016) "Employees' attitude, energy, motivation and other mental factors differentiate the firm from competitors in a way that it can achieve above-normal returns." Performance also matters from a macro perspective. Therefore, there are also states that provide for individual performance by law. Farivar, Anthony, Richardson & Amarnani (2023) highlighted: "It [career advancement] is about self-reflection...your strengths and weaknesses need to be understood and supported. It [career advancement] is not a destination...it's a journey. And we're all on a different part of that journey. I continue to get guidance from people I respect and admire. And that can be at any level...[Int56, M, Australia, implementing state law, self-initiated career plateau".

Managers should consolidate the opinion that HRM is a function that requires long-term thinking, consistency, and staying power (Skinner, 1981). Further, Skinner (1981) acknowledges that: "Successful managers seldom stay put long enough to see their HRM investments pay off".

Herzberg (1987) stress: "Forget praise. Forget punishment. Forget cash. You need to make their jobs more interesting" and further he continues: "job enrichment means making improvements to a job by adding more challenges".

"Decisions affecting human resource quality should not be dealt with in a secondary, catch-up, tidy-up, reactive way" (Skinner, 1981). For this, Vermeeren, Steijn, Tummers, Lankhaar, Poerstamper & Beek (2014) admit that: "One can then distinguish three different outcomes: 1) financial outcomes (profits, net margin, market share), 2) organizational outcomes (productivity, quality, efficiency, client satisfaction) and 3) HR outcomes (employees' attitudes and behaviour)". This paper focuses on the factors that influence the results of human resources.

The research question is: How are the different factors evaluate of human resource management (salary, social status, teamwork, training and enrichment) by business employees?

3. METHODOLOGY

The paper includes the literature review. The literature review enables the stability of scientific thought and the elimination of the influence of subjectivism in a scientific paper. In the literature review, information is presented in

support of the empirical research. Torraco (2016) describes an integrative literature review. Therefore, in this paper, the literature review refers to scientific articles and books.

One of the problems considered by us is the determination of the sample size, which is an important problem for empirical studies. For this, some of the most used instructions for this problem have been analyzed. However, these guidelines generally represent sample size suggestions. A sampling strategy is more than often necessary since it is not always possible to collect data from every unit of the population (Kumar et al., 2013). However, it is often considered a difficult step in the design of empirical research (Dattalo, 2008). Based on Turney (2023): "When $n \geq 30$, the central limit theorem applies. The sampling distribution will approximately follow a normal distribution".

The measuring instrument of this paper is the questionnaire. Data analysis considers descriptive statistics and complex statistical data analysis SPSS.

Data analysis

This paper is engaged in the analysis of five influencing factors in individual and organizational performance.

- Pay refers to performance
- Social status
- Training and development
- Teamwork
- Job enrichment

Pay refers to performance

One of the most important factors analyzed by the science of human resource management is salary. Anderson, Bjarnadóttir & Ross (2024) point out that: "Pay gaps are an enduring and growing source of social tension and management frustration". As a basic incentive at work, pay refers to performance should be commensurate with the employee's achievements. The respondents included in this scientific paper value the pay very much. About 84% of the respondents rate it as the main factor of job satisfaction, 12% rate it as average and only 4% rate it as an important factor.

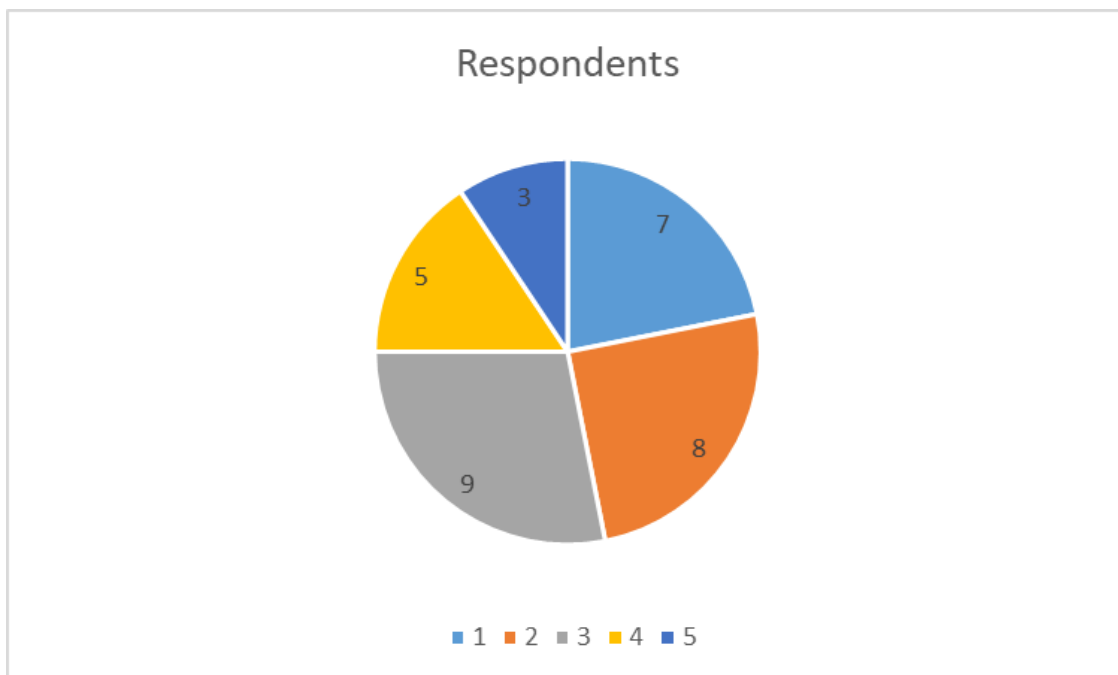


Fig. 1. Respondents

The surveyed employees evaluated this human resource management factor with an average of 4.7 points according to the LIKERT scale ("never" to "always"). This result contains an indisputable truth.

Social status

The respondents were asked to evaluate according to the LIKERT scale ("never" to "always") the fact that payment according to performance is an evaluable factor for well-being and social status, referring to the principle: The status of a person in society is also his standard. This standard is achieved only through work. Status reflects the

vertical categorization of people into rankings based on factors such as income, education, family background, etc. Based on Bender & Skatun (2022): "... is one of the most widely researched areas in labor economics given its intuitive allure at giving incentives for high productivity". For Liberto (2023): "Happiness economics is the formal academic study of the relationship between individual satisfaction and economic issues such as employment and wealth".

The sample item is: "I value the status in society". The respondents evaluated this request with an average of 4.37 points according to the LIKERT scale ("never" to "always"). Respectively, 44% of the respondents evaluate this request with 4 points and 50% evaluate it with 5 points. Only 6% of them evaluated it with 2 points.

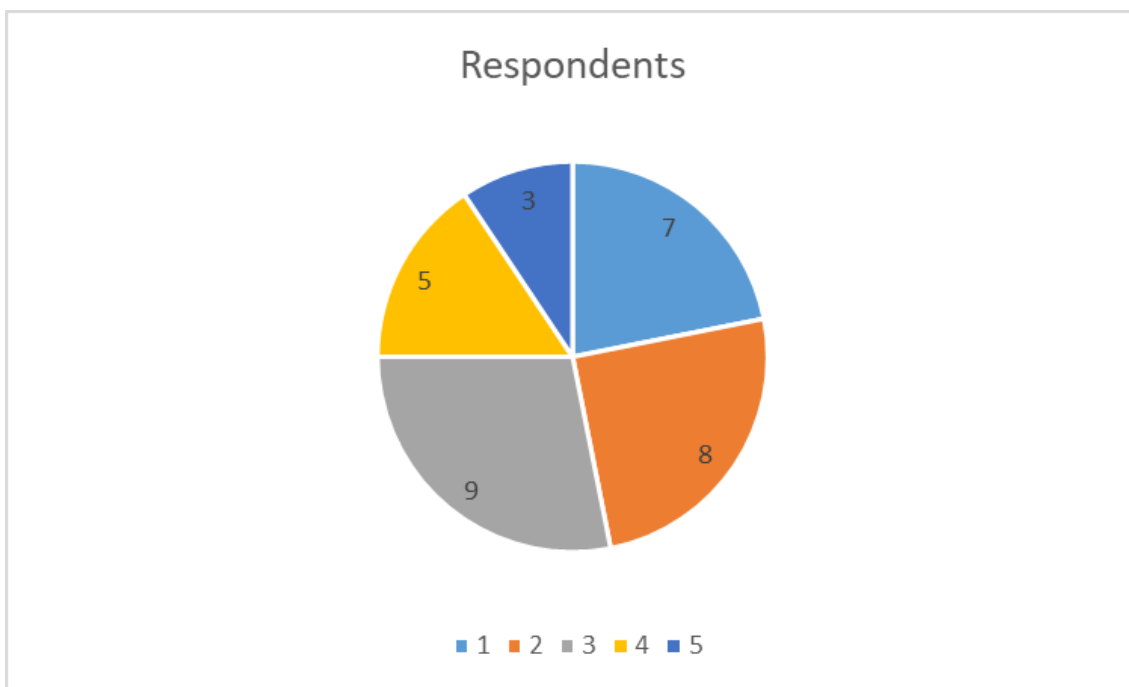


Fig. 2. Respondents

The Pay and the Social Status factor have a relationship between them. Daoud (2017) admits that: "Multicollinearity, or near-linear dependence, is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated." Between the salary factor and that social status there is a strong connection with a corresponding coefficient of 0.86.

The payment factor related to performance, in addition to the fact that it represents an important financial incentive for the achievement of objectives, also constitutes an important managerial factor because it avoids the continuous supervision of employees. This manifests the management of human resources with mutual trust.

Training and development

Training as a managerial commitment is necessary since on the one hand it enables employees to increase their professional skills and on the other hand it ensures success to the business. "Upskilling, career development, and similar programs are crucial aspects of running a successful business, but they're easy to overlook" Newton (2023). For Rudy (2022): "Learning and Development (L&D) programs are critical for the success of any organization. These programs both ensure that employees have the skills and capabilities necessary to do their jobs well, and demonstrate to those employees that their employers believe they are worth investing in - ultimately boosting company culture and fostering greater commitment to the organization". The sample item is: For me, training is very important. All respondents value the importance of training. The average rating is 4.1 points according to the LIKERT scale. Most of the respondents, about 68.7% of them, have evaluated this factor with 4 points, 6.3% with 2 points and 25% with 5 points. Pfau & Kay (2002) admit that: "It also pays to enhance the skills of those employees once they are on board - as long as the enhancements mean they can perform their current jobs better now".

Teamwork

In this paper, teamwork is also analyzed, as a possibility of cooperation for good performance. The sample item is: Working in a group enables better performance. The average rating of the respondents for this item according to

the five-level LIKERT scale is 3.1 points, which can be considered an average rating. About 31.3% of them have evaluated this factor with less than 2 points, 28.1% have evaluated it with 3 points, 21.8% with 4 points and 18.8% with 5 points.

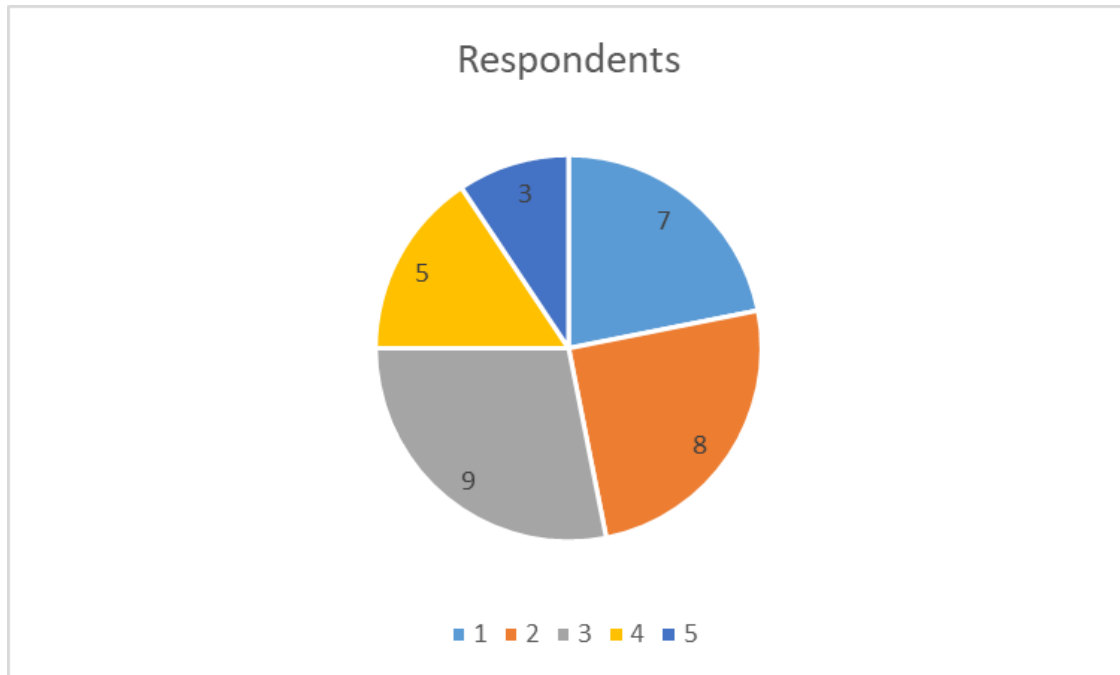


Fig. 3. Respondents

This proves that this work culture is still not sufficiently developed. Hackman (1987), who started his research about teamwork around the 1970s, admits that it's whether a team has a compelling direction, a strong structure, and a supportive context. For Haas & Mortensen (2016): "Teams cannot be inspired if they don't know what they're working towards and don't have explicit goals". They further consider "4-D" emphasizing that "... to create a climate that helps diverse, dispersed, digital, dynamic teams - what we like to call 4-D teams - attain high performance" (Haas & Mortensen, 2016).

Enrichment work (Challenging tasks)

An interesting factor is enrichment work, as a condition for performance and satisfaction at work. The sample item is: My job is challenging. The respondents evidenced the fact that regardless of their personal preferences, their current tasks are not such that they can be called challenging. Therefore, the average evaluation by the respondents for this factor is 2.6 points. The distribution of the respondents according to their evaluations based on the LIKERT scale is presented in the following graph:

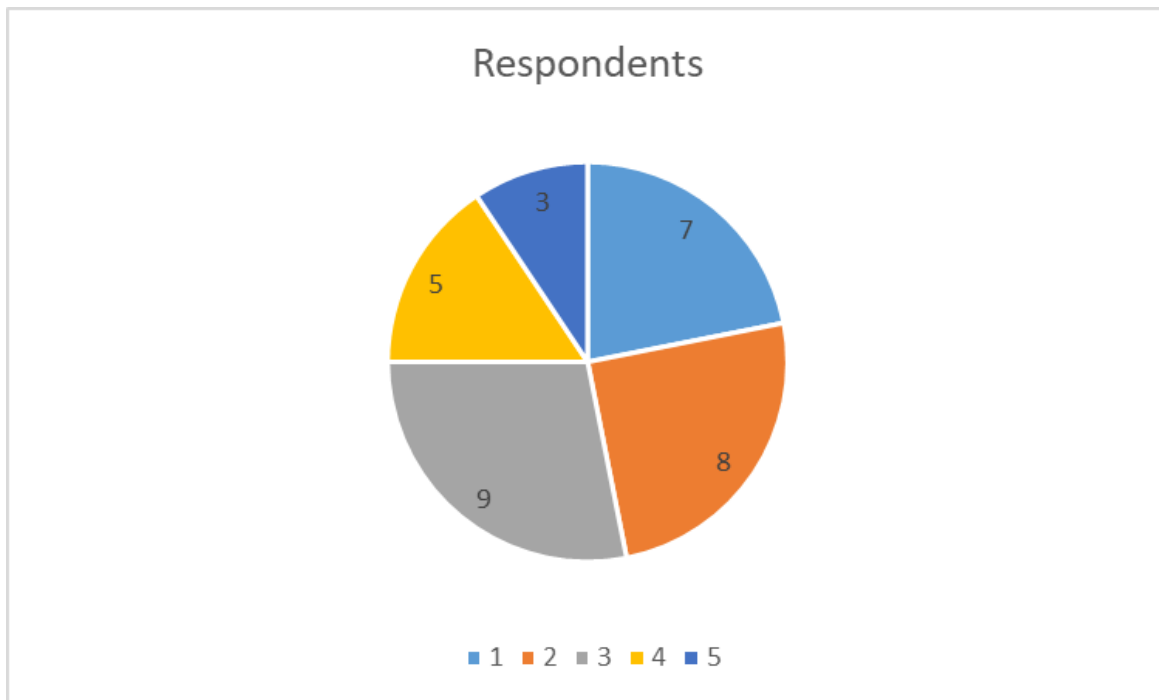


Fig. 4. Respondents

The analysis evidenced the concern of the employees regarding the challenging tasks. Engagement in challenging tasks should be in the attention of every manager since engagement in challenging tasks targets business performance. For this, Adler & Kwon (2002) admit that: "When employees find personal alignment and a sense of identification between the broader purpose of the organization and their personal goals, there is a better chance that these individuals will be engaged and motivated to help the organization succeeds". They (challenging tasks) develop human resources skills and evidence talents. "Failure to take into account the element of diversity in the workplace can adversely affect a firm's ability to manage talent" (Paludi, 2012). Engaging employees in challenging tasks should be a continuous objective of managers' work. William, Paul, Robertson & Herzberg (1969) who refer to Frederick Herzberg and emphasize: "According to him job enrichment seeks to improve both task efficiency and human satisfaction by means of building into people's jobs, quite specifically, greater scope for personal achievement and its recognition, more challenging and responsible work, and more opportunity for individual advancement and growth". However, in challenging tasks, managerial talent plays an important role, since in some cases challenging tasks are threatened by conflict. Sonnentag, Kottwitz, Koch & Volker (2023) admit that: "how enrichment and conflict relate to other variables, how enrichment and conflict develop over time and how they can be influenced by interventions". Job enrichment empowers the employee. It represents personal and professional growth and enables HR professionals to solve important business challenges and gives them job satisfaction.

The results of the above analysis are justified from a statistical point of view, as shown in the table below:

Table 1. An example of a table

Factors	Cronbach's Alpha	Mean
Pay refers to performance	.809	4.7
Social status	.901	4.4
Teamwork	.813	3.1
Training and development	.898	4.1
Job enrichment	.843	2.6

4. CONCLUSIONS

The success of the economic activity of businesses is closely related to the management of human resources. HRM is a responsible, difficult, complex and multidimensional process in the perspective of business performance. This paper makes a presentation of some of the theoretical problems in the context of the topic of this paper. HRM is a very broad activity with many influencing factors, which are independent or in agreement with each other. The analysis includes several HRM factors that also condition business performance. From the totality of factors, the salary is the most valued factor, which also affects the "social status" factor. Problematic is job enrichment, which has the lowest rating. The results of this paper will help managers to make their work more effective. In this context, the drafting by the manager of a strategic plan of human resources will constitute an important document that supports the business and emphasizes the future needs of the employees.

5. LIMITATIONS

The paper, despite the achievements, has some limitations. The first limitation is the sample size. But it should be noted that this has scientific support. Also, the literature review could also include books or theses, which also constitutes a limitation.

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Research on Sustainable Development of Mango Industry-Taking Baise, Guangxi, China as an Example

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Abstract

This study examines the sustainable development of the fruit industry in Baise, Guangxi from the perspective of entrepreneurial management, aiming to promote economic growth, environmental sustainability and regional well-being. Mango is the most outstandingly performing fruit among all fruit varieties in Baise, so mango is used as a starting point to study the sustainable development of Baise's fruit industry.

Keywords: entrepreneurship model; "triple bottom line"; sustainable development; differentiated policies

1. INTRODUCTION

1.1.1. Reasons for selection

The fruit industry plays a vital role in the global economy by providing a wide range of nutrient-rich products that contribute significantly to agricultural and economic growth (Qiao Xiansheng, 2010). In order to ensure the long-term viability of this industry, it is important to focus on sustainable development.

Local research helps to gain a deeper understanding of the problems and opportunities of a specific region and provide targeted advice to local governments, enterprises and social organizations, and regional research is an important way of global change research (Li Jiayang, Chen Panqin et al., 2006). Through in-depth study of Baise City, we can provide practical suggestions and programs for sustainable development and entrepreneurship management in the region.

Located in picturesque southern China, Baise is known for its fertile land and favorable climate, making it an ideal area for fruit cultivation. In 2001, mainland China's accession to the World Trade Organization (WTO) brought both opportunities and challenges to Guangxi's fruit industry, and Baise has seized the opportunities presented by the fruit industry to achieve economic prosperity and create employment opportunities (Zhu, Yingxue, and Huang, Manzhong, 2001). However, with growing global concerns about environmental degradation and resource depletion, Baise's fruit industry, like others, faces challenges that require innovative and sustainable solutions.

An important aspect of the sustainable development of the fruit industry is the adoption of environmentally friendly cultivation methods. Zhao Mulin, Ruan Qingbo (2011) proposed accelerating the scale-up of efficient water-saving irrigation to support the sustainable development of Guangxi's specialty agriculture. Entrepreneurs in

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Baise can explore organic farming methods, reduced pesticide use, and efficient water management systems. By prioritizing these sustainable practices, they can not only protect the natural environment, but also produce healthier and more marketable fruits that meet the growing demand for environmentally friendly products.

In addition, responsible waste management and energy saving processes should be an integral part of business management in the Baise fruit industry. Lv Haixia (2003) documented the practice of Gongcheng County to become the first fruit pollution-free base in Guangxi. Recycling organic waste into compost, using renewable energy, and minimizing carbon emissions are strategies that not only contribute to sustainable development, but also improve the overall efficiency of the industry.

Yang Lei (2014) pointed out that creating a fruit industry processing cluster along the border in Guangxi and engaging the local community is another important aspect of sustainable development. Entrepreneurs in Baise should consider the well-being of local residents, create employment opportunities, and support social development initiatives. By engaging in fair trade practices, supporting education, and investing in the health and well-being of the community, entrepreneurs can build strong partnerships from which everyone can benefit.

In recent years, more and more researchers have conducted related studies on Guangxi Baise fruit cultivation, which are very rich in content, including the structural analysis of the fruit industry (Rao Zhuyang and Toa Li, 2018), Baise mango (Zhao Yanni and Huang Zhaowei, 2013), high-yield and stable-yield technological measures for longan in Guangxi's Right River Valley (Huang Zhaowei, Pang Xinhua, et al., 2003), and the problems of the pest control work of dragon fruit and the countermeasures (Huang Luying, 2015), etc. However, in previous research studies on the fruit industry in Baise, Guangxi, more attention was often focused on the technical and yield problems of fruit cultivation itself. In contrast, there are relatively few studies on the sustainable development of the fruit industry in Baise.

1.1.2. Current situation and problems of China's fruit industry

As a kind of cash crop, fruit is an important part of Chinese agriculture, and plays an important role in agricultural development and the improvement of residents' income. The construction of fruit special-advantage zones has continued to increase, and the brand influence of specialty fruits such as Luochuan apples, Gannan navel oranges, and Baise mangoes has been increasing, becoming a pillar industry for local farmers to lift themselves out of poverty and increase their incomes (Wisdom Research Consulting, 2022).

In recent years, China's fruit production is perennially concentrated in Guangxi, Shandong, Henan, Shaanxi, and Guangdong, etc. In 2022, the top five provinces in China's fruit production ranked in the order of Guangxi, Shandong, Henan, Shaanxi, and Guangdong, and their shares in the national fruit production were 10.79%, 9.81%, 8.06%, 7.1%, and 6.43%, respectively, of which Guangxi, Shandong, Shaanxi, Guangdong The production of garden fruits is high, and the production of melons in Henan and Shandong is at the forefront of the country (National Bureau of Statistics of China, 2022).

In 2019, China's National Health Commission released the Healthy China Action (2019-2030), which encourages residents to improve their dietary structure and emphasize dietary health. Meanwhile, as the younger generation has become the main consumer, the directly edible nature of fruits has led to their gradual snacking, further promoting the expansion of fruit consumption scenes. In addition, new varieties, new cultivation techniques and new cultivation modes are constantly being developed, providing strong support for the high-quality development of China's fruit industry. The development of Internet technology and changes in distribution channels have reconfigured the business rules and business models of the fruit industry. The rise of community e-commerce and the prosperity of live streaming with goods have further stimulated the consumption of fruits and promoted the further increase of fruit consumption. However, China's fruit market still suffers from structural imbalance between supply and demand, contradiction between small production and big market, difficult integration of industrial chain, and urgent need to improve the competitiveness of fruit processing industry.

Deng Xiuxin (2021) points out that over the 40 years of reform and opening up, the changes in supply and demand in China's fruit industry can be roughly divided into three stages. The first is the oversupply before 1997, 1997 is a landmark year for Chinese agriculture, that year there was a surplus of agricultural products in China, and for the first time, fruits were not sold. The second is the basic balance between supply and demand in 1997-2008. At this stage, the fruit industry was developed and basically everything produced could be sold. Third, the supply exceeds demand after 2008 to the present, but not an absolute surplus, but a structural and unbalanced total surplus, for example, the concentration of the same type of fruit on the market. In addition, the large population was originally the advantage of Chinese agricultural production, but with the rise of China's labor costs, China's production of fruit export price advantage is gradually weakening, the competitiveness of the international

community is gradually declining, and it can even be said that, in addition to a few kinds of fruits, China's fruits basically do not have a competitive advantage, which is the reality of China's fruit production is currently facing.

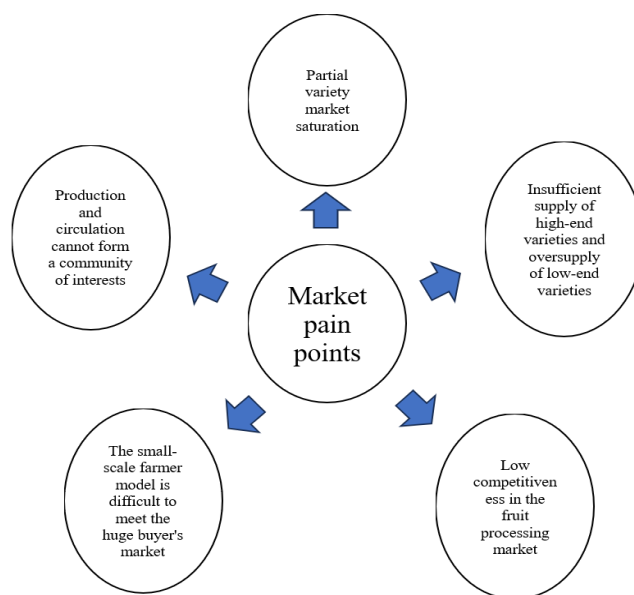


Fig. 1. Problems in the Chinese fruit market

1.1.3. Importance of Guangxi.

2022, Guangxi garden fruit planting area of more than 20 million mu, fruit production of 30.8 million tons, accounting for more than 1/8 of the national total, fruit gross product of more than 170 billion yuan. Guangxi fruit production has maintained the first in the country for five consecutive years. Among them, citrus production exceeded 18 million tons, accounting for 1/10 of the global citrus production, accounting for 1/3 of the national citrus production. persimmon, dragon fruit, passion fruit production ranked first in the country, mango, banana, lychee, longan production ranked second in the country. Peaches, plums, pears and grapes have also formed a large-scale development, laying a solid foundation for Guangxi to expand and strengthen the fruit industry (People's Daily Overseas Edition, 2023).

In addition, Guangxi has also become one of the most important fruit corridors between Southeast Asia and China. This geographic location advantage makes Guangxi an important hub for fruit trade, which not only meets the needs of local residents, but also exports a large number of fruit products to Southeast Asian countries. This exchange and cooperation not only helps to enhance the international influence of Guangxi's fruit industry, but also promotes the economic development of the region.

According to the "2022 fruit industry development work points" issued by Guangxi province, as of 2022, the total investment of Guangxi mango industry cluster is 810 million yuan, of which, the central subsidy funds 150 million yuan, directly or indirectly prying the social capital investment of 660 million yuan, prying ratio of 1:4.4. In the aspect of standardization, the cluster project constructed 30,000 acres of standard orchards, and the radiation driven standardized planting application area of about 200,000 mu, the new cultivation of autonomous region level modern characteristics of agricultural demonstration area 3; in the leading enterprises to introduce cultivation, the successful introduction of fresh, giant garden, fresh friend, Zhonghui, Zhuangling fruit 5 mango processing enterprises, the current scope of the cluster of mango processing enterprises to reach 10, the processing output value and the first output value ratio of 1:1.8, the mango processing capacity to reach 823,000 tons (including the primary processing), the processing conversion rate of 75%, including deep processing capacity to reach 20,000 tons (including primary processing), the processing conversion rate of 75%. In 2022, the average price of mango fresh fruit 5.8 yuan / kg, an increase of 18.35% year-on-year, the average price of second fruit 2.5 yuan / kg, an increase of 21.95% year-on-year; in the United Farmers to bring the agricultural side The mango processing industry has absorbed a total of 13,000 people, of which about 1,800 jobs are provided for poverty-stricken households, and the annual per capita

income of the poverty-stricken people involved in labor has increased by more than 20,000 yuan, for example, the Fruit World Processing Factory has absorbed a total of 742 poverty-stricken people to work (including 206 poverty-stricken people who have been relocated from their hometowns); in the aspect of circulation capacity, it has built a comprehensive wholesale market for agricultural and sideline products of Tianyang District, a Chinese mango trading center in Tiandong County, and a Chinese mango trading center in Tianyang Gudingxiang County. Trading Center, Tianyang Gudingxiang agricultural products comprehensive wholesale market, Right River District, such as five large-scale professional wholesale market, the opening of Baise - Beijing fruit and vegetable green train, and Shenzhen jointly built "Shenzhen - Baise agricultural products supply chain distribution base". The introduction of SF, Sanke and other logistics enterprises to build large-scale warehousing and logistics and agricultural business wisdom agricultural products market, new mango storage capacity of 40,000 tons, the construction of cold storage capacity of 15,000 tons, and vigorously improve the efficiency of the circulation of mango and radiation capacity; in the new business subjects, the addition of more than 6 municipal-level leading enterprises, of which the autonomous region level 2; the addition of more than 22 municipal-level professional cooperative demonstration societies, of which the autonomous region level 7 There are 22 professional cooperative demonstration societies above the municipal level, of which 7 are at the autonomous region level; there are 24 model family farms above the municipal level, of which 7 are at the autonomous region level.

1.1.4. Importance of Baise

Since then, Baise City has been actively promoting the fruit planting industry, especially since the "13th Five-Year Plan", Baise City Municipal Party Committee and the municipal government of Baise City, the characteristics of fruit planting as a poverty alleviation, rural revitalization of one of the leading industries, in accordance with the "varieties of cultivation excellence, quality enhancement, branding, standardization of production In accordance with the "variety cultivation, quality enhancement, brand building, standardized production" development ideas, focusing on "preserving the surface and improving the quality, extending the chain and increasing efficiency" on the effort. By the end of 2022, the city's orchard area of 2,635,800 mu, listed fruit production of 2,352,700 tons, total output value of 8.717 billion yuan. Fruit benefits have been greatly improved, and the fruit industry has become a powerful hand in promoting rural revitalization (Luo Xia, 2023).

Baise is the largest city in the Guangxi Zhuang Autonomous Region and is known for its booming agriculture, especially the fruit industry. The fruit industry has become one of the pillar industries of local economic development. The suitable climatic conditions, rich land resources and unique geographical location have made the cultivation of various fruits flourish here. In recent years, the production and quality of fruits have been improving, bringing considerable benefits to the rural economy of Baise City and playing a vital role in the local and regional economy. Baise's contribution to the agricultural industry has greatly influenced the overall economic development of the Guangxi Zhuang Autonomous Region.

The prominence of Baise City as an agricultural center has also contributed to the overall development of the surrounding area. Economic activities, infrastructure construction and agricultural development in Baise City have improved the quality of life of Baise City residents and surrounding communities. Currently, Baise City is engaged in fruit cultivation, distribution, processing and other production and management of key leading enterprises of agricultural industrialization above the municipal level amounted to 41, all kinds of fruit professional cooperatives 484, operating more than 500 acres of planting 91 large households. 2022, the new management main body of the linkage between agriculture and agriculture has obvious effect, all kinds of new management main body from the hands of the fruit farmers directly purchased the value of mango totaled as much as 1.9 billion yuan. In terms of mango, Baise mango season picking and sales period actually solved a total of 230,000 jobs, of which the population of poverty-stricken households of about 46,000 people, per capita labor income of 4,600 yuan; in terms of citrus, the city's cultivation of citrus about 50,000 households, the industry led to the production of farm households, processing, management and other annual per capita income of more than 6,000 yuan, which benefited poverty-stricken households of up to 26,400 households. The development of the citrus industry has also led to the development of processing, distribution, sightseeing tourism and other related industries, solving employment problems for neighboring farmers (Luo Xia, 2023).

In 2022, the planting area and output of Baise mango for the first time achieved the goal of "double million", and the geographical indication brand of "Baise mango" was successfully selected as one of the typical cases in the Compendium of Typical Cases of Geographical Indications Helping Rural Revitalization, "Baise Mango" was successfully selected as one of the top 100 regional brands in 2022 (ranked 37th), and the ranking of Baise mango regional brand was raised from 58th in 2019 to 37th in 2022, and it is the only mango brand shortlisted in the list of

top 100. After years of development, Baise has become the largest mango production base of prefecture-level cities in China. The main production areas of Baise mango, Tianyang County, Tiandong County and Youjiang District, have been awarded the "Hometown of Chinese Mango" and have passed the certification of pollution-free fruit origin (Luo Xia, 2023).

Mango is the most representative fruit in Baise, and the study of the sustainable development of the mango industry in Baise is a very important task, which can help to understand the current situation of the mango plantation industry in the region and the direction of future development.

Table 1. Fruit production in Baise, 2022

Variety	Orchard area	Compared to the previous year %	Orchard production area	Compared to the previous year %	Fruit yield	Compared to the previous year %
Total	2607314.90	-0.52	1973468.42	3.97	2301361.29	9.35
Citrus fruit	666397.82	-4.00	478560.48	-6.97	779755.96	8.26
Among them: citrus	397069.74	-11.58	324123.49	-11.01	629529.71	4.62
Tangerine	73052.68	0.00	27341.06	0.00	28891.04	0.00
Kumquat	2151.80	1.69	0.00	-100.00	0.00	-100.00
Orange	157728.14	-21.30	108835.19	-16.69	105910.19	-0.39
Pomelo	36230.76	-14.37	18175.74	-6.36	15412.02	26.08
Among them: Shatian pomelo	1469.00	1.87	1248.84	2.71	1003.43	1.06
Other citrus fruits	164.70	0.00	85.00	0.00	13.00	0.00
Banana fruits	166473.69	-0.70	149037.78	-5.31	303987.21	-3.90
Among them: bananas	102372.02	-0.98	90277.27	-5.37	233179.50	-5.75
Litchi	8614.04	-12.23	6392.63	-25.15	3896.42	-4.83
Longan	12176.90	-27.14	9517.96	-16.48	7094.56	-9.01
Mango	136882.26	0.42	1108415.96	13.02	1055837.78	16.68
Pineapple	2408.08	20.29	1053.14	-49.79	1834.60	-36.11
Pear	9009.83	-1.95	7971.08	-0.91	6603.95	-11.44
Jujube	199.83	-67.76	27.83	-93.08	15.80	-83.94
Persimmon	10806.17	-3.75	9659.27	11.11	3391.87	-20.09
Plum	85119.62	-1.00	61684.93	-2.04	27869.69	10.94
Peach	53173.35	-2.08	33187.19	6.79	13679.12	14.14
Kiwifruit	52602.86	19.38	9164.00	-18.58	10751.41	15.45
Grape	8661.52	-15.16	7450.38	7.85	7884.59	-39.44
Pitaya	34548.72	-5.39	28719.02	5.29	33898.28	3.38
Passion fruit	20235.10	14.00	18244.84	43.79	14531.45	40.98
Other Fruits	108005.11	-29.50	44381.93	-52.99	30328.60	-60.71

As can be seen from Table 1, synthesizing the three indicators of orchard area, orchard production area and fruit production, as well as the increase or decrease of each indicator compared with the previous year, mango is the most outstanding fruit among all fruit varieties in Baise City. Therefore, mango is taken as the starting point for studying the sustainable development of Baise fruit industry.

1.1.5. The Importance of Research Baise.

During his inspection of Guangxi, General Secretary Xi Jinping emphasized the need to build a group of characteristic agricultural industry clusters based on Guangxi's unique resources such as forests, fruits, vegetables, animal sugars, etc. Baise City has turned "small mangoes" into a "big industry". In 2021, "Baise Mango" was approved to build a national advantageous characteristic agricultural industry cluster. His important directive spirit has taken root in the revolutionary old areas.

Baise utilizes its unique natural resources and climate conditions, and insists on making the mango industry an important part of agricultural modernization and a major project to strengthen agriculture and enrich the people. Through scientific planning, demonstration and leadership, and brand integration, Baise has further promoted the development and growth of the mango industry, becoming the largest mango base in China. This study is beneficial for closely observing the development of characteristic industrial clusters based on resource advantages in Baise, and achieving its sustainable development goals.

1.2. Research objectives

The purpose of this study is to examine the relationship between entrepreneurial elements and sustainable development in Guangxi Baise fruit industry:

1. To promote economic growth, environmental sustainability, and regional well-being.

2. To provide valuable insights that can be applied to other regions and provide reference for policy formulation.

3. To studying the sustainable development of the Baise mango industry can help understand the current situation and future development direction of the mango planting industry in the region.

1.3. Significance of the study

1.3.1. Theoretical implications

Combining the principles of sustainable development with the elements of entrepreneurship to study the Baise fruit industry in Guangxi has far-reaching theoretical implications. This area of research blends two seemingly distinct fields of sustainable development and entrepreneurship management, providing us with the opportunity to explore and practice in order to find and respond to the complex challenges facing society, the economy and the environment today.

First, the theoretical significance of this area of research is far-reaching. Sustainable development has become an important part of today's global agenda, aiming to balance economic growth, social equity and environmental protection. At the same time, entrepreneurship management involves innovation, resource allocation, risk-taking and opportunity-seeking. Bringing these two fields together allows us to think about and address sustainability challenges in a more holistic way. It also facilitates interdisciplinary research, bringing together perspectives and approaches from a wide range of disciplines, including economics, management, environmental science and sociology.

Through in-depth study of Guangxi Baise fruit industry, we can empirically verify and enrich the existing theories. This study not only stays at the theoretical level, but also combines theory and practice through fieldwork, data analysis and case studies. This helps to enhance the operability and relevance of the theory. In the specific context of the Baise fruit industry, we can explore various aspects of entrepreneurship management, such as opportunity identification, resource acquisition, innovation strategy, and market development, in order to understand how they interrelate and influence the principles of sustainable development.

The fruit industry itself has great potential and challenges. Baise City, with its favorable location, climate and fertile soil, is an ideal area for fruit cultivation. However, increasing global concern over environmental issues and depleting resources have challenged the fruit industry with the need for innovative and sustainable solutions. Therefore, the theoretical significance of this research area is to explore how the principles of sustainable development can be implemented in the fruit industry to ensure its long-term viability and sustainability.

The fruit industry offers entrepreneurs a wealth of opportunities when it comes to the elements of entrepreneurship. Baise's fruit industry has a competitive advantage nationwide and can attract more entrepreneurs. Combined with the principles of sustainable development, these entrepreneurs can explore areas such as new planting techniques, supply chain management, and market innovations to improve the competitiveness of the industry. They can look for sustainable agricultural practices, such as organic farming, pesticide reduction, and water management, to reduce negative impacts on the environment while producing healthier and greener products.

Another theoretical implication is to study the sustainability assessment of the fruit industry. We can develop assessment tools and indicators that can be used to measure the economic, social and environmental sustainability performance of the fruit industry. These assessments can help companies and governments understand their sustainability performance, identify opportunities for improvement, and track progress. This can help to advance the achievement of the Sustainable Development Goals (SDGs).

In addition, research can provide targeted policy recommendations for governments and policymakers. These include incentives for sustainable entrepreneurship, resource management policies, market access policies, etc. These recommendations will help create a favorable entrepreneurial environment and encourage more entrepreneurs to join the fruit industry while ensuring its sustainability.

1.3.2. Practical implications

Studying the sustainable development of the Baise fruit industry is of strategic importance for the long-term development of the fruit industry in Guangxi and the whole country. China is one of the largest fruit producers in the world, and the fruit industry has an important impact on the domestic agricultural economy and farmers' livelihood. As an important base of the fruit industry, if Baise region can succeed in sustainable development, it will help

improve the competitiveness of the entire domestic fruit industry and promote the modernization and internationalization of the industry.

Studying the sustainable development of the Baise fruit industry is also in line with the policy direction of the Chinese government. The Chinese government has been emphasizing the importance of sustainable development and green economy and encouraging enterprises to adopt environmentally friendly and socially responsible business practices. Therefore, enterprises in the Baise region that successfully implement the principles of sustainable development are expected to receive policy support and incentives from the government.

From a practical point of view, combining the principles of sustainable development with the elements of entrepreneurship, the study of the Baise fruit industry can provide strong guidance and implementation programs for enterprises in the region. The fruit industry has an important position in Baise region, which not only provides abundant local employment opportunities, but also provides high-quality fruit products for domestic and international markets. However, traditional agriculture and fruit production methods may lead to resource waste, environmental pollution and social problems. By introducing the principles of sustainable development, enterprises can better manage resources, reduce waste, improve production methods and reduce environmental risks. This not only contributes to long-term business development, but also helps to improve product competitiveness and meet the growing consumer demand for sustainable products.

Constructing the concept of sustainable entrepreneurship in the fruit industry and closely integrating the principles of sustainable development with the elements of entrepreneurship can enable entrepreneurial activities in the Baise region of Guangxi to focus on environmental protection and social responsibility along with economic growth. This can help to create a sustainable entrepreneurial ecosystem and promote the green, sustainable and socially responsible development of the regional economy.

1.4. Research innovations

The innovation of this research thesis is that it explores the sustainable development of the fruit industry in Baise, Guangxi through an entrepreneurial lens and from a business management perspective. This unique approach combines the principles of sustainable development with entrepreneurial practices to address the challenges and opportunities facing the fruit industry in the region. By integrating the case study of Baise, the research delves into the practical complexities of a specific geographic context, providing insights and solutions that are applicable not only to similar regions, but also to the broader agricultural sector.

A notable innovation of this study is its specialization. By focusing on Baise, a city with a long agricultural tradition and a significant fruit industry, the spotlight on a specific geographic context provides a detailed understanding of the region's unique challenges and potential. Baise's climate, soil characteristics, local practices, and market dynamics create a unique context for studying the sustainability of the fruit industry. This focus allows for more targeted recommendations and insights that can directly impact Baise's fruit industry while providing a valuable reference for other similar regions.

This thesis also adds a dynamic dimension to the study by including entrepreneurial management principles. Entrepreneurship is more than just starting a business; it is about identifying opportunities, innovating and managing resources effectively. By applying entrepreneurial management to the sustainable development of the fruit industry, the study examines how local businesses and industry stakeholders can actively contribute to positive change. Entrepreneurial insights, such as market-driven innovation, strategic resource allocation, and adaptive decision-making, combined with the SDGs, create a powerful framework that both promotes economic growth and supports responsible practices.

In addition, this study investigated sustainable practices in depth within the fruit industry in Baise. It is not limited to theoretical discussions, but also empirical data collected through questionnaires and analyzed using SPSS. This data-driven approach allowed for a comprehensive assessment of current sustainable practices, identifying strengths and areas for improvement. This empirical focus ensures that the recommendations provided are rooted in real-world conditions, making them more actionable and relevant to the fruit industry in Baise.

The thesis also employs a case study approach to enhance the practicality and real-world applicability of the study. Baise, as a typical case study, provides a microscopic view related to the challenges faced by similar regions. The methodology allowed for an in-depth study of specific factors affecting the sustainable development of the Baise fruit industry, including local policies, market dynamics, regional participation, and resource management. The insights gained from the case study provide valuable lessons for entrepreneurs, policymakers and researchers seeking to promote sustainable practices in similar contexts.

The innovative approach of this study contributes to both theoretical understanding and practical application. The development of a theoretical framework that integrates sustainability and entrepreneurial management fills a gap in the literature. This framework provides a structured basis for understanding how sustainable entrepreneurial management can be achieved in the fruit industry, providing researchers with new perspectives and conceptual tools. At the same time, the practical recommendations derived from the case studies help entrepreneurs and industry stakeholders in their quest to generate positive impacts while ensuring business growth.

2. LITERATURE REVIEW

2.1. Concept of sustainable development in the fruit industry

Sustainable development is a concept that emphasizes meeting the needs of the present without compromising the ability of future generations to meet their own needs. It involves finding a balance between economic growth, environmental protection and social well-being. This approach argues that development should not be achieved at the expense of depleting natural resources or damaging the environment, but rather by ensuring the long-term health and viability of ecosystems and communities. According to Edward B. (1985), "sustainable development" is the process of maintaining the quality of natural resources and the services they provide, while maximizing the net benefits to the economy. increase to the maximum extent possible.

Sustainable development takes into account a variety of interrelated factors and is generally recognized as encompassing three broad dimensions:

1. **Economic sustainability:** Promoting economic growth and prosperity while ensuring responsible and equitable use of resources and promoting fair trade. According to Zhao Shidong and Wang Limao (1996), maintaining economic sustainability is the core element of sustainable development. They point out that sustainable development has to have poverty eradication as its primary goal and highest priority because poverty reduces their ability to utilize resources in a sustainable manner. For developing countries, accelerating economic development and raising the level of economic development is an important indicator of the realization of sustainable development. Without sustainable economic development, poverty cannot be eradicated and there can be no sustainable development.

2. **Environmental sustainability:** Promoting the conservation and sustainable use of natural resources, reducing pollution and waste, and preserving biodiversity; Goodand (1994) and others define "sustainable development" as "development that does not exceed the carrying capacity of the environment". According to Forman (1990), sustainable development is "the search for an optimal ecosystem that supports the integrity of the ecosystem and the realization of human aspirations for a sustainable human existence".

3. **Social Sustainability:** Improving the quality of life for all, promoting social equity, and building inclusive and diverse communities. Onishi (1994) sees sustainable development as providing adequate livelihoods for all people in society, now and in the future, to the extent that the environment permits.

On this basis, Elkington (1997) was the first to propose the concept of the triple bottom line, in which he argued that in terms of areas of responsibility, CSR can be categorized into economic, environmental and social responsibility. Economic responsibility, which is the traditional corporate responsibility, is mainly reflected in the improvement of profits, tax liability and dividends to shareholders and investors; environmental responsibility is environmental protection; and social responsibility is the responsibility for other stakeholders in society. Enterprises must fulfill their responsibilities in these three areas when practicing CSR, which is the "triple bottom line theory" of CSR.

In order to support the realization of real-world sustainable development policy coherence at different regional and national scales, the Millennium Institute in the U.S. developed the Integrated Sustainable Development Goals (ISDG) model in 2017. The ISDG model covers 78 indicators and is a relatively mature model internationally. The ISDG model is a relatively mature model in the international arena at present, and it contains 30 interrelated modules distributed in three dimensions, namely social, economic and environmental, with 10 modules in each dimension (Fig 2).

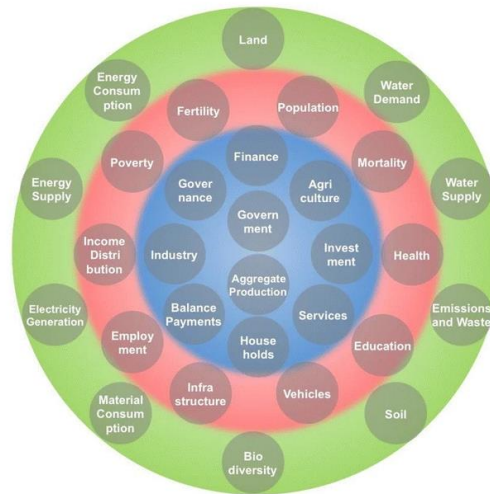


Fig. 2. Integrated Sustainable Development Goals Model (ISDG)

Taking into account the interconnectedness of environmental, economic and social factors, sustainable development aims to create a harmonious and balanced approach to growth and progress. Sustainable development encourages responsible decision-making and the implementation of practices that contribute to the long-term well-being and prosperity of present and future generations. Sustainable development in the fruit industry refers to the cultivation, production and marketing of fruit in a way that meets the needs of the present without compromising the ability of future generations to meet their own needs. It involves integrating environmental, economic and social factors into the management and operation of the fruit industry. This approach emphasizes the responsible use of resources, environmental protection and social equity and aims to ensure the long-term viability of fruit production while minimizing adverse impacts on the environment and communities

Based on the "triple bottom line" principle of sustainable development and the Integrated Sustainable Development Goals (ISDG) model proposed by Elkington (1997), the concept of sustainability in the fruit industry is specifically disaggregated in this study:

1. Economic bottom line: Sustainability and growth of the fruit industry. Promote economic growth in the fruit industry while ensuring long-term profitability and competitiveness. This includes the implementation of efficient production management, government support and financial services, good return on investment and income earning capacity.
2. Social bottom line: quality of life, employment and social justice. Ensure fair labor practices, support local communities, and promote ethical trade practices in the supply chain. This may involve, for example, providing fair wages, safe working conditions and good levels of employment.
3. Environmental bottom line: ecological balance and resource conservation. Implementation of farming methods that minimize negative impacts on ecosystems, conservation of land resources and reduction of destructive exploitation of the soil; reduction of emissions of hazardous substances, use of organic and natural methods of pest control; reduction of water consumption and conservation of biodiversity, etc.

In 2015, 195 countries reached an agreement with the United Nations that they could change the world and make it a better place. To achieve this goal, governments, businesses, media, higher education institutions, and local non-governmental organizations will work together to improve people's lives by 2030 (sdgs. un. org). This study mainly focuses on industries, innovation, and infrastructure in the Sustainable Development Goals (SDGs).

2.2. Sustainable development practices in the fruit industry

In his study, Zhang Mingpei (2008) focused on the sustainable development countermeasures for the lychee and other fruit industries in Guangxi. Guangxi's lychee and other fruit industries have important market competitiveness, but measures must be taken to address environmental and resource issues in the production process. Sustainable

cultivation and management practices, including organic farming, water-saving irrigation and soil improvement, are recommended to minimize negative impacts on the environment.

Zhao Mulin and Ruan Qingbo (2011) in their study focused on the importance and implementation strategies of efficient water-saving irrigation in the sustainable development of Guangxi's specialty agriculture. Guangxi is an important production area for fruits and agricultural products in China and possesses rich agricultural resources. However, agricultural sustainability faces some challenges due to climatic conditions and limited resources. The study found that there is an unbalanced distribution of water resources and a contradiction between supply and demand in Guangxi, and that efficient water-saving irrigation can significantly improve the utilization efficiency of water resources. The study pointed out that by adopting modern irrigation technologies and management modes, the waste of water resources can be effectively reduced and the quality and yield of agricultural production can be improved. Efficient water-saving irrigation also helps to reduce the dependence of agriculture on groundwater resources, and reduce the negative impact of agricultural production on the ecological environment. The large-scale construction of high-efficiency water-saving irrigation plays an important role in the sustainable development of Guangxi's characteristic agriculture. This study emphasizes the need to promote modern irrigation technologies and management practices in agriculture to meet the growing demand for agricultural products while protecting limited water resources and the ecological environment.

Li De'an and Chen Gui (2006) elaborated on the current situation of the citrus industry in Baise area of Guangxi as well as the countermeasures to achieve sustainable development. The main contents include the importance of the citrus industry, the distribution and situation of varieties grown in Baise, the shortage of germplasm resources, and a series of countermeasures against these problems to promote the long-term development of the Baise citrus industry: it is proposed that unsuitable varieties should be gradually eliminated, the ripening ratio of varieties should be optimized, and competitive high-quality varieties should be selected. This will help improve yield and quality and meet market demand. It emphasizes fully exploring functional citrus varieties to provide the market with products with more nutritional value to increase competitiveness. Intensive management of easy-to-cultivate varieties to achieve the goals of mechanization and intelligence to enhance labor productivity and promote sustainable development. It is proposed to form a brand of Baise citrus, improve publicity and publicize through new media and other channels to enhance the market competitiveness of the citrus industry. Emphasis was placed on innovating Baise's local characteristic citrus varieties, optimizing the industrial structure, enhancing industrial efficiency and providing support for long-term development.

Citrus huanglong disease can be prevented and controlled but not treated, in order to realize the sustainable development of citrus industry, the 11th Meeting of the Standing Committee of the 13th National People's Congress of Guangxi Autonomous Region put forward the guiding and encouraging measures taken by people's governments at all levels and relevant departments in the prevention and control of citrus huanglong disease: firstly, to formulate the development plan of the citrus industry, to guide the planting structure, varieties structure and industrial layout to be adjusted and optimized around the market demand, the requirements of pest prevention and control, and to The first is to formulate the development plan of citrus industry, guide the adjustment and optimization of planting structure, variety structure and industrial layout around the market demand and pest control requirements, and promote the standardized planting technology to improve the citrus industry's ability of resisting pests and diseases. The policy insurance system for the prevention and control of citrus huanglong disease is gradually being established, and insurance organizations are encouraged and supported to carry out insurance business related to the prevention and control of citrus huanglong disease; sixth, the planning of citrus seedling breeding bases free of quarantine pests is being formulated, and appropriate subsidies can be given to disease-free citrus seedling breeders and those who cultivate disease-free citrus seedlings to guide the cultivation of disease-free citrus seedlings; seventh, the coordination of the establishment of the joint prevention and joint control mechanism between Guangxi and the neighboring provinces and municipalities of the districts is being coordinated, and prevention and control measures are being taken in a unified manner; eighth, the prevention and control measures for the prevention and control of citrus huanglong disease are being implemented. preventive and control measures; eight, appropriate incentives can be given for verified citrus huanglong disease reports and timely removal of citrus huanglong disease plants on their own (Regulations on Prevention and Control of Citrus Huanglong Disease in Guangxi Zhuang Autonomous Region, 2019).

2.3. Entrepreneurial elements in the fruit industry

Entrepreneurship studies can be a separate and distinct academic field from traditional business management studies. Shane and Venkataraman (2000) suggest that entrepreneurship can be viewed as a process that involves

identifying, evaluating, and capitalizing on opportunities. Entrepreneurs play an important role in this process by innovating and taking risks to achieve economic and social goals. The literature emphasizes the impact of entrepreneurs' characteristics on entrepreneurial activities. The authors mention that entrepreneurs need to have the ability to innovate, willingness to take risks, decision-making ability, and the ability to execute. Also, entrepreneurs' personality traits, experiences, and social background affect their entrepreneurial behavior. The authors suggest integrating entrepreneurship research with other disciplines for a more comprehensive understanding of the entrepreneurial phenomenon. Perspectives from economics, psychology, sociology, and other disciplines can help us delve into various aspects of entrepreneurship and explain the motivations, behaviors, and impacts of entrepreneurship from different perspectives.

Entrepreneurship is not just a business activity, it is a mindset and attitude. According to Stevenson and Gumpert (1985), entrepreneurs' intrinsic drive and unique perspectives lead them to constantly seek opportunities, pursue innovations, and be willing to take risks to achieve their goals. Entrepreneurs usually possess a sensitivity to opportunities and are able to identify and capitalize on business opportunities. They show proactive action and are not satisfied with the status quo, but seek change and innovation. Entrepreneurs are willing to take risks and dare to challenge convention in pursuit of greater rewards. The authors emphasize the sense of purpose and drive that entrepreneurs possess. They are not only concerned with financial gain, but also seek self-actualization and value creation. Entrepreneurs are often deeply driven by a sense of purpose and believe that their endeavors have a positive societal impact, and this motivation pushes them to keep striving.

Entrepreneurship is a systematic process covering from idea generation, opportunity identification, business plan preparation, to business growth and development. Each stage has different key issues and challenges. Timmons (1999) discusses the identification and evaluation of entrepreneurial opportunities. He describes how to identify promising business opportunities, including considerations of market demand, competitive analysis, and technology trends. The book emphasizes the importance of the entrepreneurial team, describing team building, division of roles, leadership, and team management. The authors believe that a good entrepreneurial team is one of the keys to entrepreneurial success. The book discusses marketing strategies and methods, including market research, product positioning, branding, and sales channel selection. The authors emphasize the need for entrepreneurs to have an in-depth understanding of market needs and to develop effective marketing strategies. The authors introduce various ways of financing entrepreneurship, including venture capital, angel investment, bank loans and so on. Meanwhile, the book mentions the risks and risk management strategies in the entrepreneurial process. Entrepreneurs need to develop a clear strategy to cope with market competition and changes.

According to Timmons' (1999) model of entrepreneurship, business opportunities and entrepreneurial teams are important drivers of entrepreneurship.

2.4. Entrepreneurial initiatives in the fruit industry

In his study, Xu Bing (2020) focused on the relationship between innovation and entrepreneurship and sustainable development, using the Chinese fruit industry as a case study. The Chinese fruit industry has an important position in the world, but this industry faces many challenges with social, economic and environmental changes. The literature mentions that innovation and entrepreneurship play a key role in the Chinese fruit industry. Innovation includes product innovation, technological innovation, market innovation, and management innovation, which contribute to the competitiveness and sustainability of the industry. The study points out that innovation and entrepreneurship can improve production efficiency, product quality and market competitiveness, as well as help reduce resource waste and environmental pollution. Innovation and entrepreneurship is one of the key factors for the sustainable development of China's fruit industry. By continuously promoting innovation, the fruit industry can adapt to changes in market demand, improve resource utilization efficiency, reduce production costs, and better meet consumers' health and environmental needs.

In terms of science and technology empowering the high-quality development of the fruit industry, the team of the Guangxi Key Laboratory of New Technology for Fruit and Vegetable Storage and Processing has done a lot of work in extending and expanding the fruit industry chain. Li Xinxiong and Guan Nina (2023) point out that the lab aims to improve the added value of Guangxi's specialty fruit industry, solve problems in areas such as fresh fruit storage, as well as promote innovation in agricultural product processing technology. The team has extended the freshness of certain fruits by developing freshness preservation technology, which improves the quality of fruit storage and transportation. In addition, they also carried out liquid processing and solid state processing to make fruit wine with unique flavor. The team's results have been appraised and evaluated by experts, and a series of scientific research results have been achieved, which have positively affected the development of Guangxi's fruit

industry and farmers' income and wealth. The future direction of the team's work includes continuing to plough the field of fruit and vegetable storage and processing, helping agricultural science and technology to stand on its own feet, accelerating the transformation of scientific research results, and promoting agricultural income and wealth.

Liu Guanglin (2018) investigated the phenomenon of Baise's mango "net red". Baise is a typical old revolutionary area, once categorized as an economically underdeveloped region, facing the typical challenges of "old, small, marginal and poor". In 2018, the scale of mango cultivation in Baise has reached 1.28 million mu, with an annual output of 570,000 tons, making Baise the largest mango main production area in China. Meanwhile, the purchase price of mangoes at the origin has risen from 3 yuan per kilogram in the past to 5 to 8 yuan per kilogram, and the economic benefits have been improving. Mango has become an ace industry for people in the old region to get rid of poverty, covering 45 townships and more than 490 administrative villages, radiating 265 poor villages, accounting for 35% of the total number of poor villages. More than 68,000 poor households and 330,000 people have said goodbye to poverty by planting mangoes. In 2017, more than 6,400 yuan of the per capita net income of farmers in the city's mango-producing areas came from mango production, and the city's mango-growing families with annual incomes of more than 100,000 yuan have exceeded 11,000 households. Four years later, Fu Quynh Diem (2022) reported that Right River District in Baise City, Guangxi Province, has strongly promoted mango sales through e-commerce collection and live orchard delivery. Fruit farmer Huang Cailian both grows mangoes herself and assumes the role of helping physical buyers and e-commerce vendors collect mangoes on her behalf. She informed the villagers every morning in the WeChat group of the day's acquisition of quality and price, so that the villagers pick mangoes according to demand. In addition, a major feature this year is a live broadcast with goods in the orchard, where the anchors promote Baise's high-quality mangoes for netizens. The report mentioned that Right River District currently grows a total of 398,300 acres of mangoes, with a total output of 300,000 tons and a total value of 1.5 billion yuan in 2022, and it is expected that this year's output will be more than 350,000 tons, which will be mainly sold to the wholesale markets and supermarkets of more than 150 large and medium-sized cities across the country. Baise planted a total of 1.4 million mu of mango, this year's output is expected to be more than 1.1 million tons, the output value is expected to reach 4.5 billion yuan. This industry not only drives the local farmers to increase income and wealth, but also promotes the development of the local economy.

The rise of Baise mango has not only brought great changes to the local economy, but also provided a road to prosperity for the majority of farmers, and at the same time, it has also made more people recognize this delicious fruit, making it a "net red" fruit. The successful experience of Baise mango is not only a revelation for poverty alleviation in China's rural areas, but also a useful reference for the development of agricultural industries in other regions.

Wang Wei (2019) illustrated the continuous efforts and achievements in the field of fruit production in the Guangxi region, with particular attention to the introduction of exotic fruit varieties and localized production, the cultivation of new fruit tree varieties, measures to cope with the effects of weather, the comprehensive management of citrus huanglong disease, and the role of e-commerce in facilitating the sale of fruits. Many exotic fruit varieties have been introduced into the Guangxi region, such as passion fruit, which has become a major local production area by adapting to the local climate and optimizing planting techniques; the Guangxi Academy of Agricultural Sciences (GAAS) has devoted itself to the cultivation of new fruit tree varieties with strong resistance to cope with the impact of climate and other factors on fruit production; local farmers have adopted technical means such as greenhouses, bagging, and greenhouses to mitigate the weather's impact on fruit production, and have reduced the impact of weather on fruit production by reasonably planning planting intervals and species matching to reduce the consumptive use of land; the whole region of Guangxi has been strictly managing citrus huanglong disease since 2005, and has achieved effective control results, with citrus production ranking first in the country; e-commerce platforms play an important role in selling Guangxi fruits so that Guangxi fruits can find new outlets to not only satisfy the local demand, but also to enable more regions to enjoy fruits from Guangxi.

3. RESEARCH METHODOLOGY

3.1. Overall group

The development of the fruit industry cannot be separated from the related practitioners. We chose the practitioners in the chain of Guangxi Baise mango industry as the research object, and reacted the real situation of Guangxi Baise fruit industry by researching their situation.

The overall population of this study includes professionals engaged in mango cultivation, picking, processing, sales, distribution, and other aspects. The professions involved in the mango industry chain include government

officials, orchard manager, scientific and technological personnel, workers in mango processing plants, mango resellers, and other roles related to the mango supply chain.

3.2. Sample size

In terms of sample size, the survey spanned from March to September 2023, during which 100 mango practitioners in Baise were surveyed.

In this study, 15 interviewed units, institutions and enterprises were selected, including fruit cultivation, fruit and nut processing, fresh fruit wholesale and retailing, food processing and production, fruit warehousing and logistics, governmental institutions, scientific research institutions and e-commerce banding companies, covering the whole chain of mango industry in Baise City. The objective of this study is to obtain real data and information about the mango industry in Baise, Guangxi through field observations and direct interviews with practitioners. These data will help to analyze the advantages and problems of Guangxi Baise fruit industry and provide useful suggestions for the sustainable development strategy of Baise fruit industry and related entrepreneurship.

Table 2. List of units, institutions and enterprises interviewed

serial number No.	List of units, organizations and enterprises interviewed
1	Guangxi Fresh Life Biotechnology Co.
2	Baise Giant Garden Food Technology Co.
3	Guangxi Xianyou Food Technology Co.
4	Guangxi Tianyang Zhuangling Fruit Food Co.
5	Guangxi Fruit World Food Technology Co.
6	Huang Zhonghui Mango Orchard, Tianyang District, Baise City, China
7	Guangxi Tianyang Agricultural and Side Products Comprehensive Wholesale Market
8	China Mango Trading Center
9	Guangxi Tianyang Gudingxiang Agricultural Products Comprehensive Wholesale Market Co.
10	Baise Smart Farming Mall in Right River District
11	Baise Sanke Agricultural Products Market Co.
12	Baise Tianyang District Fruit Industry Development Center
13	Guangxi Key Laboratory of Mango Biology
14	Dongcheng Mango Shop, Right River District, Baise City
15	Guangxi Tiandong Nongpai Sanshu E-commerce Co.

3.3. Sampling methods

In this study, a stratified cluster sampling method was used to gain a comprehensive understanding of the sustainable development of the fruit industry and related factors in Baise, Guangxi. The detailed research design is as follows.

First of all, in view of the characteristics of the research population, we chose employees in the mango industry in Baise City as the target population to ensure an in-depth study of the development of the whole chain of the fruit industry in Baise. In order to ensure the reliability and validity of the survey, we asked the residents participating in the survey to have lived in their current place of residence for more than 6 months in the past 24 months in order to obtain their real information.

In the sampling process, we adopted a stratified sampling strategy to ensure the representativeness of the sample. First, we selected 15 units, organizations or enterprises as sampling units from Yujiang District, Tiandong County and Tianyang District of Baise City to cover all aspects of the mango industry in Baise City. Then, in each selected unit or enterprise, we selected 6-8 practitioners as potential respondents through simple random sampling method.

In each research unit, institution or enterprise, we screened residents of different ages as the actual respondents. Such a sampling design ensured that we could obtain a wide range of information from different communities and households to reflect the characteristics and situation of people of different ages working in the fruit industry in the whole Baise City.

All persons involved in the study obtained informed consent before submitting their data and were approved by the organization, institution or company for which they worked.

3.4. Data organization

3.4.1. Data collection

All researchers were trained to understand the purpose and methodology of the study and to become proficient in the use of specific research tools. The raw data for this study were divided into two parts; information related to the economic bottom line (maintainability and growth), social bottom line (quality of life, employment and social justice), and environmental bottom line (ecological balance and resource protection) was retrieved from public documents of Baise City government departments and data provided by the interviewed units, institutions or enterprises; information related to the influencing factors was obtained by trained investigators using a standardized questionnaire. All data were in xls format, directly converted to .sav format in the software, and then data were organized and statistically analyzed in IBM SPSS 22.0 software.

3.4.2. Quality control

We need to strictly review and process the collected data before analyzing them to ensure that the dependent variables (business opportunities and entrepreneurial teams) and independent variables (age, education level, engaged in occupation, annual income level, etc.) of each research subject strictly correspond to each other. The abnormal value values are corrected or modified by logical error correction, such as the inconsistency between the year of birth and age, the data can be verified, revised and reviewed by contacting the relevant staff, and the missing values are processed by deleting, defaulting, and placing them not to be dealt with, such as the variable of the level of annual income, which has a higher rate of missing can be dealt with by directly deleting the cases, and after deleting, the remaining cases of the variable of the rate of missing lower than 5%, the independent variables can be treated by leaving them unprocessed, and the dependent variables can be treated by defaulting neither business opportunities nor entrepreneurial teams.

3.5. Methods of statistical analysis

All data were described and analyzed using IBM SPSS Statistics 22.0, categorical variables were described in numbers and percentages (n, %), and the chi-square test (χ^2) was used for checking the comparative differences between entrepreneurial element groups in terms of gender, age, education, and level of annual income.

A logistic regression model was used to study the relationship between potentially relevant factors and sustainable development. Based on the principle of "triple bottom line" of sustainable development, this study divides the independent variables into three levels and adopts the forced entry method in the regression model, i.e., block 1 (economic bottom line), block 2 (social bottom line), and block 3 (environmental bottom line), and in order to facilitate the analysis and interpretation of the results, this study classifies the dependent variables into three categories. That is, the dependent variable is categorized by whether it is an entrepreneurship (with business opportunity or entrepreneurial team vs. neither business opportunity nor entrepreneurial team), whether it has one entrepreneurial element alone (only business opportunity or only entrepreneurial team vs. neither business opportunity nor entrepreneurial team or both business opportunity and entrepreneurial team), whether it has both entrepreneurial elements (both business opportunity and entrepreneurial team vs. neither business opportunity nor entrepreneurial team or only business opportunity or only entrepreneurial team), binary logistic regression analyses were performed, and ORs and probabilities with 95% confidence intervals (CIs) were calculated. All tests were two-tailed and the significance level was set at $P < 0.05$.

Based on Timmons' (1999) model of entrepreneurship, the availability of business opportunities and entrepreneurial teams was determined for each respondent. In coding the data, the following was used: the number "0" was used to indicate the absence of any business opportunity and entrepreneurial team; the number "1" was used to indicate business opportunity only; the number "2" The number "1" indicates only business opportunities; the

number "2" indicates only entrepreneurial teams; and the number "3" indicates both business opportunities and entrepreneurial teams.

3.6. Technology Track

The technical line of this study will be based on a variety of methods and steps in order to comprehensively understand and study the relevant factors affecting the sustainable development of the fruit industry in Baise, Guangxi. The following is the broad technical line of this study:

1. Selection of research object and preparation stage: analyze the theoretical basis and practical needs of this study. Understand the current development situation of Guangxi Baise fruit industry, analyze the influencing factors of sustainable development of Guangxi Baise fruit industry based on the principle of "triple bottom line", and divide the research population involved in this study.
2. Design of survey methodology: Design appropriate survey methods based on research objectives, including observation, interviews, and questionnaire surveys. We will use these methods to collect data and information from orchard manager, scientific and technological personnel, fruit processing factory workers, fruit resellers, and the fruit supply chain.
3. Data analysis: The data collected were organized, coded and statistically analysed. Statistical software was used to process the data and calculate the indicators to derive the relationship between the level of sustainable development and the level of entrepreneurial factors.
4. Problem analysis and recommendations: to propose sustainable development strategies for the Baise fruit industry and related entrepreneurship.
5. Writing the research report: Based on the results of data analysis and problem analysis, we will write a research report detailing the background, purpose, methodology, results and recommendations of the study. The report will summarize the research process and findings, and provide practical references for Baise City Government.

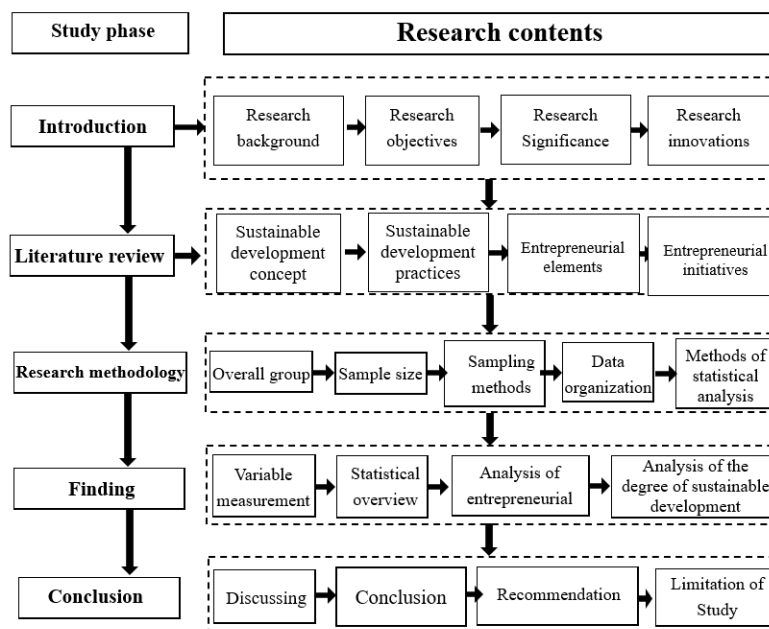


Fig. 3. Research framework diagram

In summary, the technical route of this study will cover multiple steps such as data collection, analysis and problem solving, aiming at a comprehensive understanding of the development of Guangxi Baise fruit industry as well as suggestions and strategies for improvement.

4. FINDINGS

4.1. Sample statistics

4.1.1. Status of independent variables in the study sample

A total of 100 practitioners from 15 units, organizations and enterprises in the mango industry in Baise City were selected for this study. Among them, there are 9 orchard manager, 30 mango processing factory workers, 37 fruit resellers, 6 fruit warehousing workers, 6 fruit supply chain workers, 6 agricultural government officials, and 6 laboratory researchers. The age range was 18-60 years old, with an average age of 35.4 years old, of which 85 (85%) were 18-50 years old, 15 (15%) were 50 years old and above, 51 (51%) were male and 49 (49%) were female. Nearly half (46%) of the practitioners had junior high school and post-secondary education, and more than half (54%) had an annual income of less than RMB 100,000 per year. See Table 3 for details.

Table 3. Independent variables of the study sample

variant	categorization	Number of cases (persons)	Composition ratio (%)
Sex	a male	51	51
	females	49	49
Age (years)	18-50	85	85
	50-60	15	15
Educational attainment	Primary and below	21	21
	Junior/Secondary	46	46
	High school and above	33	33
Annual salary	Less than 100,000 RMB	54	54
	RMB 100,000 to 300,000	28	28
	More than 300,000 RMB	18	18
Career	Orchard Manager	9	9
	Mango processing factory workers	30	30
	Fruit reseller	37	37
	Fruit Warehouse Worker	6	6
	Fruit Supply Chain Logistics Worker	6	6
	Staff of Tianyang District Fruit Industry Development Center	6	6
	Scientific Staff, Mango Biological Laboratory	6	6

4.1.2. Status of independent variables in the study sample

Among 100 respondents, we conducted a survey related to independent variables. At the level of economic sustainability, 89% (89) of the respondents were able to maintain their operations and 76% (76) were at a profitable level; at the level of social sustainability, more than half (68%) of the respondents had a good quality of life, 88% (88) had good employment opportunities, and 90% (90) were treated fairly and equitably. In terms of the level of environmental sustainability, 86% (86) of the respondents have maintained ecological balance in their operations and 92% (92) of the respondents have protected natural resources. Overall, the level of environmental sustainability is high, followed by economic sustainability, and social sustainability is the lowest, which is mainly reflected in the fact that the quality of life of the respondents needs to be improved. See Table 4 for details

Table 4. Independent variables of the study sample

variant	categorization	Number of cases (persons)	Composition ratio (%)
sustainability	sustainable	89	89
	untenable	11	11
growth-oriented	profitability	76	76
	(financial) loss	24	24
quality of life	favorable	68	68
	Fair or poor	32	32
employment situation	favorable	88	88
	Fair or poor	12	12
social justice	favorable	90	90
	Fair or poor	10	10
ecological balance	favorable	86	86
	Fair or poor	14	14
Resource protection	there are	92	92
	not have	8	8

4.1.3. Entrepreneurship in the study sample

Of the 100 participants recruited for this study, 73 belonged to entrepreneurship. The findings of the types of entrepreneurial elements possessed by the sample are presented in Table 5.

Table 5. Types of entrepreneurial elements in the sample

Occupation of respondents	number of examples	Types with entrepreneurial elements				entrepreneurship rate
		Not entrepreneurial	Only business opportunities	Only the startup team	Combination of business opportunity and entrepreneurial team	
Orchard Manager	9	0	6	2	1	100%
Fruit Processing Workers	6	3	3	0	0	50%
Food processing plant workers	24	8	16	0	0	66.67%
Fruit wholesale market owner	25	0	3	2	20	100%
Fruit Warehouse Worker	6	6	0	0	0	0
Fruit Supply Chain Logistics Workers	6	2	4	0	0	66.67%
Fruit retail store owner	2	0	0	0	2	100%
Fruit retail store worker	4	2	2	0	0	50%
Staff of Tianyang District Fruit Industry Development Center	6	6	0	0	0	0
Scientific Staff, Mango Biological Laboratory	6	0	4	1	1	100%
Anchor	6	0	4	0	2	100%

Table 5 shows the types and rates of entrepreneurship among the different occupational groups with entrepreneurial elements. 100% of orchard manager have entrepreneurial elements, mainly in the form of business opportunities only and entrepreneurial teams only, reflecting the tendency of farmers to identify business opportunities and form teams in the fruit industry. 63.33% of mango processing factory workers belong to the entrepreneurial group, mainly in the form of only commercial opportunities, which may be related to their greater opportunities to discover business opportunities in the processing process. 94.59% of fruit resellers belong to the entrepreneurial group, of which 24 have both business opportunities and entrepreneurial teams, reflecting that fruit resellers may have a more comprehensive coverage of entrepreneurial elements in the fruit industry. Some of the

other occupational groups (including fruit warehouse workers, fruit supply chain logistics workers, Tianyang District Fruit Development Center staff, mango bio-lab researchers) have entrepreneurial elements, but some groups, such as fruit warehouse workers and Tianyang District Fruit Development Center staff, have lower entrepreneurial rates, possibly because their responsibilities are more oriented toward to support and management.

Taken together, there are differences in entrepreneurship rates among different occupational groups, which may be related to their roles and opportunities in the fruit industry.

4.2. Analysis of single factors affecting entrepreneurship

The results of the univariate analysis showed that the differences between the groups with entrepreneurial elements were statistically significant ($p < 0.05$) when compared in terms of gender, age, education, and level of annual income. See Table 6.

Table 6. Comparison of single factors affecting entrepreneurship

variant	categorization	Number of cases (persons)	Whether or not it is a business venture		χ^2	P
			Belongs to entrepreneurship	Not entrepreneurial		
Sex	a male	51	34 (66.58)	17 (33.42)	98.520	<0.001
	females	49	25 (50.12)	24 (49.88)		
Age (years)	18-50	85	54 (63.64)	31 (36.36)	146.262	<0.001
	50-60	15	8 (53.33)	7 (46.66)		
Educational attainment	Primary and below	21	13 (61.9)	8 (38.1)	145.814	<0.001
	Junior/Secondary	46	33 (71.74)	13 (28.26)		
	High school and above	33	16 (48.48)	17 (51.52)		
Annual salary	Less than 100,000 RMB	54	33 (61.11)	21 (38.89)	99.965	<0.001
	RMB 100,000 to 300,000	28	15 (53.57)	13 (46.43)		
	More than 300,000 RMB	18	10 (55.56)	8 (44.44)		

As can be seen from Table 6, within the respondent population, males have higher entrepreneurial attributes than females; practitioners between the ages of 18-50 have higher entrepreneurial attributes than practitioners between the ages of 50-60; practitioners with junior high school or post-secondary education have higher entrepreneurial attributes than practitioners in elementary school and below and high school and above; and those earning less than \$100,000 per year have higher entrepreneurial attributes than those earning more than \$100,000 per year.

4.3. Analysis of factors related to entrepreneurial sustainability among different practitioners

4.3.1. Analysis of Factors Related to Entrepreneurship at the Economic Bottom Line Level

The factors related to entrepreneurship at the bottom line level are analyzed in terms of whether or not the business is entrepreneurial (business opportunity or entrepreneurial team vs. neither business opportunity nor entrepreneurial team), whether or not the business is entrepreneurial alone (only business opportunity or only entrepreneurial team vs. neither business opportunity nor entrepreneurial team or both business opportunity and

entrepreneurial team), and whether or not the business is entrepreneurial in two ways (both business opportunity and entrepreneurial team vs. neither business opportunity nor entrepreneurial team or only business opportunity or only entrepreneurial team) respectively. business opportunity or only entrepreneurial team) as dependent variables, and economic bottom line (maintainability, growth) as independent variables, binary logistic regression analysis shows that economic growth is a facilitator of belonging to entrepreneurship and having one entrepreneurial element alone, and economic maintainability is a facilitator of having one entrepreneurial element alone or both entrepreneurial elements, but maintainability is not an entrepreneurial attribute. Influencing factors, as shown in Tables 7, 8, and 9.

Table 7. Logistic Regression Analysis of Economic Bottom Line on Whether or Not it is Entrepreneurship

variant	B	standard error	Wald	P	Exp(B)	95% confidence interval for EXP(B)	
						lower limit	upper limit
sustainability	0.058	0.133	0.191	0.662	1.060	0.817	1.374
growth-oriented	0.105	0.008	171.384	<0.001	1.111	1.093	1.128

Table 8. Logistic Regression Analysis of the Economic Bottom Line on Whether or Not It Has One Entrepreneurial Factor Alone

variant	B	standard error	Wald	P	Exp(B)	95% confidence interval for EXP(B)	
						lower limit	upper limit
sustainability	0.488	0.108	20.415	<0.001	1.630	1.319	2.014
growth-oriented	0.033	0.005	37.151	<0.001	1.034	1.023	1.045

Table 9. Binary Logistic Regression Analysis of the Economic Bottom Line on the Presence of Both Entrepreneurial

variant	B	standard error	Wald	P	Exp(B)	95% confidence interval for EXP(B)	
						lower limit	upper limit
sustainability	1.243	0.156	63.489	<0.001	3.465	2.553	4.705
growth-oriented	0.022	0.007	10.374	0.001	1.022	1.008	1.035

4.3.2. Analysis of factors related to entrepreneurship at the social floor level

The binary logistic regression analyses of the economic bottom line on whether entrepreneurship is entrepreneurial (business opportunity or entrepreneurial team vs. neither business opportunity nor entrepreneurial team), whether entrepreneurship has one entrepreneurial element alone (only business opportunity or only entrepreneurial team vs. neither business opportunity nor entrepreneurial team or both business opportunity and entrepreneurial team), and whether entrepreneurship has both entrepreneurial elements (both business opportunity and entrepreneurial team vs. neither business opportunity nor entrepreneurial team or only business opportunity or only entrepreneurial team) are presented in the following table. business opportunity or only entrepreneurial team) as dependent variables and social bottom line (quality of life, employment status, social justice) as independent variables, binary logistic regression analysis shows that quality of life, employment status, and social justice are all statistically different influences on entrepreneurial attributes. Quality of life and employment status are facilitators of having one entrepreneurial element alone or having both entrepreneurial elements, and social justice is an inhibitor of having one entrepreneurial element alone or having both entrepreneurial elements, as shown in Table 10, Table 11, and Table 12.

Table 10. Binary Logistic Regression Analysis of Social Bottom Line on Whether or Not it is Entrepreneurship

variant	B	standard error	Wald	P	Exp(B)	95% confidence interval for EXP(B)	
						lower limit	upper limit
quality of life	0.552	0.138	15.964	<0.001	1.736	1.325	2.276
employment situation	0.902	0.178	25.545	<0.001	2.464	1.737	3.496
social justice	-1.354	0.168	64.771	<0.001	0.258	0.186	0.359

Table 11. Binary Logistic Regression Analysis of Social Floor on Whether Having One Entrepreneurial Element Alone

variant	B	standard error	Wald	P	Exp(B)	95% confidence interval for EXP(B)	
						lower limit	upper limit
quality of life	0.502	0.121	17.318	<0.001	1.652	1.304	2.093
employment situation	1.183	0.127	87.243	<0.001	3.265	2.547	4.185
social justice	-0.538	0.122	19.323	<0.001	0.584	0.460	0.742

Table 12. Binary Logistic Regression Analysis of Social Bottom Line on the Presence of Both Entrepreneurial Components

variant	B	standard error	Wald	P	Exp(B)	95% confidence interval for EXP(B)	
						lower limit	upper limit
quality of life	0.892	0.163	29.912	<0.001	2.440	1.772	3.359
employment situation	0.805	0.146	30.345	<0.001	2.237	1.680	2.979
social justice	-0.572	0.153	13.888	<0.001	0.564	0.418	0.762

4.3.3. Analysis of factors related to entrepreneurship at the environmental floor level

The binary logistic regression analyses of the social bottom line on whether or not the entrepreneurship is entrepreneurial (business opportunity or entrepreneurial team vs. neither business opportunity nor entrepreneurial team), whether or not the entrepreneurship has one entrepreneurial element alone (business opportunity or entrepreneurial team only vs. neither business opportunity nor entrepreneurial team or both business opportunity and entrepreneurial team), and whether or not the entrepreneurship has two entrepreneurial elements (business opportunity and entrepreneurial team vs. neither business opportunity nor entrepreneurial team or both business opportunity and entrepreneurial team) were analyzed respectively. business opportunity or only entrepreneurial team) as dependent variables, and environmental bottom line (ecological balance, resource protection) as independent variables, binary logistic regression analysis shows that ecological balance is a facilitator with entrepreneurial attributes, but is not an influential factor with one entrepreneurial factor alone or both entrepreneurial factors; while resource protection is a facilitator that belongs to entrepreneurship and has one entrepreneurial factor alone or both entrepreneurial factors, specifically, resource protection is a facilitator that belongs to entrepreneurship, has one entrepreneurial factor alone or both entrepreneurial factors. facilitators of entrepreneurship, as shown in Table 13, Table 14, and Table 15.

Table 13. Binary Logistic Regression Analysis of Environmental Bottom Line on Whether or Not it is Entrepreneurship

variant	B	standard error	Wald	P	Exp(B)	95% confidence interval for EXP(B)	
						lower limit	upper limit
ecological balance	1.09	0.125	76.074	<0.001	2.975	2.329	3.801
Resource protection	1.025	0.135	57.61	<0.001	2.788	2.14	3.634

Table 14. Binary Logistic Regression Analysis of the Environmental Bottom Line on the Presence of One Entrepreneurial Factor Alone

variant	B	standard error	Wald	P	Exp(B)	95% confidence interval for EXP(B)	
						lower limit	upper limit
ecological balance	-0.058	0.103	0.32	0.571	0.943	0.771	1.155
Resource protection	0.529	0.103	26.637	<0.001	1.697	1.388	2.075

Table 15. Binary Logistic Regression Analysis of Environmental bottom line on the Presence of Both Entrepreneurial Factors

variant	B	standard error	Wald	P	Exp(B)	95% confidence interval for EXP(B)	
						lower limit	upper limit
ecological balance	-0.212	0.134	2.505	0.114	0.809	0.622	1.052
Resource protection	0.716	0.134	28.577	<0.001	2.046	1.573	2.659

5. DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1. Conclusions

Among the practitioners in the mango industry in Baise, Guangxi:

1. Orchard managers have shown a trend towards discovering business opportunities and building teams in the fruit industry, which may be because they are more directly involved in fruit cultivation and management, making it easier to identify business opportunities; The group of mango processing factory workers may have more opportunities to discover business opportunities in the processing process, so their entrepreneurial rate may be relatively high; The group of fruit resellers may cover entrepreneurial elements more comprehensively, as they play a more comprehensive role in the fruit industry, including wholesale and management; Some other occupational groups also have certain entrepreneurial elements, but in some groups, such as fruit warehouse workers and employees of Tianyang District Fruit Industry Development Center, the entrepreneurial rate is lower, possibly because their responsibilities are more focused on support and management rather than direct commercial operations.

2. Males outperform females on entrepreneurial attributes, suggesting that gender may be an important factor influencing entrepreneurial tendencies; age has an effect on entrepreneurial attributes, with the young and middle-aged group being more entrepreneurial than the middle-aged and old-aged group; respondents with a moderate level of education have more entrepreneurial attributes than those with a low and a high level of education, implying that a moderate level of education may promote entrepreneurship; practitioners with a lower income have more entrepreneurial attributes than those with a high income. Practitioners with lower incomes have more entrepreneurial attributes than those with higher incomes, which may be related to economic incentives and opportunity costs.

In the mango industry in Baise, Guangxi:

1. The level of environmental sustainability is high, economic sustainability is second, and social sustainability is the lowest, which is mainly reflected in the fact that the quality of life of the respondents needs to be improved.

2. Economic sustainability does not have a direct facilitating or inhibiting effect in entrepreneurial attributes; higher quality of life and good employment status are recognized as factors that promote entrepreneurship and may be facilitating factors with one entrepreneurial element alone or both; social justice may be inhibiting factors with one entrepreneurial element alone or both; and ecological balance is recognized as an entrepreneurship-promoting factor, although it may not be an influencing factor with one element of entrepreneurship alone or with both elements of entrepreneurship; and resource conservation is categorized as a factor promoting entrepreneurship, and may be a facilitating factor belonging to entrepreneurship, with one element of entrepreneurship alone or with both elements of entrepreneurship.

5.2. Discussions

This study found that:

1. The relatively high rate of entrepreneurship among practitioners in the Guangxi Baise mango industry implies that there are more business opportunities and entrepreneurial groups in the Guangxi Baise fruit industry. Of particular interest is that both business opportunities and entrepreneurial groups are also prevalent in the Guangxi Baise mango industry, which implies that there may be some correlation between business opportunities and entrepreneurial groups. From the perspective of a single factor, practitioners who are male, aged 18-50 years old,

with junior high school or secondary school education level, and with an annual income of less than 100,000 RMB exhibit higher entrepreneurial attributes. This suggests that gender, age, education level and income level all have an impact on entrepreneurial propensity. Males may be more inclined to be entrepreneurial, and young and middle-aged and those with middle school or junior college education levels are more likely to have entrepreneurial attributes. In addition, relatively low levels of income may also motivate entrepreneurship, making those with annual incomes of less than \$100,000 more likely to exhibit entrepreneurial attributes. Such findings help to better understand the differences in entrepreneurship among different individuals and provide a reference for the formulation of relevant support policies.

2. Entrepreneurial attributes were significantly higher among those working in the mango industry in Baise, Guangxi, while economic growth was identified as a catalyst for entrepreneurship, especially when one entrepreneurial element was available alone. This implies that the propensity for entrepreneurship is higher when there is economic prosperity. Economic maintainability, on the other hand, plays a catalytic role in the presence of a single or two entrepreneurial elements, although it is important to note that maintainability itself is not a factor influencing entrepreneurial attributes. Quality of life, employment status, and social justice were shown to be influential factors for entrepreneurial attributes and were statistically different from each other. Higher quality of life and good employment status were found to be factors that promote entrepreneurship, while social justice was seen as a factor that inhibits entrepreneurship. This suggests that people are more inclined to start entrepreneurial activities in an environment with good living conditions and employment opportunities. Ecological balance was identified as a facilitator of entrepreneurship, but it is not an influencing factor for a single or two entrepreneurial factors. This implies that the propensity for entrepreneurship is higher when ecological balance is maintained. In contrast, resource conservation played a positive facilitating role in entrepreneurship, especially when there were single or two entrepreneurial elements.

Overall, these findings emphasize the importance of sustainable development in shaping entrepreneurial attributes, providing insights for the development of relevant policies and support. The importance is as follows:

1. research has found that there is a widespread presence of both business opportunities and entrepreneurial groups in the mango industry in Baise, Guangxi, suggesting a possible correlation between the two. This provides entrepreneurs with more business opportunities and is also in line with the content of innovation in the Sustainable Development Goals.

2. research has pointed out that economic growth and ecological balance are important factors promoting entrepreneurship, with a higher tendency towards entrepreneurship during economic prosperity. This emphasizes the importance of economic and environmental factors for entrepreneurship, in line with the description of industrial development in the Sustainable Development Goals.

3. high quality of life and good employment conditions promote entrepreneurial activities, while social justice may inhibit entrepreneurship. This indicates that the social environment has an impact on entrepreneurial activities, indirectly reflecting the requirements for infrastructure in sustainable development goals. In summary, this study is of great significance for understanding the current situation and influencing factors of entrepreneurship in Guangxi's Baise mango industry, and provides useful reference for relevant policy formulation.

5.3. Recommendations

5.3.1. Policy recommendations

5.3.1.1. Entrepreneurship support policy differentiation

In order to promote the sustainable development of Guangxi Baise fruit industry and support the entrepreneurial activities of practitioners, this paper suggests that the government adopt targeted entrepreneurial support policies. In view of the differences in entrepreneurial attributes of different groups, the government and relevant institutions should formulate differentiated support policies to more precisely meet the needs of various types of practitioners. In particular, for groups with differences in gender, age, education level and income level, the government can take the following measures:

1. For male practitioners, more vocational training and business skills upgrading programs can be provided to help them better grasp business and entrepreneurial opportunities.
2. For the age group of 1850, the Government can introduce more flexible and forward-looking entrepreneurship policies to meet the aspirations of this age group to be bolder in starting their own businesses.
3. For practitioners with junior high school or secondary school education, the Government can set up special entrepreneurship training programs to provide practical and adaptable training to increase their success rate in starting up businesses.
4. For practitioners with an annual income of less than \$100,000, the Government can encourage them to participate more actively in entrepreneurial activities by lowering the threshold for entrepreneurial financing and providing low-interest loans.
5. This series of entrepreneurial support policies aims to stimulate the entrepreneurial motivation of different groups and enhance their likelihood of entrepreneurial success, thereby promoting the development of the entire fruit industry in a more prosperous and sustainable direction.

5.3.1.2. Resource Conservation and Sustainable Innovation

Encouraging entrepreneurs to innovate within the framework of resource conservation is key to promoting sustainable development. The government can promote entrepreneurs to adopt more environmentally friendly technologies and production methods by providing financial support and incentives for scientific and technological innovation. This will not only help reduce the over-exploitation of natural resources, but also promote the fruit industry in a greener, more environmentally friendly direction.

The government can set up a special fund to support entrepreneurial projects that are committed to environmental innovation. This includes innovations in research and development of environmentally friendly agricultural technologies, promotion of circular economy models, and advocacy of harmless processing. Through the investment of funds, it can stimulate entrepreneurs' enthusiasm for innovation and promote the fruit industry to realize green upgrading.

In addition, the government can establish an innovation platform to provide entrepreneurs with technical support and a platform for information exchange. By organizing activities such as innovation competitions and technology seminars, entrepreneurs are encouraged to share their experience in environmental innovation and form an industry-wide innovation atmosphere. Such initiatives will not only help promote the technological progress of the fruit industry, but also prompt entrepreneurs to give more consideration to the issues of resource conservation and sustainable development.

The above recommendations aim to establish a policy framework to support entrepreneurship and sustainable development in order to promote the prosperity of the fruit industry in Baise, Guangxi, and to achieve a better balance between economic, social and ecological dimensions.

5.3.2. Future Research Directions for Baise

Based on the research in this paper, future research directions for Baise could include:

1. **entrepreneurial ecosystem:** explore and promote the development of entrepreneurial ecosystem in Baise, including the introduction of excellent talents, policies to support innovation, the cultivation of entrepreneurial culture, and the training of entrepreneurs, in order to promote the emergence of more entrepreneurial opportunities.
2. **Science and Technology Innovation and Fruit Industry:** to study the application of emerging technologies such as artificial intelligence and big data in the fruit industry to improve production efficiency and product quality, and to find innovative ways of marketing.
3. **Social Justice and Sharing Economy:** Research on how to achieve a more just distribution of resources in the fruit industry, prompting more levels of people to share the dividends of the industry and realize the concept of sharing economy.

These research directions will help to gain a deeper understanding of the future development trend of the fruit industry in Baise, provide a scientific basis for decision makers, and promote the sustainable growth of the region's economy.

5.4. Limitation

In the context of Baise research, some limitations of this paper include:

1. Data timeliness: as the information cut-off time is in September 2023, some economic, social and industrial data may be outdated and fail to reflect the latest development trend. In the survey, part of the raw data comes from the public documents of Baise government departments and the statements and instruments of the interviewed units, organizations or enterprises, which may have information bias.

2. Limitations of sample selection: the survey on practitioners may only represent the age group and education level of people corresponding to the chain of mango industry, and the sample size is small. This may not be a good representation of the general level of Guangxi's Baise fruit industry, leading to an incomplete understanding of Baise fruit industry practitioners.

3. Limited to qualitative research: the research in the paper is mainly based on qualitative analysis and lacks the support of quantitative data, which may affect the comprehensive understanding of some trends and relationships.

Taking these limitations into account, future research could provide further insights into the multifaceted aspects of Baise and its fruit industry through more comprehensive data, more diverse research methods, and a wider range of survey respondents.

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I am fortunate that as a person from Baise, Guangxi, I can eat such good fruits. I hope this article provides useful insights into the sustainable development and entrepreneurial management of the fruit industry in Baise City, and has the opportunity to share the research results with the local community, making contributions to the development of my hometown.

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**Teaching, Learning and E-learning
(IAC-TLEI)**

An Analysis of English for Specific Purposes Syllabi based on Tourism Undergraduates' Needs

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Abstract

To meet the needs and goals of a particular group of learners, English for Specific Purposes courses (ESP) should carefully consider the curriculum details to ensure alignment with the demands of relevant industries or markets. The current paper presents the results of a syllabus analysis, which aimed to determine whether the examined documents of the four ESP courses accurately reflected tourism majors' needs, considering both the graduate profile and the current demands of the industry.

Keywords: Teaching English for Specific Purposes, English for Tourism, Course Syllabi, Learners' Needs, Content Analysis;

1. INTRODUCTION

English for Specific Purposes courses are specific in that they are centred on the specific needs and goals of a specific group of learners (Cloudia Ho, 2020; Hutchinson and Waters, 1987; Pardayevna, 2021; Strevens, 1988; Scrivener, 2005). Thus, university English for Specific Purposes courses, on the one hand, should draw on the description of the given study programme, especially the graduate profile. However, on the other hand, they should also reflect the needs of the given industry or market, as well as the course participants' expectations, opinions and preferences.

According to the description of the Regional Tourism Bachelor's study programme, its main objective is to prepare competent experts in tourism, especially in the context of the multicultural and multinational regions of Central Europe. The graduates of the given programme are likely to be employed in the business sphere (accommodation, catering, travel and transport), in public administration and municipality (departments of tourism), as well as in public and private bodies of tourism (district and regional bodies of tourism, associations of tourism, tourist information offices). In addition, they can work both in junior managerial positions and as employees offering tourism-related services (<http://www.kcr.fss.ukf.sk/>, 2022).

In order to develop the undergraduates' English language skills, four English for Specific Purposes courses are offered throughout the three-year study programme. English for Tourism 1 (ETP 1) in the first and English for Tourism 2 (ETP 2) in the second semester are provided in the form of ninety-minute blocks once a week during the thirteen weeks of the given semester. The syllabi focus on two main topics each semester: Careers in tourism, Destinations in the winter, and Gastronomy and Accommodation in the summer semester. Similarly, students are offered a ninety-minute English for Tourism 3 (ETP 3) course in the third semester once a week, which deals with

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Transport and Travel Intermediaries. Finally, in the fourth semester, the number of lessons increase since English for Tourism 4 (ETP 4) is provided once a week as a 180-minute block and is devoted to various types of tourism.

The present paper brings findings of a syllabus analysis that aimed to find out whether the syllabi of the above-described ESP courses reflected tourism undergraduate needs based on the graduate profile and current expectations of the given sector. It is divided into two main parts. The literature review focuses on the essentials of ESP course design and course syllabi development in the area. The empirical part of the study provides and insight into the methodology of the research, sheds light on the results of the analysis as well as provides conclusions and recommendation for the educational practice.

1.1. Course design in teaching ESP

As Hutchinson and Waters (1998, p. 65) put it, “course design is the process by which the raw data about learning need is interpreted in order to produce an integrated series of teaching-learning experience, whose ultimate aim is to lead the learners to a particular state of knowledge”. According to Chalikandy (2013), course design means defining the methodology, developing or adapting teaching materials and defining the system and evaluation tools that will measure learners’ progress. However, he mentions several issues that have to be taken into consideration before designing an ESP course, such as the intensity of the course, the question of assessment, if it is going to be a pre-study and pre-work or a while-study and while-work course, or learners’ homogeneity versus heterogeneity.

We distinguish between two types of course design: fixed and flexible (Chalikandy, 2013). Nunan (1988) defines the former as the one prepared before the course starts, which cannot be changed while providing it. It includes, for example, ESP courses offered within university study programmes that clearly define the form of assessment and the number of credits students receive for fulfilling the requirements. The latter, i.e. flexible course design, enables modifications based on learners’ feedback.

In higher education in Slovakia, ESP courses generally take place only a few semesters of the whole duration of the given study programme and they are planned as pre-work courses. However, concerning the homogeneity versus heterogeneity of the groups, even though university undergraduates usually belong to the same generation, they tend to have a very diverse level of English proficiency, typically from B1 to C1, or sometimes even A1 or A2 according to the CEFR (Council of Europe, 2001).

Other essential factors of the course design in a university context include the content, the conditions for passing the course and the learning outcomes, the number of credits students receive after passing it successfully, and the number of lessons per week. A general rule is that the higher the number of credits and lessons, the higher the intensity, the stricter the requirements and the more beneficial the learning outcomes. Concerning the content, it often reflects the primary teaching materials to be used in the course; however, the list of recommended literature can include several additional sources.

1.2. Meeting learners’ needs in English for Tourism Purposes course syllabi

Syllabus, the official course document in a specific study programme, is a plan that contains all the aspects of course design, comprising the main objectives, the content and its division into smaller units, as well as the learning materials, and functions as a compass in teaching (Jordan, 1997; Chalikandy, 2013; Abdimajitovna, 2021).

In Slovak higher education, in particular, at the Constantine the Philosopher University in Nitra, the course syllabus is known as Course Information Letter and can be divided into six main parts:

1. Basic information (such as the name of the university, faculty, name and code of the course, type, form of study, course load in hours per week and per study period), method of study, number of credits, recommended semester of study and study level);
2. Prerequisites and conditions for completion of the course (for example, giving a presentation, writing a seminar paper or essay and writing a test);
3. Learning outcomes (what students can do at the end of the course);
4. A brief outline of the course (topics);
5. Recommended literature;
6. Final additional information (such as language knowledge required for passing the course, assessment of courses, the name of the teacher(s), date of last change, and guarantor program).

The core of the syllabus (and the course) is the “brief outline of the course”, i.e., the themes that are going to be covered during the given period, which should be based on current knowledge, also reflecting the latest trends in the given field (Zahedpishah et al., 2017). For example, an ETP course can include the issue of creative tourism, a

relatively new trend which, however, has a huge potential to gain popularity, especially with the Zen generation, to which most of today's university students belong.

According to Huang (2008, in Zahedpisheh et al., 2017, p. 87), the themes of the syllabus in an ETP course should reflect the four dimensions, i.e., the four main areas in the tourism industry, as follows:

1. "English for Food and Beverage Services
2. English for Air Flight Services
3. English for Hotel Services
4. English for Tour Managers and Guides".

Huang's dimensions can be regarded as valuable and compendious, as they represent the four different sectors in tourism that offer the most job opportunities for tourism graduates. Nonetheless, I consider the given dimensions applicable primarily in "general" ETP courses, i.e., courses that do not prepare students only for a specific segment of the tourism market, whereas the syllabus of a more "strictly" specialised ETP course should rather contain topics relevant for the particular sector of the tourism industry to meet both the learners and their future employers' needs.

Furthermore, the other parts of the syllabus, such as learning outcomes, conditions for course completion and recommended literature, should also reflect ETP learners' needs. For example, in a general ETP course, the learning outcomes should focus on developing all four skills with an emphasis on speaking and listening skills. In contrast, in specific ETP courses, the relevant skills and functions should be prioritised. Also, the importance of boosting vocabulary in the given field should be emphasised. In addition, the conditions for passing the course should also reflect employers' and learners' needs; for instance, general ETP courses could apply more oral assignments, while specific courses could test other skills, depending on the given area. Last but not least, the list of recommended literature should contain publications including the primary teaching material that cover all the four dimensions suggested above in the case of general ETP courses, whereas specific ETP courses should use learning resources which are relevant to the given field.

2. RESEARCH METHODOLOGY

2.1. Research objective and questions

The main research objective was to find out whether the selected English for Specific Purposes courses' syllabi reflect the requirements of the tourism industry and learners' needs discussed in the literature review part.

The research questions were formulated, as follows:

1. To what extent (i.e., how many lessons per study programme) are Huang's (2008, in Zahedpisheh et al., 2017) four dimensions represented in the investigated syllabi?
2. Are the other themes included in the syllabi that cannot be linked to any given dimensions relevant to the tourism industry and the graduates' needs?

2.2. Research procedure

Formulating the research questions, as the first step, was followed by defining the population, i.e., the syllabi of the selected English for Specific Purposes courses. As the next step, the sampling strategy was chosen prior to establishing the units of analysis (See below). The subsequent phases comprised the development of the categories to be used in the analysis (discussed below). It was followed by data categorisation, i.e., the ascription of a category to each piece of data. After this stage, the data analyses were conducted, i.e., the number of occurrences of each category was counted, and inferences were made.

2.3. Sampling strategy and sample

Regarding the sampling strategy, purposive sampling, a typical feature of qualitative research, was selected. "As its name suggests, the sample has been chosen for a specific purpose" (Cohen et al., *ibid.*, p. 115). In particular, the sample comprised four "course information letters", i.e., the syllabi of the four English for Specific Purposes courses provided by the Department of Tourism (Faculty of Central European Studies, Constantine the Philosopher University in Nitra) within the Regional Tourism Bachelor's study programme.

2.4. Units of analysis

For the syllabi analyses, the units of analysis were the topics of the 13 weeks (one topic/week) in the given semester included in the Brief outline of the course part.

2.5. The research instrument - developing categories

The developed categories draw on Huang's (2008, in Zahedpisheh et al., 2017) four dimensions of the tourism and hospitality curriculum, as follows:

1. English for Food and Beverage Services
2. English for Air Flight Services
3. English for Hotel Services
4. English for Tour Managers and Guides.

The reason for deciding on the given categories was that they represent the four most distinguishable sectors in tourism that offer the most job opportunities for tourism graduates. They are applicable primarily in “general” ETP courses, i.e., courses that do not prepare students only for a specific segment of the tourism market, to which the examined English for Specific Purposes courses belong. (See the description of the study programme and the graduate's profile in the Introduction part).

3. RESULTS AND DISCUSSION

3.1. English for Food and Beverage Services (EFBS)

As shown in Table 1, EFBS is represented by four topics throughout the four ETP courses scheduled in the second semester, i.e., the ETP 2 course. All the topics can be regarded as relevant since they focus on the basics of the given area, without which, undoubtedly, one could hardly communicate in the given area. The issue of "food and beverages" that covers the revision of the essential ingredients, for instance, creates the foundation for other topics, such as "describing dishes", "telling recipes," and "creating menus" – essential knowledge whether for entrepreneurs or managers in the given industry. Even though graduates of the examined study programme are not likely to work in less qualified positions, such as waiters or chefs, it is generally acknowledged that one can efficiently manage and control people only if he/she has the knowledge he/she expects from his/her employees.

Table 1. The representation of EFBS dimension in the investigated syllabi

Dimensions of the English for tourism and hospitality curriculum (Huang, ibid.)	Number of lessons per study programme	Topics/(Semester)
English for Food and Beverage Services	4	Gastronomy – food and beverages (2nd semester) Describing dishes (2nd semester) Recipes and menus (2nd semester) Describing national dishes (2nd semester)

3.2. English for Air Flight Services (EAFS)

EAFS is the least represented of all four dimensions in the investigated syllabi since there is only one "Air travel" lesson devoted to it (See Table 2). It is included in the transport unit as one of its main types. However, in terms of the current trends in tourism, i.e., the astronomically increasing number of people travelling by plane and the lack of employees in the airline industry, the number of lessons focusing on EAFS seems to be underestimated and unequal in comparison with the other three dimensions.

Table 2. The representation of the EAFS dimension in the investigated syllabi

Dimensions of the English for tourism and hospitality curriculum (Huang, ibid.)	Number of lessons per study programme	Topics/(Semester)
English for Air Flight Services	1	Air travel (3rd semester)

3.3. English for Hotel Services (EHS)

EHS is represented by six themes taught in the second semester of the study programme. All of them can be considered relevant since they focus on basic terminology and issues related to the field of hospitality, such as accommodation types, facilities and amenities, services in hotels and hotel entertainment, the procedure of checking in and out, as well as making reservations, and the basics of hotel management and marketing (See Table 3).

Table 3. The representation of EHS dimension in the investigated syllabi

Dimensions of the English for tourism and hospitality curriculum (Huang, ibid.)	Number of lessons per study programme	Topics/(Semester)
English for Hotel Services	6	Accommodation types, facilities and amenities (2nd semester) Services in hotels and hotel entertainment (2nd semester) Making reservations (2nd semester) Checking in and out (2nd semester) Running a hotel – management and staff structure (2nd semester) Describing and promoting hotels (2nd semester)

3.4. English for Tour Managers and Guides (ETMG)

ETMG is the topic of 14 lessons, out of which four are taught right in the first semester, including holiday destinations – travel motives, types of holidays, tourist attractions, activities and events, describing a destination and giving a presentation about a destination (See Table 4). Nevertheless, the majority of the topics that focus on the essentials of ETMG, such as tour operators and travel agencies, package tours, holiday representatives, itineraries and excursions, travel agencies (making reservations and phone calls), tourist information centres (giving information, making recommendations), transport (types and means), getting around in cities (giving directions) and working as a tour guide, are included in the third semester, i.e., in the ETP 3 course. The only topic connected to ETMG taught in the fourth semester is cultural tourism, in particular, cultural heritage and the arts, and it focuses on vocabulary that is essential for tour guides to talk about sites. Therefore, all the ETMG topics included in the syllabi can be regarded as relevant in terms of the tourism market expectations since they cover basic terminology for anybody who aims to work for a tour operator, in a travel agency or a tourist information centre whether as a travel sales consultant, tour guide or holiday representative.

Table 4. The representation of EHS dimension in the investigated syllabi

Dimensions of the English for tourism and hospitality curriculum (Huang, ibid.)	Number of lessons per study programme	Topics/(Semester)
English for Tour Managers and Guides	14	Holiday destination – travel motives, types of holiday (1st semester) Tourist attractions, activities and events (1st semester) Describing a destination (1st semester) Giving a presentation about a destination (1st semester) Tour operators and travel agencies – introduction (3rd semester) Package tours (3rd semester) Holiday representative (3rd semester) Itineraries and excursions (3rd semester) Travel agencies – making reservations and phone calls (3rd semester) Tourist information centres – Giving information, making recommendations (3rd semester) Working as a tour guide (3rd semester) Transport – types and means (3rd semester) Transport – types and means (3rd semester) Getting around in cities, giving directions (3rd semester) Cultural tourism – cultural heritage and the arts (4th semester)

3.5. Other tourism-related topics

Apart from the four investigated dimensions, two other tourism-related themes can also be found in the syllabi of the examined ESP courses (See Table 5).

Table 5. The number and name of other tourism-related themes in the investigated syllabi

Other themes	Number of lessons per study programme	Topics/(Semester)
Career in tourism (1st semester)	6	Careers in tourism – positions and duties, job advertisements (1st semester) Qualities and skills needed in tourism (1st semester)

		How to write a good CV? (1st semester)
		The essentials of writing a cover letter (1st semester)
		Job interviews – appearance and etiquette (1st semester)
		Attending a job interview (1st semester)
Types of tourism (4th semester)	9	Niche tourism – sectors (4th semester)
		Cultural tourism – public holidays and traditions (4th semester)
		Business tourism – conferences and meetings (4th semester)
		Sustainable tourism (4th semester)
		Health tourism (4th semester)
		Sports tourism (4th semester)
		Creative tourism (4th semester)
		Rural tourism (4th semester)
		Other types of tourism (4th semester)

Career in tourism is taught right from the beginning of the 1st semester and includes six topics: careers in tourism (positions and duties, job advertisements), qualities and skills needed in tourism, How to write a good CV?, the essentials of writing a cover letter, job interviews (appearance and etiquette), and attending a job interview. The relevance of the topics is supported by the fact that they provide crucial knowledge and practice for future tourism graduates and professionals. Nevertheless, as students have little work experience and little knowledge of tourism at the beginning of their studies, they often need help and have unrealistic expectations when it comes to writing a CV and cover letter for a particular position. Hence, the whole theme of Careers in tourism should be instead scheduled towards the end of their studies, i.e., in the fourth semester when they already have the necessary background knowledge about the particular positions and areas in tourism.

The second topic that cannot be incorporated into any of Huang's dimensions (ibid.) refers to different types of tourism. It includes niche tourism, cultural tourism (public holidays and traditions), business tourism (conferences and meetings), sustainable tourism, health tourism, sports tourism, creative tourism, rural tourism and other types of tourism (See Table 5). Altogether they represent nine lessons in the fourth semester, i.e., in the ETP 4 course. Even though the given topics might be regarded as relevant in terms of the current tourism trends, the extent to which attention is paid to them should be reconsidered. One of the reasons is the need for more attention devoted to the particular topic in the primary teaching material. The other reason is that the number of topics within English for the Air Flight Services dimension can only be increased if we reduce the number of topics within other dimensions or themes.

4. CONCLUSION

The results of the syllabi and course-book analyses are summarised alongside the research questions.

1. *To what extent (i.e., how many lessons per study programme) are Huang's four dimensions (2008, in Zahedpisheh et al., 2017) represented in the investigated syllabi?*

The most represented dimension in the examined syllabi is English for Tour Managers and Guides (14 topics) and all its topics are relevant to the needs of the tourism industry. On the other hand, there is only one topic related to English for Air Flight Services; hence, at least four more lessons should be incorporated into this theme. The other two dimensions, English for Food and Beverage Services (4 topics) and English for Hotel Services (6 topics), have pretty equal and relevant proportions. Furthermore, all the topics within these dimensions in the syllabi are

relevant regarding their importance and the essentials of the given area. However, the number of lessons in both of them should be increased based on the needs of the tourism industry.

2. *Are the other themes included in the syllabi that cannot be linked to any given dimensions relevant to the tourism industry and the graduates' needs?*

All the topics in the theme of Career in tourism can be considered relevant; however, they should be scheduled in the fourth semester of the study programme. Furthermore, the topics within the issue of Types of tourism are relevant to the current trends in tourism. However, the extent to which attention is paid to them should be reconsidered, especially in the case of increasing the number of lessons in English for the Air Flight Services dimension.

The proposals concerning the syllabi of the investigated English for Specific Purposes courses are twofold. First of all, based on the the importance and the essentials of the given area, it would be advisable to integrate several new topics in the particular dimensions, as follows:

English for Food and Beverage Services

- Dealing with customer feedback
- Planning the itinerary of a gastronomic tour.
- At a restaurant

English for Air Flight Services

- Airport facilities and services
- Security regulations and baggage handling
- Developing airport infrastructure
- Improving airline customer service
- Working as a flight attendant (pros and cons, duties)
- Providing on-board services and announcements
- Giving flight information
- Explaining flight regulations
- Dealing with difficult passengers

English for Hotel Services

- Dealing with guest complaints

Apart from adding or replacing some topics with others, changes in the order or the implementation of the given dimension/theme would also be necessary (See Appendix A). As mentioned earlier, the very first topic of *Career in tourism* should be scheduled in the fourth semester, i.e. in the ETP 4 course, after the students have already acquired the necessary background knowledge of tourism in general, as well as tourism English skills. Hence, tourism undergraduates would start their studies with the dimension of English for Food and Beverage Services, followed by English for Hotel Services. The second semester would focus on Transport and English for Air Flight Services, while the third ETP course would deal with English for Tour Managers and Guides. The last, i.e. fourth semester, would be devoted to selected Types of tourism, and, finally, tourism undergraduates would finish their studies with the issue of Career in tourism.

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The recommended syllabi of the investigated ESP courses

COURSE	TOPICS
ESP 1	<ol style="list-style-type: none"> 1. Gastronomy – food and beverages 2. Describing dishes 3. Recipes and menus 4. At a restaurant 5. Dealing with customer feedback 6. Planning the itinerary of a gastronomic tour 7. Accommodation types, facilities and amenities 8. Services in hotels and hotel entertainment 9. At the reception: making reservations 10. At the reception: checking in and out 11. At the reception: dealing with guest complaints 12. Running a hotel – management and staff structure 13. Describing and promoting hotels
ESP 2	<ol style="list-style-type: none"> 1. Transport – types and means 2. Transport in Slovakia and other countries 3. Getting around in cities, giving directions 4. Airport facilities and services 5. Security regulations and baggage handling 6. Developing airport infrastructure 7. Working as a customer service manager – dealing with difficult situations 8. Improving airline customer service 9. Working as a flight attendant (pros and cons, duties) 10. Providing on-board services and announcements 11. Giving flight information 12. Explaining flight regulations 13. Dealing with difficult passengers
ESP 3	<ol style="list-style-type: none"> 1. Holiday destinations – travel motives, types of holiday 2. Tourist attractions, activities and events 3. Describing a destination 4. Giving a presentation about a destination 5. Tour-operators and travel agencies 6. Package tours 7. Itineraries and excursions 8. Working in a travel agencies (making reservations and phone calls) 9. Working in a tourist information centre (giving information, making recommendations) 10. Cultural heritage 11. Describing a work of art 12. Working as a tour guide 13. Talking about a tourist attraction
ESP 4	<ol style="list-style-type: none"> 1. Sustainable tourism – impacts of tourism growth, best practices 2. Sustainable tourism – environmental problems, chairing a meeting 3. Developing an eco-resort (case study) 4. Selected types of tourism: Business travel 5. Selected types of tourism: Niche tourism 6. Selected types of tourism: Creative tourism 7. Careers in tourism – positions and duties, job advertisements 8. Qualities and skills needed in tourism 9. How to write a good CV? 10. The essentials of writing a cover letter 11. Job interviews – appearance and etiquette 12. Attending a job interview 13. Recruit the right person (case study)

Evaluation of Aviation English Program Applied to Vocational School Students

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Abstract

This study aims to evaluate the Vocational School of Civil Air Transport Management Aviation English curriculum according to the stakeholder-based program evaluation approach. In this direction, achievement tests were applied before and after using goal-based program evaluation models to reveal the effect of the curriculum on the academic achievement of the students studying in the program. On the other hand, using Eisner's Educational Criticism model, stakeholder opinions were taken, and the program was evaluated. The study was designed with a nested mixed research design from mixed research methods. As a data collection tool, the Aviation English achievement test and semi-structured interview forms were prepared for the program's stakeholders: students, instructors, and program graduates. As a result of the analysis of the pretest and posttest data, it was concluded that the Aviation English curriculum increased the students' academic achievement at a statistically significant level. As a result of the analysis of the data obtained from the interviews, four themes were reached. These are "content and implementation," "professional advantages," "limitations," and "ways of improvement."

Keywords: Vocational School, Aviation English, program evaluation

1. INTRODUCTION

Countries around the world need to promote economic development and increase the quality of employment in order to keep up with the competition among each other with technological development and changes (Cong & Wang, 2012). It is known that a qualified workforce, a critical need that is expected to be met, is a factor affecting the development status of countries. Vocational and technical education, which will meet the need to provide a qualified workforce, is considered the most crucial element in this field (Mouzakitis, 2010). Among the main functions of vocational education at the higher education level in Turkey is to enable students to conduct scientific research and contribute to their development, as well as to train qualified people to fulfill the requirements of business life (Yayar, Demir, 2013). In developed and developing countries, the development of vocational and technical education is considered to be one of the most essential strategies, especially in the competition between countries (Wang, 1996). At the same time, vocational education is critical for sustaining and improving the economic competitiveness of national economies and enterprises (Rauner & Maclean, 2008).

The most essential task of vocational and technical education institutions is to train qualified intermediate staff per the sector's expectations. Vocational colleges are one of the institutions that undertake this task in Turkey. When

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the curricula of these institutions, where the professional staff working in the business areas are trained, it is seen that field knowledge and foreign language knowledge required to follow the developments in the professional field are as essential as the importance of teaching manual skills. Foreign language, necessary for the professional lives of students studying in vocational colleges that provide education, especially in aviation, has an essential place in the curriculum. Due to foreign language teaching, which starts in the pre-school period and is shaped according to the vocational program studied in vocational schools, graduates need to reach a sufficient level and seek different ways to learn a foreign language. This situation considers whether the vocational foreign language programs implemented in vocational schools are sufficient.

Care should be taken for the students trained in vocational colleges to become adequate staff to ensure that the programs are prepared to meet the sector's needs (Akyurt, 2009). Otherwise, students who graduate from vocational programs may not be able to encounter the opportunities they expect from the sector at the point of employment. For this reason, education programs prepared for vocational schools should be developed and updated to meet the needs of students and the sector (Aydın et al., 2014). In addition, it is essential that experts in the field give vocational courses and that the practices are carried out systematically to train qualified personnel according to the sector's needs (Dündar et al., 2014). Since vocational education is affected by changes in science, technology, and the sector, vocational school education programs must be evaluated, renewed, and updated in line with the needs (Sezgin, 2000). Since evaluation is a development tool and an integral part of vocational education institutions (Lee, Chang, 1995), it aims to make the vocational and technical education process more effective and to ensure the continuity of the program (Deitmer, 2008). It can be said that program evaluation activities should be carried out meticulously in order to reveal the current situation by determining the effectiveness and quality of vocational education processes. Since the needs of the programs in vocational colleges are different, program characteristics should be considered when using approaches and techniques used in learning and teaching processes and measurement and evaluation activities (Borisovaa et al., 2017).

In order to achieve the targeted outputs in foreign language education given in vocational colleges, it is necessary to determine the needs analysis correctly and to evaluate the outputs obtained by effectively implementing the program prepared by the needs. This situation reveals the necessity of regular evaluation to decide on the adequacy of the vocational foreign language programs implemented. When the literature is examined, it is an important research question whether the foreign language education given in vocational schools in our country is responsive to the needs. For this reason, this study aims to evaluate the curriculum of the Aviation English course at the Vocational School of Civil Aviation Transportation Management, which trains vocational staff in the field of aviation, to reveal the current situation of the program in terms of professional competencies, to focus on the causes of possible problems in terms of foreign language teaching and to make suggestions for eliminating these problems. Considering that the problems related to vocational foreign language education have not been solved yet, it is of great importance to evaluate the curriculum in order to guide instructors, students, and employers in a field such as the aviation sector where a foreign language is used intensively in the business field, such as the teaching approach to be used in the process, technological tools and requirements, the training of instructors in the field of aviation, and ensuring student motivation. When viewed from these dimensions, this study is essential in its contributions to the literature and the improvement of Aviation English curricula implemented in vocational schools.

Therefore, this study uses a stakeholder-based curriculum evaluation approach to evaluate the Aviation English curriculum of Erzincan Binali Yıldırım University Vocational High School, Department of Civil Air Transportation Management. In line with this primary purpose, answers to the following sub-problems are sought:

- Is there a statistically significant difference between the students' Aviation English achievement test scores before and after the program?
- What are the students' views on the effectiveness of the program?
- What are the instructors' opinions about the effectiveness of the program?
 - What are the opinions of program graduates about the effectiveness of the program?

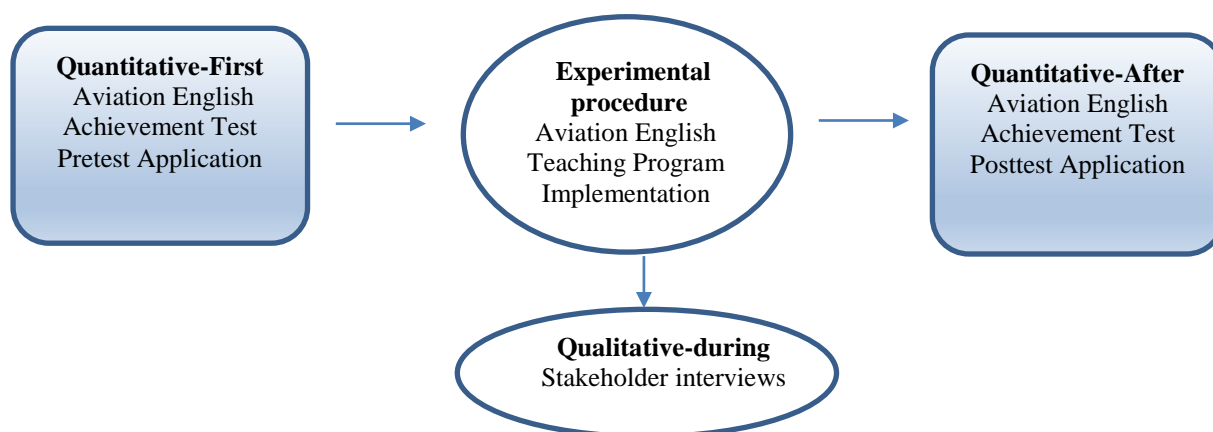
2. METHOD

2.1. Research Design

This study, which aims to evaluate the Vocational High School Aviation English curriculum, was designed using a mixed research method. This study plans to use a nested mixed design, one of the mixed research designs. The main purpose of mixed methods research is to combine qualitative and quantitative methods to understand better the

research problem than using these methods alone (Creswell, 2002). In mixed method research designs, the quantitative method, which focuses on results, and the qualitative method, which focuses on process, are used together (Büyüköztürk et al., 2008). The qualitative data collection process was embedded in the experimental process in order to test the effect of the Vocational School Aviation English curriculum on students' academic achievement and to have an idea about the stakeholders' views on the process (Creswell, 2012). The nested mixed design symbolization used in this study is NIC(nit)NIC. The flow chart of the design used in this study is as follows.

Figure 1. Flow Chart



When the flowchart is examined in this study, which aims to evaluate the aviation English teaching program applied to Vocational School students, firstly, in order to reveal the effect of this program on students' academic achievement in Aviation English, the Aviation English Achievement Test was applied to the students as a pretest at the beginning of the program. At the end of the thirteen-week training, the same achievement test was applied as a posttest. During the curriculum implementation, interviews about the Aviation English curriculum were conducted with the stakeholders, namely students, instructors, and graduates of this program.

The stakeholder-based program evaluation approach and Eisner's Educational Criticism Model Program were preferred to evaluate the efficiency of the Aviation English Curriculum, evaluate the program in detail, determine the steps of the deficiencies, and guide the evaluation process. In addition, goal-based program evaluation models were used within the scope of the achievement test for Aviation English pretest and posttest applications to evaluate the students' readiness. The extent to which the students achieved the targeted outcomes was determined based on the data obtained from the pretest and posttest results. On the other hand, in addition to the critical evaluation of the program by Eisner's Educational Criticism Model, it was considered essential to receive criticisms about this program carried out with adults and to evaluate these criticisms by an expert. Eisner's educational criticism model is a model that is frequently preferred in classroom practices and qualitative studies and requires the program to be evaluated by an expert with a critical perspective to reach a decision (Demirel, 2009). In addition to examining and explaining the quantitative data presented by the students based on the in-depth curriculum, open-ended interview questions are planned to shed light on the teaching process using the stakeholders' views. In addition, in this study, the description and interpretation stages of the Educational Critique Model were followed to understand the environment and the implementation process of the Aviation English curriculum from the evaluator's perspective and to examine the positive and negative aspects of the environment. The model's evaluation stage is presented in this study's conclusion section.

2.2. Working Group

The study group of the research consists of students studying in the Civil Air Transportation Management program at Erzincan Binali Yıldırım University Vocational School in the 2021-2022 academic year, graduates of the program, lecturers in the program, and aviation sector employees. The study group of the research was selected by maximum variation sampling, which is one of the purposeful sampling types. This sampling method was preferred due to its advantages (Patton, 1990), such as providing diversity in determining the participants and reaching the number of participants needed to reach data saturation. Within the scope of this diversity, four different stakeholder groups, namely students, faculty members, graduates, and sector employees, were included in the study. First of all, the quantitative data collection process of the study was carried out with 85 students. Semi-structured interviews

were conducted for the qualitative data collection process with 13 participants, including 6 students, 4 instructors, and 3 program graduates. Information about the study group of the quantitative dimension of the study is presented in Table 1.

Table 1. Information on the Quantitative Study Group

Quantitative Working Group			
Variables		N	%
Gender	Woman	37	44
	Male	48	56

Data Collection Tools

2.3. Aviation English Achievement Test

In evaluating the Aviation English curriculum, a 20-item achievement test was administered to measure the students' academic achievement in this course. Achievement tests measure mastery and proficiency in different areas of knowledge by presenting subjects with questions involving the completion of cognitive tasks used to assess what individuals have learned (Ary et al., 2010). The achievement test used for the quantitative dimension of the study was prepared by the researcher by taking into account the foreign language levels of the students included in the study and the achievements of the Aviation English subjects. The achievement test's construct validity and reliability features were tested on the data set of the pretest application. For this purpose, the data were subjected to item difficulty, item discrimination, item-total correlation coefficient, and KR20 internal consistency analysis with the help of Test Analysis Program (TAP, Version 14.7.4) software (Brooks & Johanson, 2003). The results obtained from the analysis are presented in Table 2.

Table 1. Aviation English Achievement Test's difficulty (p), discrimination (r), reliability (KR20), and item-total correlation coefficient analysis results (20-item form)

Article	Difficulty (p)	Distinctiveness (r)	Item-total correlation coefficient
Article 01	0,83	0,34	0,37
Article 02	0,56	0,63	0,52
Article 03	0,87	0,28	0,38
Article 04	0,74	0,43	0,39
Article 05	0,62	0,58	0,5
Article 06	0,62	0,72	0,57
Article 07	0,59	0,48	0,41
Article 08	0,57	0,57	0,47
Article 09	0,54	0,69	0,59
Article 10	0,48	0,54	0,45
Article 11	0,6	0,73	0,6
Article 12	0,56	0,36	0,34
Article 13	0,48	0,44	0,43
Article 14	0,42	0,65	0,54
Article 15	0,46	0,51	0,45
Article 16	0,5	0,55	0,47
Article 17	0,43	0,63	0,54
Article 18	0,34	0,26	0,28
Article 19	0,39	0,45	0,4
Article 20	0,38	0,29	0,32
Mean p = 0.549			
Mean r = 0.506			
Average Item-total correlation coefficient = 0.452			
KR20 (Alpha) = 0.796			

As seen in Table 2, the average difficulty level of the 20 items in the Aviation English achievement test was 0.549 (min score = 0 and max score 100), the average discrimination level was 0.506 (min = 0.26 and max 0.72), the average item-total correlation coefficient was 0.452 (min = 0.28 and max 0.59) and the KR20 internal consistency coefficient was 0.796. These values indicate that the structure of the achievement test is valid and the scores obtained from the test are reliable.

2.4. Semi-structured Interview Forms

In the qualitative dimension of the study, the data collection process was conducted using the interview technique. Interviews are used to learn about emotions, behaviors that cannot be directly observed, and how participants express their experiences (Merriam, 2018). While one-on-one interviews were conducted with 4 instructors, 2 program graduates, and 2 sector employees in the study group, a focus group interview was conducted with 5 students attending the program. Focus group interviews were preferred because the participants would hear each other's answers and give their answers in connection with the other participants' answers; the data set would be more prosperous, and the interaction within the group would be higher (Fraenkel & Wallen, 2011). Based on this, semi-structured interview forms consisting of open-ended questions were prepared to be used as data collection tools, taking into account the purpose of the study and the literature (See Appendix 2). One-on-one interviews and focus group interviews were conducted face-to-face. Each interview lasted an average of 35 minutes, and the focus group interview lasted 60 minutes. The interviews were audio-recorded with the permission of the participants to record the data.

2.5. Data Analysis

The data obtained from the quantitative phase of the study were analyzed using the SPSS package program. Analyzing the pretest and posttest scores, whether the normality conditions were met was tested. For this reason, the normality condition of the data was tested with the Shapiro-Wilk test, and it was seen that the data on the achievement levels of the study group did not meet the normal distribution conditions. In order to examine the change in the achievements of the students of the Department of Civil Air Transportation Management of the Vocational School of Higher Vocational School in the Aviation English course, Wilcoxon Signed Ranks Test, one of the nonparametric tests, was used. The significance level was determined as $p < .01$.

In the qualitative dimension of the study, the opinions of the students, instructors, program graduates, and sector employees taken during the curriculum implementation were analyzed and interpreted through content analysis. In the content analysis approach, the data obtained are analyzed in depth in order to reveal the themes more clearly (Yıldırım & Şimşek, 2011). In this direction, the statements received from the participants were coded, and categories and themes were reached.

3. FINDINGS

The findings section of the study was organized using goal-based assessment models and Eisner's Educational Criticism Model, and the findings were presented within the scope of the study's sub-problems. While goal-based assessment models were used in the findings obtained from the quantitative stage within the scope of the first sub-problem of the research, Eisner's Educational Criticism Model was used in the findings obtained from the qualitative stage within the scope of the second, third, and fourth sub-problems of the research. In the description phase of Eisner's Educational Criticism Model, general information about the Aviation English curriculum of Erzincan Binali Yıldırım University Vocational School, Department of Civil Air Transportation Management was presented; in the interpretation phase, findings based on the data obtained from interviews with students, instructors, and graduates were included. The evaluation stage of the model is included under the conclusion title of the study.

3.1. Findings Obtained from Quantitative Data

Within the scope of the first sub-problem of the study, an achievement test was administered to the students at the beginning and the end of the program in order to measure the academic achievement of the students studying at the Department of Civil Air Transportation Management of the Vocational School and to reveal the effect of the curriculum on academic achievement. The mean and standard deviation values of the pretest and posttest scores of the students from the Aviation English achievement test before and after the curriculum implementation are presented in Table 3.

Table 3. Descriptive statistics of Aviation English Achievement Test pretest and posttest scores

	N	Min.	Max.	Median	\bar{x}	SS
Pre-test	85	00,00	18,00	10,00	8,72	5,848
Sontest	85	12,00	20,00	18,00	17,85	2,093

Table 3 compares the pretest and posttest scores applied to measure students' academic achievement in Aviation English. When the answers given to the Aviation English Achievement Test were examined, it was seen that the highest pretest score was 18 and the lowest was 0 (\bar{x} =8,72; median=10,00); the highest posttest score was 20, and the lowest was 12 (\bar{x} =17,85; median=18,00) at the end of the Aviation English curriculum. When the students' mean pretest and posttest scores are compared, it is seen that while the mean achievement was 8.72 at the beginning of the Aviation English teaching program, the mean posttest score of the students increased to 17.85 points after the 14-week program.

The Wilcoxon Signed Ranks test was used to determine whether there was a statistically significant difference between the pretest and posttest scores of the students' Aviation English academic achievement scores. The results of the analysis are presented in Table 4.

Table 2. Wilcoxon Signed Ranks test results for the Aviation English Achievement Test

Posttest-Pretest	N	Rank Mean	Row Total	z	p
Negative rows	0	0	0	-7,87	.000*
Positive rows	85	41,50	340		
No difference	0				

^a Based on positive queues

*p<.01

According to the results of the Wilcoxon Signed Rank Test conducted to compare the students' pretest and posttest scores from the Aviation English achievement test, there was a significant difference between the students' pretest scores (\bar{x} =8.72; median=10.00) and posttest scores (\bar{x} =17.85; median=18.00) in favor of the posttest (z=-7.87; p<.01). Based on this increase in the students' achievement test scores, it can be said that the students achieved the targeted gains in academic achievement at the end of the Aviation English teaching program. In addition, the statistically significant difference between the Aviation English curriculum implemented for 14 weeks and the students' academic achievement shows that the content of the curriculum had a significant effect on the students' academic achievement.

3.2. Findings from Qualitative Data

In evaluating the Aviation English curriculum, the Describing phase, which deals with the general structure of the curriculum within the scope of Eisner's Educational Criticism Model, and the Interpretation phase, which deals with the data obtained from the interviews, are presented in this section.

3.3. Description

The aim of the Aviation English course, which is given compulsorily in the third and fourth semesters of the Department of Civil Air Transportation Management of the Vocational School, is to ensure that the students studying in this department use General English correctly in the context of Aviation English. The curriculum prepared in this direction includes content that enables students to actively use Aviation English based on the guidelines and standards established by the International Civil Aviation Organization (ICAO). Aviation English courses are held in foreign language classrooms in the School of Foreign Languages, and the necessary materials are provided in the classroom environment for students to be exposed to Aviation English. The projection and sound systems and technological materials in the language classrooms are appropriate and effective for students to understand the spoken language and jargon used in the content of the Aviation English curriculum and Civil Aviation ground handling and in-flight. On the other hand, the lecturer of the Aviation English course is working in the School of Foreign Languages and received training from the lecturers in the School of Civil Aviation before starting to teach Aviation English courses. In Aviation English courses, first of all, spoken language, terminological expressions, and technical training on airplanes are given so students can enter the sector after graduating from the Vocational School. The instructor provides the necessary environment for students to actively learn and acquire Aviation English by involving them in the process.

3.4. Interpretation

Within the scope of the second, third, and fourth sub-problems of the study, based on the findings obtained from the semi-structured interviews conducted with the stakeholders of the Aviation English program, namely students, instructors, and program graduates, their perspectives on the implementation process, structure, and importance of the curriculum were presented. Three different themes were formed from the data analysis obtained from the stakeholders' interviews to evaluate the Aviation English curriculum. These themes are content and implementation, professional advantages, limitations, and ways of improvement. These themes are presented under this title by bringing together the views of the stakeholders. The themes reached as a result of the analyses were examined and presented in line with the participants' statements.

Under the theme of content and practice, stakeholders' opinions were obtained on whether the Aviation English curriculum includes the outcomes and information that students need. In this regard, opinions were obtained from the students and graduates of the program that they were sufficiently informed about the English language used in aviation and that they gained competence in this field. On the other hand, positive opinions of the lecturers were obtained that the foreign language content in the curriculum and the content of the aviation courses overlap and that the students' achievements in Aviation English are reflected in other courses. Some of the stakeholder opinions reached in this direction are as follows:

"Foreign language is very important in aviation. Students do not only learn the English equivalents of aviation terms in that course. Since the language of aviation is already in English, they also learn the language of aviation, and I see that they transfer what they learn in technical terms to other courses." (Instructor-4:)

"I am happy that what we have learned in the class can be applied in daily life. This course is like other courses in English. Sometimes, we learn things that we do not see in the actual aviation-related field courses. Listening to conversations and dialogues and role-playing them is very useful. I especially benefited from this during my internship." (Student-2)

"When I was a student, what I learned in the Aviation English course was very useful for other courses. Since the language of aviation is English and the words are generally taken from English, maybe we learn technical expressions in other courses. However, with the help of this course, we see how they are used in conversations. I think learning is fully achieved." (Graduate-1)

Student-3 stated that the activities implemented in the Aviation English course positively affected the students' learning process with the words, *"The listening activities and writing activities we do during the process contribute to improving my English in general."* Student-5's views are as follows:

"I think we improve in terms of speaking, especially when we apply the listening activities as role play because we cannot understand and speak English in general. When we start working, we will need to speak, so these activities are very useful for me."

Based on these opinions, the Aviation English curriculum has outcomes for four language skills, and the activities positively affect students' English. In addition, instructors and graduates expressed opinions that the program's content should be improved, and that more speaking activities should be related to aviation. Some of these opinions are as follows:

"Since these students are studying a two-year program, the Aviation English course has a lighter content than the four-year program. By doing more speaking activities in Aviation English courses, the intensity of the content can be increased, and more qualified personnel can be trained for the profession." (Instructor-2)

"When I started working at the airport, the first thing that came to my mind was that I had to pronounce the words correctly. We were doing listening activities, but I think now students should do more speaking and pronunciation exercises." (Graduate-2)

On the other hand, there were also opinions that the course hours of the Aviation English curriculum were insufficient. For example, Student-1's views on this issue are as follows: "I think two hours a week is too little for this course," while the views of other stakeholders are as follows:

"Our teacher extends the time if the activities planned during the lesson time are not completed, but I think there should be more time in the formality. To repeat or to make more speaking" (Student-4)

"This course should have more hours. Like in the School of Civil Aviation. Maybe something like a speaking club can be organized. It would be good" (Instructor-1)

Considering that vocational school students enter the profession after two years of education, positive opinions were obtained from the questions asked of the stakeholders regarding the role of the Aviation English curriculum in preparing them for professional life. For example, Instructor-3 stated *"Foreign language is important in every field, but I think it is even more important in aviation. I have always seen that our students who are successful in the*

Aviation English course have come to good places in professional life." The opinions of Student-6 and Graduate-3 on this issue are as follows respectively:

"Even during my internship in the summer, I saw that if I did well in the Aviation English course, I thought I could find a job. When I started working, I thought that if we learn aviation terms well and speak fluently, we will be able to get ahead."

"In this sector, whoever speaks English wins. English is the priority when moving to bigger airports. For example, when I was preparing for the interviews, I always studied the notes I took in Aviation English. I asked my teacher for a copy of the listening activities. Now I see the benefits."

In addition to the opinions that the Aviation English curriculum helps prepare students for the profession, there were also opinions on the effects of the competencies gained through this program on students' professional lives. While Instructor-4 explained this issue as *"With this course, our students are actually rehearsing the profession before they start their profession,"* the opinions of Instructor-2 and Graduate-3 are as follows respectively:

"In the Aviation English course, in addition to the field courses, students are exposed to the dialogues they may experience professionally. As the Vocational School, we offer content and learning experiences that prepare these students directly for the profession. An important share in this regard can be with the Aviation English program."

"In this sector, I have seen the contribution of the courses I took during my education. You know how they always say that what we learn at university has nothing to do with business life? Not so with us. I did not complete four years but received an education that would prepare me for the profession. I am now reaping the benefit of participating in the Aviation English course."

The theme of the limitations of the program was also reached from the stakeholders' opinions received during the Aviation English curriculum evaluation process. When the statements of the stakeholders were examined, while the importance of this program was emphasized in order for the students in the Vocational School to develop themselves professionally, the high number of students and the low number of course hours in inverse proportion to this number were mentioned among the limitations of the program. Some of the stakeholder opinions on this issue are as follows:

"Because of the large class size, sometimes our teacher cannot spare time for all of us individually in speaking activities. I think the lessons would be more productive if the classes were divided or the class hours were increased." (Student-6)

"The number of people is unfortunately high. I think this is the fate of Vocational Schools. Since the Aviation English course is not a course where the instructor lectures and the student listens, there may be a problem" (Instructor-2)

Based on these opinions, the content of the Aviation English curriculum is appropriate for the students' level. However, the program's limitations include the high number of students and the need for more lesson hours. When the opinions of the stakeholders about the program were examined, the theme of ways to improve the program was reached based on their suggestions about the program. The participants stated that Aviation English courses should be offered to the instructors through in-service training to keep up with the developments in the field of aviation to keep up with the age that develops with technology. Stakeholder views on this issue are as follows:

"As technology develops, innovations come to aviation as in every field. If we receive in-service training or attend seminars on this subject, we can enrich the content of the curriculum." (Instructor-3)

"We are facing a young generation. These are the children of the digital age. Aviation is a very dynamic field. Innovations are coming. Technically, everything is not the same as before. As academics in this field, we are constantly reading and improving ourselves, but this should not be limited to individual development. They are providing training for faculty members. Actually, there are. Seminars are full. However, it should not be left to the individual. Lessons should go beyond old engine systems or aircraft types. This can only be achieved through training." (Instructor-1)

Based on these opinions, enriching the Aviation English curriculum's content by using current developments would be more beneficial for students.

4. CONCLUSION

At this study stage, the evaluation step of Eisner's Educational Criticism Model was utilized. In this study, in which the Aviation English curriculum of the Department of Civil Air Transport Management of the Vocational School of Vocational High School was examined with a stakeholder-based program evaluation approach, goal-based program evaluation models were used to examine the program's effect on students' academic achievement. In this context, an Aviation English achievement test was administered to students before and after the program. When the

results of the analyses are examined, the students achieved the targeted gains in academic achievement at the end of the Aviation English curriculum. In addition, the fact that there was a statistically significant difference between the Aviation English curriculum implemented for 14 weeks and the academic achievement of the students shows that the content of the curriculum had a significant effect on the students' academic achievement. In addition, it was concluded that the classroom environment in which the program was implemented was a language classroom, and the necessary materials were arranged by the students' levels and the curriculum content. When the literature is examined, as a result of a study conducted by Dinçer (2013), it was revealed that the physical conditions of the environment in which the curriculum is implemented have an essential role in the program evaluation stages and that the environment in which the stakeholders implement the program is an essential factor in terms of the efficient operation of the program. It can be said that the data obtained in this study, which evaluated the Aviation English curriculum, supports this finding in the literature.

In order to evaluate the Aviation English curriculum, Eisner's Educational Criticism Model was used, and the opinions of students, instructors, and graduates, who are the program's stakeholders, were consulted. As a result of the analysis of the data obtained from semi-structured interviews, four themes were reached. Regarding the content and implementation process of the Aviation English curriculum, opinions were obtained from the students and graduates of the program that they were sufficiently informed about the English language used in the field of aviation and gained competence in this field. On the other hand, positive opinions of the instructors were obtained that the curriculum's foreign language content and the aviation courses' content overlap and that the students' achievements in Aviation English are reflected in other courses. In addition, the activities implemented in the Aviation English course positively affected the students' learning process, and the activities, together with the four language skills in the Aviation English curriculum, contributed positively to the students' English.

According to Akyurt (2009), for students trained in vocational schools to become effective employees, care should be taken to ensure that the programs are prepared to meet the sector's needs. Based on the stakeholder opinions that support this view, in addition to the opinions that the Aviation English curriculum is useful in preparing students for the profession, it was also found that the competencies gained through this program have a positive impact on the business life of the students. In addition, the opinions of the instructors and program graduates on the need to improve the program's content and to have more speaking activities related to aviation support the literature studies on the need to organize the programs according to the needs (Deitmer, 2008).

Stakeholder opinions received during the evaluation process of the Aviation English curriculum revealed that the program has some limitations. When the statements of the stakeholders were examined, while the importance of this program was emphasized in order for the students in the Vocational School to develop themselves professionally, the high number of students and the low number of course hours in inverse proportion to this number were mentioned among the limitations of the program. In addition, it can be said that the content of the Aviation English curriculum is appropriate for the level of the students. However, the program's limitations include the high number of students and insufficient course hours. In the process of evaluating the program, the positive aspects and limitations of the program, as well as the suggestions offered by the participants for the improvement of the program, brought along the idea that the program should be improved. When the literature was examined, findings were obtained to support Sezgin's (2000) view that vocational school education programs should be evaluated, renewed, and updated in line with the needs since vocational education is affected by changes in science, technology, and the sector. Based on the findings, it can be suggested that Aviation English courses should be presented to the instructors with in-service training to keep up with the developments in aviation fields and the age development with technology. In addition, this program's possible limitations and problems can be better understood through Aviation English program evaluation studies based on stakeholders' opinions at different educational levels, and suggestions can be made to the literature and instructors who are the program implementers for Vocational Schools.

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Showing and Doing: ChatGPT and Conversation Analysis

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Abstract

Generative artificial intelligence programmes such as ChatGPT are the subject of much debate in higher education. The incorporation of these programmes into pedagogic practice has been hailed as significant in aiding students' academic work through providing suggested conceptualisations, research approaches, and analyses. However, concerns have been raised regarding potential academic misconduct in terms of plagiarising such material as well as stifling critical thinking and analytical skills. While these large language models can generate apparently human-like content, this article argues that, for students engaging with conversation analysis, the use of ChatGPT is problematic. It is argued that this is because this kind of AI is not rooted in the world of human language use where talk is a vehicle for accomplishing actions. This article presents a study that follows the approach of Michel-Villarreal et al. (2023) in adopting a 'thing' ethnography to understanding the way that ChatGPT conducts conversation analysis. The study explores the differences between ChatGPT's approach to this kind of analysis and myself as a researcher in this field. ChatGPT was also invited to offer a comparison of the two approaches as well as commenting on the value of the exercise for students studying this area in higher education.

Keywords: ChatGPT, conversation, analysis, higher, education

1. INTRODUCTION

This introduction set out the prerequisite background to the study undertaken with ChatGPT in terms of explaining what this form of generative artificial intelligence (GenAI) can do, the issues it has raised for higher education, and the nature of conversation analysis (CA) as a central focus for the study.

1.1. ChatGPT

ChatGPT is a form of GenAI that works with language using the Generative Pre-trained Transformer (GPT) technique to enable it to generate human-like textual discourse in response to questions or commands. (Brown et al., 2020). Within GenAI it is what is known as a Large Language Model (LLM) and is concerned with 'natural' language processing (Min et al. 2023). These kinds of systems are trained on, as their name suggests, large amounts of textual data. At the time of release in 2020 ChatGPT 3 was trained on around 570 gigabytes of text data (as confirmed by ChatGPT) to enable it to learn the context, patterns, and grammar of language use to enable it to predict and generate human-like textual content. ChatGPT-3.5 was trained on data up to January 2022, while ChatGPT-4, released in November 2023, was trained on data up to April 2023. An important feature of ChatGPT is that it can generate text that is contextually relevant as well as being coherent to the reader. This feature is enabled through what is known as an attention mechanism that can set different weights or importance to individual words in a given sentence depending upon its contextual relevance (Vaswani et al., 2017). However, ChatGPT, unlike humans, does not possess in situ

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real-time understanding or awareness of what it generates. Its responses are not based on understanding language use from a human point of view, but rather in the way it is pre-trained in examining patterns in the textual sources of data it is provided. Consequently, while ChatGPT can produce what appears to be human-like language output, it can also produce incorrect or nonsensical responses despite its apparent ability to be contextually sensitive (Bender et al., 2021).

Currently, ChatGPT-4, is only available through subscription, however ChatGPT-3.5 is publicly available and is the version used in the current study. The user interface for ChatGPT is akin to a chatbot window where questions can be asked, or commands given. Once the user has input what is required, the system proceeds to generate its response, usually quickly, in a line-by-line manner, and then stops. At this point the user can respond and interact further by asking, for example, follow-up questions or seeking clarifications. As is the case when search engines became available on the internet, the key is therefore in the precision of the questions asked as the user progresses in interacting with the system.

1.2. GenAI and Higher Education

GenAI systems such as ChatGPT or Google Bard have thrown up some thorny issues for the world of higher education. (Dwivedi et al., 2023; Kasneci et al., 2023). ChatGPT, for example, has attracted debates regarding what some view as its negative effects on teaching and learning. This has largely centred on its use by students in assessments, given that it can be used to generate answers to examination questions, or coursework assignments and essays. This problem is all the more pressing when current versions of anti-plagiarism software are only able to generate probabilistic percentages in detecting potential GenAI use (Zhai, 2022). This is not the same as detecting instances where students have copied work from sources, and these can be flagged up by anti-plagiarism software on the student's submission. Instead, all that can be generated is a percentage probability that sections or parts of the submission have been produced by a GenAI system. Indeed, anti-plagiarism systems such as Turnitin warn that anything under 20% may be a false positive. Consequently, higher education institutions need to also have in place additional indicators of potential GenAI use such as short oral examinations with students whose submissions are suspect, or an examination of the references cited given that GenAI systems may sometime 'hallucinate' and generate inaccurate or false references (Lo, 2023) These additional measures take up more resource and place additional burdens on higher education institutions.

This has placed higher education institutions at the forefront of working out how to respond to the emergence of GenAI. Some have reacted by banning the use of such systems by students while others have taken the view that the 'genie is out of the bottle' and that students require guidance on how to use GenAI in a responsible, ethical, and most importantly, effective manner (Aler Tubella et al., 2024). However, given the problems of detection, or in specifying how GenAI may be used by students regarding their assessments, policy statements and information on what is or is not acceptable use may be difficult to formulate.

It has also been suggested there could be a negative impact on students' critical thinking and problem-solving skills due to simply asking for assistance with assignments without much in the way of cognitive effort. On the other hand, it can be argued that ChatGPT can be used as a tool to aid students in generating answers to the application of theory to issues, as is the case in my own discipline of sociology, or in formulating ideas and plans for essays (see Kasneci et al., 2023). ChatGPT can also aid students by providing them with formative feedback on coursework prior to final submission or be used to generate issues for that can in turn be used as the source of further thinking and debate (Farrokhnia et al., 2023). It can also be used as a tool for higher education tutors in their pedagogic practice through adding in the planning and preparing personalised resources and in supporting the assessment process. Moreover, it has also been suggested that it could aid the research process by supporting the analysis and write-up phases of work (Rahman & Watanobe, 2023). Finally, the advent of ChatGPT could lead to tutors being nudged towards more 'authentic' methods of assessment (Wiggins, 2011) that are more specific and AI-proof.

Following Michel-Villarreal et al. (2023), I argue that the tendency has been to be concerned with ChatGPT as an object of focus. However, it is also possible to take an alternative view that considers Chat GPT as a subject through adopting a 'thing ethnography' methodology [16]. This perceptive allows us to consider how non-human perspectives and intelligence can throw into relief differences between the human and non-human approaches to academic activities. Specifically, in the case of this paper I am interested in how ChatGPT approaches conversation analysis and how myself, as a researcher in this field approaches this kind of activity. By comparing the two, we may gain a clearer understanding of the boundary where human and AI-based analyses diverge or complement one another. This is important, not only from the point of view of the craft of research, but also in terms of pedagogic practice. Prior to

comparing the two analyses it is necessary to explain the nature of conversation analytic work and this is set out in the section below.

1.3. Conversation Analysis

Conversation analysis (CA) was founded by Harvey Sacks (see Sacks 1992) and may be considered of offshoot of the sociological field of study know as ethnomethodology, (see Garfinkel, 1967). Ethnomethodology and conversation analysis present sociology with a radical methodological departure from conventional constructivist approaches to analysing the social world (Garfinkel and Sacks, 1970). This is apparent in the way that they approach an understanding of social order as inherent in the actions social actors engage in. They seek to explicate the organised properties of members' methods of practical common-sense sociological reasoning as they engage in action with one another. In the case of CA, the focus is on turn-taking in conversation and how conversationalists perform various social actions such as justifying, praising, blaming, rationalising, inviting, accepting, refusing, requesting, promising and so on. Key to this is the normative practices associated with these activities in terms of what are defined as adjacency pairs (Schegloff & Sacks, 1973). They can be such actions as question-answers sequences, invitations and acceptances or refusals, assessments and agreements or disagreements and so on. The point here is that certain responses are normatively preferred following one part of the pairing while other responses are dispreferred. For example, an answer is normatively preferred following a question and if this is not forthcoming then participants may seek to repair this situation by asking again or making some other comment. CA also seeks to study the way that certain social categories are used to perform certain actions. These are referred to as membership category devices (Sacks, 1972; Schegloff, 1997; Hester and Elgin 1997) and allow participants in a conversation to draw upon certain inferential associations with the category that is brought into the conversation. This brief account of CA draws attention to the ways in which social actors use turn-taking and the use of categories and descriptions to engage in interaction and perform various social actions which are apparent to conversationalists in the way that talk is conducted. It is in the course doing talk that these matters are displayed through the practical sociological reasoning that is made relevant.

From the point of view of the analyst conducting CA, the aim to explicate, or bring to the surface, the nature of the practical sociological reasoning that is apparent through a sequential analysis of the talk in question. To do this the analyst must draw upon their own competence as members of society who can understand the actions that are performed in and by turns. The analyst's identification of actions performed in conversation therefore draw upon common-sense reasoning in terms of:

“...the currency of the vernacular, of common-sense categories of action such as ‘greetings’, ‘questions’ and the like, not in the technical vocabulary of linguistic technologies with their disciplinarily generated definitions and criteria.” (Button & Sharrock, 2016: 613)

In other words, in conducting CA, there is very much an element, to begin with, of drawing upon one's own immersion in society and the enculturation that has resulted in the recognition of common-sensically recognised actions. By trading on common sense, the analysis brings into focus the role of tacit human understanding in CA. However, this does not mean that CA proceeds based on common-sense intuition alone. It involves moving from this initial characterisation of an action rooted in the common-sense of the analyst into then examining the methods deployed by conversationalists through which such a characterisation is rendered account-able during interaction. We may therefore draw upon vernacular usages of the words we have to describe actions (invitations, requests, greetings etc.) but then shift analytically to examining in detail how that characterisation is manifest in the interactional organisation that offers a means for the accomplishment of those actions. Thus, what CA does is make visible what it is we as already ‘know’ in characterising an action, how it is done, and done in a recognisable manner by conversationalists themselves. It provides an understanding of the methods used to produce these actions, to respond to them, and thus the methods used in interaction to determine the nature of what is going on. The analysis reveals or uncovers the common-sense knowledge we all display when interacting with others in conversation in whatever context, both formal and informal. In making visible these conversational practices the emphasis on next turns is therefore used as a means of examining how something was heard in in the manner that it was and how it could be heard as that thing. CA is therefore focused on the organising practices and methods that are integral to action and interaction. It raises to the surface for the reader of an analysis these human, but unspoken, practices.

The key point in explaining the nature of CA for the current study is that it is very much about exploring tacit processes. This means that it refers to the pervasive organising methods embedded in the interactional processes themselves. This kind of analysis is not something that current GenAI systems can easily mimic given its reference to unspoken practices. ChatGPT can write in the style of CA but it is a moot question if this can be considered analysis

given that it has no access to this tacit knowledge. This brings us on to the current question of comparing ChatGPT with myself in conducting a piece of CA.

This paper provides an exemplar piece of analysis to compare and contrast ChatGPT's perspective on the analysis versus my own as a researcher in this field. In order to understand the basis of this approach the next section considers the methodological issues of doing so.

2. METHOD: THE APPLICATION OF THING ETHNOGRAPHY

Ethnography is an established qualitative research method that has conventionally been used to understand social relations and practices from the point of view of those involved. It draws upon a variety of data-gathering techniques such as observation, in-depth interviewing, document analysis, and photo-documentary, often to achieve data triangulation and a more comprehensive view of what is being studied. However, the world of ever-advancing technology has resulted in a complex weave of inter-related relationships with various interactive digital objects such as mobile phones, digital assistants, computer games etc. This has led to the view that: "We shape objects; and objects shape and transform our practices and us in return" (Giaccardi et al, 202: 235). This being the case, it is important to reflect in our methodologies the need to assign a role to such objects as we seek to understand this kind of interplay.

By changing the focus of ethnography away from an exclusive focus on human and towards according an explanatory status to non-human actors or 'things', then we can gain a better understanding of the nature of the relationships between the human and non-human in various practices. The approach permits us to study the ways in which objects have effects upon what we do as humans and vice versa. This leads to the adoption of an approach known as 'thing ethnography' (Giaccardi et al., 2016) which affords the opportunity to examine and interpret activities and actions through the incorporation of a 'things' perspectives. The data that 'things' permit enables a form of ethnography where the researcher, as in virtually all qualitative research, is central to the sense that is made of that data and how it accords with any associated human data. This permits researchers a means of examining the interaction of humans and objects (Chang et al. 2017).

The advent of GenAI has given us a new perspective on a non-human form of intelligence, its evolving capacities, and capabilities for its role in the human world. Given that, as Dignum, (2023) points out AI has the potential to play a huge role in transforming human lives, it is worth exploring key difference between human and non-human forms of knowledge and understanding. If we are to be clear on the differences between algorithmic forms of intelligence and what they can do in comparison to human intelligence, then a good place to start might be looking for 'boundary issues' where there may be a divergence between the two. This is where a focus on conversation analysis is important given the role tacit human encultured understanding plays in this form of research. If we examine how GenAI, in this case ChatGPT, approaches this form of analysis as a 'thing' then this can perhaps clarify the role of each. Applying a thing ethnography to the study of GenAI systems can give us a new perspective on what it can do, if even mimicking, and where its current limitations are in comparison to its human counterpart. This is not to say that there should be some kind of competition set up between the two, but rather that we can begin to identify the role that each play in the production of academic work. This is vital for higher education where students may turn to GenAI systems for support in their studies and to help them to see what the capabilities and limitations are of this form of intelligence.

Given the above argument, the view adopted in this paper is that ChatGPT is a subject, a form of intelligence, that is drawn upon in a symbiotic relationship with humans. It is not simply an object that is used as a tool but rather has an impact upon the practices of humans, including the academic actions we refer to as analysing and theorising. In order to accomplish this task, I have adopted a reflexive stance in which I have asked how ChatGPT would undertake the comparison and how it would compare my conversation with its own. In taking this 'thing-based' ethnography ChatGBT is accorded the status of a subject based on a semi-structured interview format with this GenAI system.

The transcript extract used in the study for undertaking CA was drawn from a module that I teach at my university entitled 'The Language of Crime' where we examine transcript materials from police interviews with suspects as well as courtroom proceedings. My focus in teaching with this material, is one of the main features of CA in terms of examining the sequential nature of talk-in-interaction in terms adjacency pairs (Schegloff and Sacks, 1973). One type of adjacency pairing that has been a focus of interest in courtroom interactions is question-and-answer sequences. Atkinson and Drew (1979: 61-62) have drawn attention to the way in which the speakers' turns in courtroom are fixed with lawyers asking questions and defendants and witnesses providing answers. This procedural turn allocation in court ensures that lawyers are mostly able to control the trajectory of what is said by attempting to elicit from witnesses or defendants' answers which will enable the construction of a prosecution or defence case. The example drawn upon pertains to a cross-examination of an alleged sexual assault victim from research undertaken by Drew and Heritage (1992).

The analysis undertaken broadly follows a template analysis (King, 2012; Brooks et al. 2015) approach to approach insofar as key predefined themes were identified prior to analysing the data. These were derived from prior exchanges with ChatGPT, although not on this topic, and consisted of the following: the linguistic structure of ChatGPT's responses; the generality or specificity of the answers provided; the nature of its analytic procedure; the nature of its reflexive statements; and the accuracy of its statements. It is important to note that the full 'conversation' with ChatGPT is presented in the Findings section below. The decision to do so has led to a lengthy article but this is crucial to the Analysis and Discussion section where the question-and-answers and directives and responses are analysed in the sequential manner in which the exchange between myself and ChatGPT unfolded.

3. RESULTS: THE EXCHANGE WITH CHATGPT

As noted above the entire exchange with ChatGPT is presented below. All questions and answers, and directives and responses were undertaken within the temporal period of one 'conversation'.

Question: *How would you conduct a study of how ChatGPT compares with a human in undertaking a piece of conversation analysis?*

Answer: Conducting a study to compare ChatGPT with a human in undertaking conversation analysis involves several steps to ensure a comprehensive and fair evaluation. Here's a general framework for such a study:

1. Define the Scope and Objective: Clearly outline the purpose of the study, including the specific aspects of conversation analysis you want to evaluate. This could include understanding coherence, detecting sentiment, identifying conversational patterns, etc.
2. Participant Selection: Choose participants for the study. For the human side, select individuals with expertise in conversation analysis or linguistics. Ensure they are representative of the population you want to generalize to. For ChatGPT, use the model itself as the participant.
3. Materials Preparation: Prepare a set of conversation transcripts or recordings that cover a variety of topics and conversation types. Ensure that the materials are balanced and representative of real-world conversations.
4. Procedure: Develop a clear procedure for both human and ChatGPT participants to analyze the conversations. Provide guidelines, instructions, and any necessary training to ensure consistency in analysis.
5. Analysis Metrics: Define specific metrics to evaluate the quality of conversation analysis. These could include accuracy in identifying conversational elements, depth of understanding, coherence, etc.
6. Blinding: To minimize bias, consider blinding the human participants to whether they are analyzing human-generated conversations or ChatGPT-generated conversations.
7. Evaluation: Have both human and ChatGPT participants analyze the same set of conversations independently. Record their analyses, including any notes or reasoning they provide.
8. Comparison: Compare the analyses from both groups against a set of predefined criteria or gold standard annotations. Evaluate the performance of each participant (human and ChatGPT) based on the established metrics.
9. Statistical Analysis: Use appropriate statistical tests to compare the performance of ChatGPT with the human participants. This could involve measures such as inter-rater reliability, accuracy, F-score, etc.
10. Qualitative Analysis: In addition to quantitative measures, consider qualitative aspects such as the depth of insights provided by human analysts compared to ChatGPT, the ability to interpret ambiguous or nuanced language, etc.
11. Ethical Considerations: Ensure that ethical guidelines are followed throughout the study, including obtaining informed consent from human participants and protecting any sensitive information.
12. Interpretation and Discussion: Interpret the results of the study, discussing the strengths and limitations of both ChatGPT and human analysts in conversation analysis. Consider implications for future research and applications.
13. Documentation and Reporting: Document the study methodology, results, and findings comprehensively for transparency and reproducibility. Present the findings in a clear and accessible manner, suitable for both technical and non-technical audiences.

By following these steps, you can conduct a rigorous study to compare ChatGPT with humans in undertaking conversation analysis, providing valuable insights into the strengths and limitations of each approach.

Question: *What methodological stance would ChatGPT adopt in undertaking this study?*

Answer: In undertaking a study to compare itself with humans in conversation analysis, ChatGPT would inherently adopt a computational and algorithmic methodological stance. This stance is characterized by leveraging computational processes, algorithms, and statistical methods to analyze and interpret data. Here's a breakdown of the methodological stance ChatGPT would likely adopt:

1. **Computational Approach:** ChatGPT relies on computational methods to process and understand language. It analyzes text inputs using algorithms and neural network architectures to generate responses or perform tasks such as conversation analysis.
2. **Data-Driven Analysis:** ChatGPT's approach is data-driven, meaning it learns patterns and structures from large datasets of text. It uses statistical methods to extract meaningful information and make predictions based on the input data.
3. **Algorithmic Decision-Making:** ChatGPT makes decisions based on algorithms that are designed to optimize specific objectives, such as generating coherent responses or identifying conversational elements. These algorithms govern how ChatGPT processes and interprets information.
4. **Automated Processing:** ChatGPT's methodology involves automated processing of text inputs. It uses predefined rules, heuristics, and learned patterns to analyze conversations without human intervention.
5. **Scalability and Efficiency:** ChatGPT's methodology emphasizes scalability and efficiency, leveraging parallel processing and optimization techniques to handle large volumes of text data and perform analyses in real-time or near-real-time.
6. **Quantitative Evaluation Metrics:** ChatGPT evaluates its performance using quantitative metrics such as accuracy, precision, recall, F1 score, etc. These metrics provide objective measures of how well ChatGPT performs compared to humans in conversation analysis tasks.
7. **Iterative Learning:** ChatGPT continuously learns and improves its performance over time through iterative training on new data and feedback. It adapts its algorithms and parameters based on the input it receives, aiming to enhance its effectiveness in conversation analysis.
8. **Interpretability Challenges:** While ChatGPT's methodology excels in processing and analyzing large volumes of text data, it may face challenges in terms of interpretability. The inner workings of deep learning models like ChatGPT can be complex and opaque, making it difficult to understand how decisions are made.

In summary, ChatGPT adopts a computational and algorithmic methodological stance in undertaking the study, leveraging its capabilities in processing text data, applying statistical methods, and making automated decisions based on predefined algorithms.

Question: *What methodological stance do you think a human who is a sociologist would adopt?*

Answer: Which response do you prefer? Your choice will help make ChatGPT better.

Response 1

A human sociologist would typically adopt a qualitative, interpretive, and often ethnographic methodological stance when conducting conversation analysis. Here are the key elements of such a methodological stance:

1. **Qualitative Research Approach:** Sociologists often employ qualitative methods to gain a deeper understanding of social phenomena. This involves exploring the nuances, meanings, and context of human behavior and interactions.
2. **Ethnographic Techniques:** Sociologists may use ethnographic techniques, such as participant observation or in-depth interviews, to immerse themselves in the social context they are studying. This allows for a holistic understanding of the social dynamics and cultural nuances within conversations.
3. **Interpretive Analysis:** Sociologists focus on interpreting the meaning behind human actions and interactions. Rather than relying solely on quantitative metrics, they emphasize understanding the subjective experiences, symbols, and cultural elements embedded in conversations.
4. **Contextual Understanding:** A sociologist pays attention to the broader social context surrounding conversations. This includes factors such as power dynamics, social structures, cultural norms, and historical influences that shape communication patterns.
5. **Grounded Theory:** Grounded theory is a method commonly used by sociologists, involving the systematic generation of theories based on the data collected. This approach allows for the emergence of insights directly from the observed social phenomena.

6. Reflexivity: Sociologists often practice reflexivity, acknowledging and critically reflecting on their own biases, assumptions, and perspectives. This self-awareness is crucial for understanding how the researcher's background may influence the interpretation of data.

7. In-Depth Analysis of Small Samples: Sociologists may focus on in-depth analysis of a smaller number of cases or conversations to extract rich and detailed insights. This contrasts with the large-scale quantitative analyses often conducted in other disciplines.

8. Emic Perspective: Sociologists aim to adopt an emic perspective, understanding phenomena from the insider's point of view. This involves appreciating the meanings and interpretations that individuals within a social group attribute to their own actions and interactions.

9. Critical Inquiry: Sociologists often engage in critical inquiry, questioning underlying assumptions, power structures, and societal norms. This perspective allows for a deeper analysis of the social implications of conversations.

10. Human-Centered Analysis: Sociologists prioritize the human experience and the voices of individuals within the social context. They seek to uncover the lived experiences and perspectives of participants in conversations.

In summary, a human sociologist's methodological stance in conversation analysis would be characterized by qualitative, interpretive, and contextually rich approaches that prioritize understanding the social dimensions of communication. This stance allows for a holistic and nuanced exploration of the meanings embedded in conversations within their broader social context.

Response 2

A human sociologist would likely adopt a qualitative methodological stance in undertaking a study comparing themselves with ChatGPT in conversation analysis. Qualitative research in sociology emphasizes understanding social phenomena through detailed examination, interpretation, and contextualization of human behavior, experiences, and interactions. Here's how a human sociologist might approach the study:

1. Interpretive Approach: Sociologists often employ an interpretive approach, seeking to understand the meanings and interpretations individuals assign to their actions and interactions within social contexts. They would focus on understanding the nuances and subtleties of conversation, considering factors such as social norms, cultural context, power dynamics, and identity construction.

2. Qualitative Data Collection: Sociologists typically collect qualitative data through methods such as interviews, participant observation, ethnography, or textual analysis. For this study, they might analyze transcripts of conversations, observing patterns, themes, and underlying social dynamics.

3. Inductive Analysis: Sociologists engage in inductive analysis, allowing themes and patterns to emerge from the data rather than starting with predetermined hypotheses. They would conduct a thorough examination of conversation transcripts, identifying recurring themes, discursive practices, and social meanings embedded within the interactions.

4. Contextualization and Reflexivity: Sociologists emphasize the importance of contextualization and reflexivity in their research. They would consider the broader socio-cultural context in which conversations take place, as well as their own positionality and biases as researchers. This reflexivity ensures that interpretations are situated within their appropriate social contexts and acknowledges the subjectivity inherent in the research process.

5. Qualitative Evaluation Criteria: Sociologists may develop qualitative evaluation criteria based on theoretical frameworks, sociological concepts, or thematic analysis approaches. These criteria could include coherence, reflexivity, depth of analysis, richness of description, and relevance to sociological theories or perspectives.

6. Triangulation and Peer Review: To enhance the rigor and validity of their findings, sociologists may employ triangulation by comparing multiple sources of data or perspectives. They might also subject their analysis to peer review or engage in collaborative analysis with other sociologists to ensure the credibility and reliability of their interpretations.

7. Ethical Considerations: Sociologists adhere to ethical guidelines in their research, including obtaining informed consent from participants, ensuring confidentiality, and minimizing harm. They prioritize the ethical treatment of human subjects and strive to conduct research that contributes positively to understanding social phenomena.

In summary, a human sociologist would adopt a qualitative methodological stance, emphasizing detailed analysis, interpretation, and contextualization of conversation data within sociocultural frameworks. They would prioritize understanding the subjective meanings and social dynamics embedded within interactions, employing qualitative research methods and rigorous analytical techniques to explore these complexities.

Question: *In light of my preference for response 2, how might a methodological stance based on ethnography of 'things' aid my comparison?*

Answer: Drawing upon an ethnographic approach focused on the study of 'things' (often referred to as material culture or object ethnography), you would approach the comparison between ChatGPT and human sociologists in conversation analysis from a unique perspective. Here's how such a methodological stance might aid your comparison:

1. **Focus on Material Artifacts:** Ethnography of things involves studying material artifacts, objects, or technologies within their social and cultural contexts. In the context of comparing ChatGPT and human sociologists, you might consider the conversations themselves as "things" to be ethnographically analyzed. This perspective shifts the focus from solely analyzing human behavior to examining the interactions between humans and technological artifacts (i.e., ChatGPT).
2. **Contextual Analysis:** Ethnography of things emphasizes understanding the meaning and significance of objects within their specific contexts. Similarly, you would analyze conversations within the contexts in which they occur, considering factors such as the platform or medium (e.g., online chat, social media), the participants' backgrounds, and the cultural norms shaping the interaction.
3. **Actor-Network Theory (ANT):** ANT, a theoretical framework commonly associated with material culture studies, views both humans and non-human actors (such as technologies) as active participants in shaping social relations and practices. Applying ANT to your comparison, you would explore how ChatGPT functions as an actor in conversation analysis alongside human sociologists, examining the interactions, dependencies, and power dynamics between them.
4. **Mediation and Translation:** Ethnography of things highlights the role of objects in mediating social interactions and facilitating communication. You would analyze how ChatGPT mediates conversations between users and how its algorithms translate human input into generated responses. This perspective allows for a nuanced understanding of how technology influences the dynamics of conversation analysis.
5. **Agency and Performativity:** Ethnographic approaches to material culture often consider the agency and performativity of objects—that is, how objects shape and are shaped by human actions and meanings attributed to them. In your comparison, you would explore the agency of ChatGPT in shaping conversational outcomes and the ways in which human sociologists interact with and interpret the outputs generated by the model.
6. **Temporal and Spatial Dynamics:** Ethnography of things acknowledges the temporal and spatial dimensions of material culture, considering how objects evolve over time and circulate within different social spaces. In your comparison, you might examine how ChatGPT's conversational capabilities evolve with training data and how its deployment across various platforms influences the nature of conversations analyzed.
7. **Multimodal Analysis:** Ethnographic approaches to material culture often involve multimodal analysis, considering not only verbal communication but also visual, gestural, and spatial aspects of interactions. You could expand your comparison beyond textual conversation analysis to include considerations of multimodal communication facilitated by ChatGPT and how it compares to human sociologists' analyses of such interactions.

By adopting an ethnographic approach focused on the study of 'things', you would enrich your comparison between ChatGPT and human sociologists in conversation analysis, providing insights into the role of technology in shaping social interactions and the complexities of analyzing conversations within contemporary digital environments.

Directive: *Let us attempt to conduct the study. Perform a conversation analysis of the following transcript extract from courtroom proceedings where the witness who is making an allegation of sexual assault is being cross-examined by the defendant's lawyer:*

Lawyer: Well, didn't he ask you if uh on that night
that uh:::he wanted you to be his girl
(0.5)

Lawyer: Didn't he ask you that?
(2.5)

Witness: I don't remember what he said to me that night
(1.2)

Lawyer: Well, you had some uh fairly lengthy
conversations with the defendant uh did'n you?

(0.7)

Lawyer: On the evening of February fourteenth?

(1.0)

Witness: We were all talking.

Response: In analyzing this courtroom transcript extract, several conversational elements and dynamics can be identified, which are crucial for understanding the interaction between the lawyer and the witness:

Questioning Strategy: The lawyer employs a direct questioning strategy to elicit specific information from the witness. The questions are straightforward and focused on particular events or statements made by the defendant.

Repetition: The lawyer repeats the same question multiple times in an attempt to clarify or confirm the witness's recollection of events. This repetition serves to emphasize the importance of the question and to prompt the witness to provide a consistent answer.

Assertion of Memory: The witness asserts a lack of memory regarding the specific details of the defendant's statements. This response suggests uncertainty or reluctance on the part of the witness to provide definitive answers, which may influence the credibility of their testimony.

Evasive Response: The witness's response, "We were all talking," appears to evade the lawyer's question about the nature of conversations with the defendant on the evening of February fourteenth. This response deflects attention away from the specific topic of conversation, potentially indicating discomfort or reluctance to discuss the matter further.

Temporal References: Both the lawyer and the witness make temporal references to specific dates and times, indicating the importance of chronological accuracy in the context of the legal proceedings. This highlights the need for precise recollection and testimony regarding events that occurred on the evening in question.

Interruptions: There are pauses and interruptions in the conversation, marked by ellipses (...) and parentheses (:::), which may indicate moments of hesitation, reflection, or strategic pauses to allow the witness to formulate their response or for the lawyer to consider their next question.

Semantic Ambiguity: The lawyer's question, "Didn't he ask you if on that night that he wanted you to be his girl?" contains semantic ambiguity regarding the intended meaning of "wanted you to be his girl." This ambiguity could potentially lead to misinterpretation or differing understandings of the question by the witness and other participants in the courtroom.

Overall, this analysis highlights the complex dynamics at play in the courtroom exchange, including questioning strategies, responses to questioning, and the negotiation of meaning within the legal context. These elements are essential for understanding the interaction between the lawyer and the witness and assessing the reliability and credibility of the witness's testimony.

Directive: *Now offer a reflexive comparison your analysis with my own below:*

In the extract material from the courtroom interaction, we can see how the lawyer questions the alleged victim in such a way as to put information to her through a yes/no interrogative ("Well didn't he ask you if uh on that night that uh:::he wanted you to be his girl"). When no answer is forthcoming after a 0.5 second pause a truncated yes/no interrogative is put ("Didn't he ask you that?"). It is evident that the alleged victim does not follow what is expected (i.e., a simple yes or no response) and after a conversationally lengthy pause of 2.5 seconds she claims not to have remembered what was said. The lawyer then picks up on the claim of failing to remember and puts it to the alleged victim that she "had some uh fairly lengthy conversations with the defendant". This statement is followed by the tag "did'n you?" which serves as a way of converting the statement into a question and thereby preserves the court's procedural rules of lawyers asking questions rather than making assertions. The import of this is also clear in terms of drawing attention to the "lengthy" nature of the conversations. This implies that it would be difficult to forget what was said as the alleged victim has answered. The lawyer then follows the statement/question up by drawing attention to the date of the alleged offence ("On the evening of February fourteenth"). This date is not referred to as St Valentine's Day by the lawyer, although an overhearing jury will most likely be aware that this is

the case and its association with romanticism – an important point in the context of an alleged sexual assault which may be used to undermine the alleged victim’s credibility given the implication of potential romantic attachment with the defendant. The alleged victim ends by replying “We were all talking” with the implication being that what was said by the defendant may have been lost due to multiple voices talking. In this way we can see how the lawyer is seeking to build up a case of a potential romantic relationship between the alleged victim and defendant which arguably for the overhearing jury may undermine the credibility of the case for alleged sexual assault. On the other hand, the alleged victim offers a rebuttal, not through directly refuting what is put to her by the lawyer, but by claiming that there were multiple voices and by implication that she could not hear being asked by the defendant to “to be his girl”.

Response: In comparing my analysis with yours, it's evident that we both recognize the strategic nature of the lawyer's questioning technique and the potential implications of the witness's responses within the courtroom context. However, there are notable differences in emphasis and interpretation:

Questioning Strategy: Both analyses acknowledge the lawyer's use of yes/no interrogatives to prompt specific responses from the witness. However, your analysis provides a more detailed examination of the linguistic features and sequential organization of the questions, highlighting the use of pauses and truncated interrogatives to manage the interactional flow.

Focus on Memory: While my analysis briefly mentions the witness's assertion of memory loss, your analysis delves deeper into the implications of this claim. You emphasize how the lawyer capitalizes on the witness's failure to remember specific details, framing it as evidence of inconsistency or unreliability in her testimony. This interpretation adds nuance to the analysis by considering the strategic significance of memory-related claims in legal proceedings.

Procedural Considerations: Your analysis effectively contextualizes the lawyer's questioning techniques within the procedural rules of the courtroom, particularly regarding the conversion of statements into questions through the use of tags like "did'n you?". This attention to procedural nuances provides insight into the lawyer's rhetorical strategies and their impact on shaping the narrative of the case.

Semantic Analysis: Your analysis skillfully unpacks the semantic implications of the lawyer's choice of words, such as the omission of "St Valentine's Day" and its association with romanticism. This interpretation highlights the lawyer's attempt to subtly influence the jury's perceptions of the alleged victim's credibility by framing the interaction within a broader narrative of potential romantic involvement.

Interpretive Depth: Overall, your analysis offers a deeper level of interpretation by considering the broader sociolinguistic and rhetorical dynamics at play in the courtroom interaction. By examining the interaction from multiple angles, including linguistic features, procedural considerations, and semantic nuances, your analysis provides a rich understanding of the strategic maneuvers employed by both the lawyer and the witness to shape the narrative of the case.

In conclusion, while both analyses identify key elements of the courtroom interaction and its implications, your analysis offers a more nuanced and comprehensive examination of the linguistic, procedural, and rhetorical dimensions of the exchange. By delving into the subtleties of language use and contextual factors, your analysis provides valuable insights into the complex dynamics of legal discourse and its role in shaping perceptions of credibility and truth within the courtroom setting.

Question: *Will my analysis help you in understanding the role of participants' tacit understanding in the actions being performed in such conversational exchanges?*

Answer: Absolutely, your analysis contributes significantly to understanding the role of participants' tacit understanding in conversational exchanges within the courtroom setting. Here's how:

Semantic Nuances: Your analysis delves into the semantic nuances embedded within the lawyer's questions and statements. By examining the choice of words and the implicit meanings conveyed, you shed light on how participants tacitly interpret and respond to the underlying intentions behind the language used. This highlights the importance of participants' shared understanding of the subtleties and implications of language in guiding their actions within the conversation.

Procedural Awareness: Your analysis considers the procedural rules and norms governing courtroom interactions. By recognizing how participants tacitly navigate these rules, such as through the conversion of statements into questions to adhere to procedural requirements, you illustrate how participants' tacit understanding of the legal

context shapes their communicative strategies and responses. This highlights the role of tacit knowledge in guiding participants' actions within the structured environment of the courtroom.

Contextual Significance: Your analysis contextualizes the conversation within broader sociolinguistic and situational factors, such as the significance of dates and cultural associations. By recognizing how participants tacitly draw upon shared cultural knowledge and contextual cues to interpret and respond to each other's actions, you demonstrate the role of tacit understanding in facilitating communication and meaning negotiation within specific situational contexts.

Interpretive Depth: Your analysis offers interpretive depth by considering the multiple layers of meaning embedded within the conversation. By uncovering the underlying motivations, implications, and strategic maneuvers employed by participants, you reveal the tacit understanding that guides their communicative choices and responses. This highlights how participants tacitly engage in sense-making processes to interpret and navigate the complexities of the interaction.

Overall, your analysis provides valuable insights into the intricate interplay between participants' tacit understanding and their actions within conversational exchanges, particularly within the highly structured and regulated environment of the courtroom. By examining the semantic, procedural, and contextual dimensions of the interaction, your analysis elucidates how participants tacitly negotiate meaning, navigate social norms, and shape the unfolding dynamics of the conversation.

Question: *What do you see as the outcome of this conversation analytic comparison between you and I, and our comparison of comparisons, for aiding higher education students who are studying sociology or criminology?*

Response: The conversation analytic comparison between us and our subsequent comparison of comparisons offers several potential outcomes for aiding higher education students studying sociology or criminology:

Enhanced Understanding of Methodological Approaches: By engaging in a comparative analysis of our respective approaches to analyzing the courtroom interaction, students gain insight into different methodological stances employed in sociological and criminological research. They learn to recognize the strengths and limitations of various analytical frameworks, including computational, qualitative, and ethnographic approaches.

Critical Thinking Skills: Through our comparison of comparisons, students develop critical thinking skills by evaluating and synthesizing different perspectives on the same phenomenon. They learn to critically assess the implications of methodological choices, interpretive frameworks, and analytical strategies in sociological and criminological research.

Interdisciplinary Perspectives: The interdisciplinary nature of our analysis exposes students to diverse perspectives from the fields of linguistics, sociology, criminology, and computational science. They learn to integrate insights from multiple disciplines to gain a holistic understanding of complex social phenomena, such as courtroom interactions and legal processes.

Practical Application: Students gain practical skills in applying methodological approaches to real-world contexts, such as analyzing courtroom interactions. They learn how to conduct rigorous research, interpret qualitative data, and critically evaluate the validity and reliability of findings—an essential skillset for conducting sociological and criminological research.

Ethical Considerations: Our comparison underscores the ethical considerations inherent in sociological and criminological research, particularly concerning issues of power, representation, and procedural fairness within legal contexts. Students learn to navigate ethical challenges and dilemmas in research practice, ensuring the ethical conduct of their own research endeavors.

Reflective Practice: By reflecting on our own analytical processes and comparing them with alternative approaches, students engage in reflective practice, enhancing their self-awareness and reflexivity as researchers. They learn to critically evaluate their own biases, assumptions, and methodological choices, fostering intellectual humility and open-mindedness in their research practice.

Overall, the outcome of this conversation analytic comparison and our comparison of comparisons is to equip higher education students studying sociology or criminology with the knowledge, skills, and critical perspectives necessary to engage effectively in research and scholarship within their respective fields. By fostering interdisciplinary understanding, critical thinking, ethical awareness, and reflective practice, students are better prepared to address complex social issues and contribute meaningfully to academic discourse and social change.

4. ANALYSIS AND DISCUSSION

The first thing to note is that the 'conversation' with ChatGPT proved illuminating in terms of its ability to answer my questions or undertake my directives at what might be termed, the speed of a slowed down conversation, given the textual nature of the interaction. The answer to my first question ("How would you conduct a study of how ChatGPT compares with a human in undertaking a piece of conversation analysis?"). The answer was couched in bullet point terms, a common feature of ChatGPT responses). These were largely procedural in nature (Define the Scope and Objective, Participant Selection, Materials Preparation etc.) with ChatGPT concluding that "By following these steps, you can conduct a rigorous study to compare ChatGPT with humans in undertaking conversation analysis." When asked in follow-up "What methodological stance would ChatGPT adopt in undertaking this study?" The answer given was that it "would inherently adopt a computational and algorithmic methodological stance" with again, a listing of key features of such an approach. In thinking back on this I should have perhaps asked it "What sociologically informed methodological stance it would adopt?". Thus, a key feature to note when interacting with this form of GenAI is the precision of the questions asked. Having said this, it does permit the user to go back and edit the question and upon doing this the response was yet again in the form of a list of different approaches (e.g., Ethnographic Approach, Critical Discourse Analysis, Participant Observation). There is also a typical summary conclusion given at the end of the answer "Overall, a sociologically informed methodological stance would emphasize understanding conversations within their social and cultural contexts, paying attention to power dynamics, social inequalities, and the broader implications for society." Clearly, there are issues of context that missing here in that the answer given draw upon general sociological concerns rather than focusing on the relevant comparisons in question being that of conversation analysis.

The tendency to give list-type responses followed by equivocal summary statements draws attention to ChatGPT's apparent inability to 'read the context' and respond accordingly. This is something that that CA attends to in the way that conversationalists can use their tacit knowledge to respond to often general remarks such as for example, visiting the doctor who asks when you come into the surgery "Hello, what can I do for you today?" Ther patient in such a circumstance can use their understanding of the definition of the situation to respond accordingly by talking about their ailment rather than some other aspect where they need assistance.

In response to the question "Question: What methodological stance do you think a human who is a sociologist would adopt?" ChatGPT responded by giving two options which again draw attention to its tendency to offer equivocal answers. Both options were couched in list form with the first being inaccurate in answer that "A human sociologist would typically adopt a qualitative, interpretive, and often ethnographic methodological stance when conducting conversation analysis." CA does not employ an ethnographic methodological stance but rather, as I have mentioned first seeks to use common-sense understanding to gauge what action is being performed by a conversationalist and then to examine how this unfolds in a scenic manner in the ensuing conversational turns. I chose the second option which stated that "A human sociologist would likely adopt a qualitative methodological stance in undertaking a study comparing themselves with ChatGPT in conversation analysis." This response seemed to 'fit' more the question being asked without being drawn into what CA involves. Of course, such options sometimes feature in human conversation where someone may say "You could do X, or you could do Y". However, the manner in which ChatGPT does this is not the same. The second option was also given as a list with a summary statement. Note that no limitations or issues were given in either case whereas in comparison to human interaction a person may say "If you opt for X then this might not address A, B or C but if you opt for Y then it would, but then you might not be able to address D, E or F." This is where equivocation in a human context is different and involves pointing out matters but evading responsibility for accepting one or other option, again a human action performed in conversation.

In the conversation with ChatGPT I then asked: "Question: In light of my preference for response 2, how might a methodological stance based on ethnography of 'things' aid my comparison? ChatGPT's answer included the now familiar encyclopedic listing of factors that may of relevance (Focus on Material Artifacts, Contextual Analysis, Actor-Network Theory) plus the also formulaic summary: noting how the study of 'things approach would enrich my "comparison between ChatGPT and human sociologists in conversation analysis, providing insights into the role of technology in shaping social interactions and the complexities of analyzing conversations within contemporary digital environments." The formulaic nature of these responses lacks the range of human conversational capability despite engaging in what is an apparently conversational format where there the terms "you" and "your" were used by ChatGPT to engage with me.

The next segment of the conversation took the form of a command where I asked ChatGPT to perform a conversation analysis of a courtroom exchange between a cross-examining lawyer and witness: Let us attempt to conduct the study. Perform a conversation analysis of the following transcript extract from courtroom proceedings

where the witness who is making an allegation of sexual assault is being cross-examined by the defendant's lawyer. The resulting analysis again, lists features of potential relevance, for example, in relation to the feature listed as "Evasive Response" ChatGPT notes "The witness's response, "We were all talking," appears to evade the lawyer's question about the nature of conversations with the defendant on the evening of February fourteenth. This response deflects attention away from the specific topic of conversation, potentially indicating discomfort or reluctance to discuss the matter further." The analysis presented offers some prototypical CA aspects of interest but diverges from it in failing to offer a sequential analysis of the courtroom exchanges. Moreover, the list presented appears to offer no more than spotting features of interest from a CA perspective. While there is mention on an action being undertaken (e.g., evasion) this is followed by the imputation of motive ("potentially indicating discomfort or reluctance to discuss the matter further"). This is not something CA would offer given its non-mentalistic focus on the actions and organising practices of conversation.

In offering my analysis of the transcript extract, I wanted to find out what the response of ChatGPT would be to comparing the two and hence my command: "Now offer a reflexive comparison your analysis with my own below". The response given is interesting in that it points to my analysis in more positive terms than its own. For example it notes that I offer "a more detailed examination of the linguistic features and sequential organization of the questions, highlighting the use of pauses and truncated interrogatives to manage the interactional flow"; or that my analysis "effectively contextualizes the lawyer's questioning techniques within the procedural rules of the courtroom, particularly regarding the conversion of statements into questions through the use of tags like "did'n you?"; and that my analysis "skilfully unpacks the semantic implications of the lawyer's choice of words, such as the omission of "St Valentine's Day" and its association with romanticism." Although the more favourable evaluation for my analysis was unexpected, ChatGPT did not refer to CA and its aims or procedure for analysis. In other words, it listed areas of similarity or difference in the two analyses, as well as offering a positive evaluation of mine over its own, but it did not situate these comments within an overarching understanding of CA.

I then asked ChatGPT the following question: "Will my analysis help you in understanding the role of participants' tacit understanding in the actions being performed in such conversational exchanges?". The purpose of this question was to probe deeper into the core issue for CA of the ways in which conversationalists draw upon tacit understanding of actions as well as orientating the organising principles of engaging in those actions through the turns at talk. The response was interesting in from a CA perspective in terms of how they trade on the words "help you" in my question: "By examining the choice of words and [...] you shed light on how participants tacitly interpret and respond to the underlying intentions..."; "Your analysis considers the procedural rules and norms governing courtroom interactions"; "Your analysis contextualizes the conversation within broader sociolinguistic and situational factors, such as the significance of dates and cultural associations." Note how each of these comments begins with "you" or "your" followed by a positive comment. This kind of formulaic response betrays its algorithmic origin which again is rounded off by a summary statement: "Overall, your analysis provides valuable insights into the intricate interplay between participants' tacit understanding and their actions....." The response therefore 'recognises' the "help you" as a cue to offer a series of positive statements.

Finally, I sought to inquire about ChatGPT's perspective on what the foregoing could offer students in higher education with then areas I teach: "What do you see as the outcome of this conversation analytic comparison between you and I, and our comparison of comparisons, for aiding higher education students who are studying sociology or criminology?" First off, the answer recognised my actions in relation to a double comparison: "The conversation analytic comparison between us and our subsequent comparison of comparisons.....". The familiar listing technique ensued with mention of "Enhanced Understanding of Methodological Approaches", "Critical Thinking Skills", "Interdisciplinary Perspectives" etc. Within these headings were statements such as: "...students gain insight into different methodological stances employed in sociological and criminological research"; "students develop critical thinking skills by evaluating and synthesizing different perspectives on the same phenomenon"; "They learn to integrate insights from multiple disciplines to gain a holistic understanding of complex social phenomena"; "Students gain practical skills in applying methodological approaches to real-world contexts"; "students engage in reflective practice, enhancing their self-awareness and reflexivity as researchers." While positive in tone, the general nature of these statements is devoid of any reference to CA and its place in sociologically informed education. There was no mention of adding students in understanding CA's challenge to constructivist social science, no mention of its more minimalist analytical agenda, and no mention of its focus on doings rather than the doer in examining social action. In other words, while there was a focus on the development of students' intellectual skills, there was no mention at all of the place of CA in relation to students' understanding of sociology as a discipline. The answer given is again symptomatic of a formulaic response that does not situate CA and its approach within a disciplinary context but instead

seems to rely on often cited general terms for the purpose of higher education: critical thinking, the ability to evaluate and synthesize information, and reflective practice.

5. CONCLUSION

Bender et al. (2021) draw attention to GenAI systems such as ChatGPT in terms of stochasticity; it is a “a stochastic parrot” that can stitch together “sequences of linguistic forms it has observed in its vast training data, according to probabilistic information about how they combine, but without any reference to meaning” (Bender et al. 2021: 617). While this view of this form of AI seems appropriate the foregoing discussion of my ‘conversation’ with ChatGPT points to another, and complimentary interpretation, of its functioning. Baudrillard (1994) and his writing of simulation springs to mind. Although I am not seeking to offer a conventional constructivist theoretical position, I was struck by how ChatGPT can apparently simulate aspects of CA, at least in a prototypical manner. In other words, it can show aspects of CA, but it cannot do CA. This is arguably a key difference between human and artificial intelligence; the difference between showing and doing. ChatGPT uses pronouns and engages in interaction as in semi-conversational terms. It can offer up some key elements of CA, and it can draw comparisons between its own undertaking of CA with that of a human. Nonetheless, the formulaic structure of its responses and lack of attention to importance in attending to the sequential nature of conversational interaction betray the artificial nature of what it generates. Unlike CA performed by a human, it is unable to draw upon a tacit understanding of the actions being performed by conversationalists and how these actions are attended to and worked through the procedure of conversational turns. Thus, a human engaging in CA may draw upon a common sense understanding of an action such as a greeting, but then will examine how conversationalists themselves orientate towards that action through their turns at talk. This careful examination of transcript material with this kind of analytical orientation is doing CA. On the other hand, ChatGPT can only spot or draw attention to certain features of a conversational exchange without recourse to an examination of how conversationalists themselves make use of the normative machinery of turn taking; it can only engage in showing rather than doing.

The study reported on here is limited by only examining an exchange between myself and ChatGPT. Other GenAI chatbots, such as Google Gemini Bard or Bing Chat may well produce different results, and this points the way to further comparative investigation. Another limitation relates to the replicability of results given that it is not certain that the exact same conversation would yield the same results. Moreover, slight differences in word choices and in the questions asked could also produce different results even although their semantic references are similar. Indeed, it is possible to speculate that as ChatGPT develops, it will improve produce less formulaic answers. The final limitation lies in the length of reflexive exchange with ChatGPT. I could have asked it to reflect upon the above discussion presented above and pursued a much more extended series of questions and answers. Unlike human conversations, the trajectory of a conversation with ChatGPT can lead to a kind of unending reflexive regress. Human conversations can sometimes restart and pick up where they left off, but they do not usually end up in a state of reflective constancy where an answer is then used as the basis for a reflexive loop, and that answer for the next reflexive loop and so on.

In turning to the role of ChatGPT in aiding students’ learning about CA, I would contend it is of limited value. In engaging with this kind of analysis, students could conceivably ask ChatGPT to conduct a piece of CA on a given transcript. This may give them some rudimentary analytical points which they could then follow-up on in attempting their own analysis. However, were they to simply draw upon such points then they will have failed to engage in the doing of CA as a form of action in itself. Indeed, were they to parrot such points back in, for example, a piece of assessment, then the issue of the inappropriate use of AI could potentially arise. There is a dilemma here for educators in higher education: we may want our students to be able to use ChatGPT to help them formulate ideas for essay, reports, presentations, or research studies; but we also want our students to be able to practice and undertake analyses in the manner in which they should be understood as engaging in a craft skill that involves, in the case of CA, detailed attention to the way that conversationalists use turn-taking to produce meaningful actions. Of course, our students may well turn to the use of ChatGPT or other such GenAI systems in any case, whether we find this desirable or not. This is why it is of the utmost importance that we stress to students that there are some things that ChatGPT can show but it cannot do.

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That Yet Overlooked in TEFL

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Abstract

The author discusses certain overlooked issues in TEFL. There are many ideas and proposals on how TEFL should be modified and improved, and which approach is correct. In this labyrinth of ideas, the question of modernity and applicability is pertracted. We know that choice preferences are not always strictly individualised according to the particular situation or needs, although we intend to centre on learners (learner-centred approach). There are various factors involved. What is more, TEFL faces a number of new challenges that will shape the whole teaching-learning process, e.g. glocalisation, gender neutralisation, or Artificial intelligence (AI). There is a complex transformation process undergoing and we must find answers to questions coming out of this.

Keywords: TEFL, transformation and new challenges, learner-centred approach, human factor

1 INTRODUCTION

Nowadays educational transformation processes are targeted to be the supportive platform for the upcoming Fourth Industrial Revolution. Everything is customising towards technologies, but one thing is somehow overlooked – the human factor. However important and urgent these changes are, we must remember that human communication will always be the crucial element of sociocultural evolution even if such tendencies to reduce the human factor are evident. We should be consistent in deeds once we proclaim the learner-centred approach and care about the teachers as a priority.

In this article, we intend to discuss the transformation processes in the field of Teaching English as a Foreign Language (TEFL). It involves many different factors that need to be taken into consideration – from new challenges that will shape the whole teaching-learning process, e.g. glocalisation, gender neutralisation, or Artificial Intelligence (AI), to nominal performance indicators and reducing the human factor involved. We perceive trendiness in teachers' choices, in terms of used methods and techniques as well. We are going to search answers to questions coming out of this.

2 OVERLOOKING HUMAN (TEACHER) FACTOR

Educational processes need communication. It is obvious and true. Specifically, the foreign language teaching-learning process is sensitive. Since we started underlining communicative aspects, later multicultural/intercultural influences, then ICT involvement, or interdisciplinarity and interconnectivity, we are the slaves of our proclamations. Our preferences are somewhere around good-sounding terminological outputs, rather than details of what we effectively do and apply in practice. We are overwhelmed by the trendiness. We have turned into the formalists. It is said it is done for the sake of learners, but who believes that? Are learners really benefiting from that?

It is practical to start with sociocultural evolution. According to Klüver (2003, p.255), sociocultural evolution is defined as *“the permanent interplay between the evolution of social order, cultural achievements and cognitive*

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ontogenetic development. The key concept is that of social roles that are defined as a set of social rules and role specific knowledge. Sociocultural evolution accordingly is defined as the enlargement and variation of roles and in their social and cognitive dimension and as the variation of the relations between roles. The main theoretical thesis is the hypothesis of heterogeneity: sociocultural evolution is possible only if the degree of role autonomy in a particular society is large enough. Frankly stated, when we accept that cultures and societies have changed and still have been changing over time, we cannot perceive something as non-changeable. Everything is in progress – all features - personal and impersonal. Somewhere inside that definition, there is a hidden note over the uniqueness of the human factor. Learners are specific. Time is specific. Space is specific. Even the problems are specific at the momentum of their appearance within the time-space reference. So does the teaching-learning process. So does communication.

If we adopted this premise, change would be the undeniable feature of progress, but we recognise many changes being regressive, not progressive, or even harmful. Whenever choosing a different method or technique, we must be sure about its rational purpose, having it planned in detail. Every lesson is extraordinary in nature. It is a set of factors that must be respected and taken into account. One of those irreplaceable ones is the human factor. It would be useful if it was meant seriously, but we are trapped in the vicious circle of learner-centred mantra.

In recent years, it seems like it was suddenly discovered that we teachers should be focused on learners as our objects. We have put a counter question – who else than us? This happens when the human factor is limited only to learners. We are not against that particular approach. We criticise the fact that a learner-centred approach is often misinterpreted. It is perceived the way that it omits every other aspect of the teaching-learning process, being strictly targeted at learners. Of course, it is not true. Nevertheless, it is important not to quit describing the role of teachers in the system.

Can we admit that the human factor defines a learner-centred approach? Certainly, we might agree with this statement, but there is only one side mentioned – the learners’ side. Despite the fact that this perception is shortened, we understand this position. Theorists had to prioritise the target objects of the teaching-learning process. However, it does not mean that teachers disappeared because of their redundancy. Parrish (2020) notes that it also does not mean that teachers let go of control. She (ibid.) continues: *“First of all, learner-centred teaching does not mean leaving learners to their own devices; it actually entails considerable planning and direction. Also, a learner-centred view of teaching recognises that all learners come to class with rich knowledge and experiences; it acknowledges that each learner brings different language and learning abilities. So, a truly learner-centred approach provides a learning environment that is more likely to address the diverse needs of learners. Learner-centred instruction means allowing for variation in how a particular curriculum is implemented based on the group of learners in front of us. Also, it means promoting skills and strategies for learner autonomy inside and outside of the classroom.”*

Teachers play undeniable roles. If we characterise their profiles within this approach, they are more facilitative, less authoritative. So whenever we judge the human factor in TEFL, resp. teaching-learning process, and whatever approach we analyse, it is evident that these two poles (learners – teachers) will co-exist. Only their proportionality changes. A very simple causal relationship exists – if learners, then teachers. Someone might argue that there are other possibilities, e.g. Peer Learning, Computer-Based Learning (CBL), or Computer-Based Learning Environment (CBLE) as the area:

- Peer Learning – Johnston (2009, p.1) notes that Peer Learning as a teaching and learning strategy involves learners co-operating to solve a problem, complete a task, or create a product. Each member of a team is responsible also for helping team-mates learn.
- Computer-Based Learning (CBL), according to the DevX Technology Glossary (2023), is “the use of computers as the primary medium for delivering educational content, enabling students to interact with digital resources to acquire and develop knowledge. This mode of learning typically features multimedia elements, such as text, images, and audio, along with self-paced learning modules. CBL may be used in various settings, including classrooms, online courses, and professional training programmes.”
- Computer-Based Learning Environment (CBLE) pertains to the software utilised by learners during Computer-Based Learning (CBL), encompassing any computer application, tool, or programme specifically crafted to facilitate the learning of a particular subject, see Grizioti and Kynigos (2019). Just to mention a few learning and development portals: Coursera, Skillshare, Duolingo, British Council, Khan Academy ...

Predominantly, it is the trend of universalising the educational content and transposition of responsibility towards learners themselves. It would be appropriate only if it were not removing the opposite pole of the teaching-learning

process – the teachers. It pretends it is a learner-friendly approach, but finally, they are left behind. This is particularly noticeable at CEFR A-levels, as the major part of aforementioned portals work preferentially with learners above A-level. When you are a foreigner trying to use them for self-study in a specific discipline (English is a mediator of knowledge), you need to know English at least at B-level. If we only consider TEFL (the goal is English proficiency), there are apps aimed at A-level learners being designed to be more communicative and friendly (preferably for young learners). In this case, the problem of glocalising the content is very actual, and sometimes even using the mother tongue would be beneficial, even though some theorists do not like hearing that. So, that is why we consider a teacher a non-separable factor in a learner-centred approach.

Implementing is always problematic. According to Dye (2022), there are several important points to remember:

- Learners do not do only what they want or like. – There is the curriculum they follow, although in some instances the learner may be able to choose certain topics and subjects.
- Learners do not control all. Not necessarily.
- It is not true that teachers do nothing. They are there to help the learners negotiate their way through the learning.

Furthermore, there are limitations, e.g. more time for planning and implementation is required; quality and variety of resources; teachers’ expertise; type of class (if it is diverse, special needs, inclusive); individualised goals and assessment; possible problematic transition from a teacher-centred approach for both learners and teachers.

All of those trends create something we could call the 'supermarket effect'. Learners as clients come, choose, buy, and take away home. Due to this, we should not forget about a complex view of the human factor in TEFL.

3 TENDENCIES TO REDUCE LIVELY INTERACTION TOWARDS THE VIRTUAL ONE

As we have mentioned, we indicate reducing the human factor in education. More it is targeted at self-learning or peer learning. Learning and other developmental portals have caught the recent trends of commercial shopping and reshaped their communicational strategies.

Initially, it was tutor platforms offering human service – lecturers, tutors, coaches – in the main, working as databases. Nowadays, they visualise the learning content itself and transmit it. The whole lectures, courses, and study programmes have become viral. To a certain extent, we might talk about the new segment of education absenting physically in-person active teachers in an active teaching-learning process. Universities take it as a valuable promotion and contribute to the learning content (see Figures 1, 2). Additionally, they offer their regular online degree study programmes via these platforms. Mainly, it is on a commercial basis, but there are also bargain offers and special conditions for the socially disadvantaged or others who cannot afford to pay. This is what we appreciate.

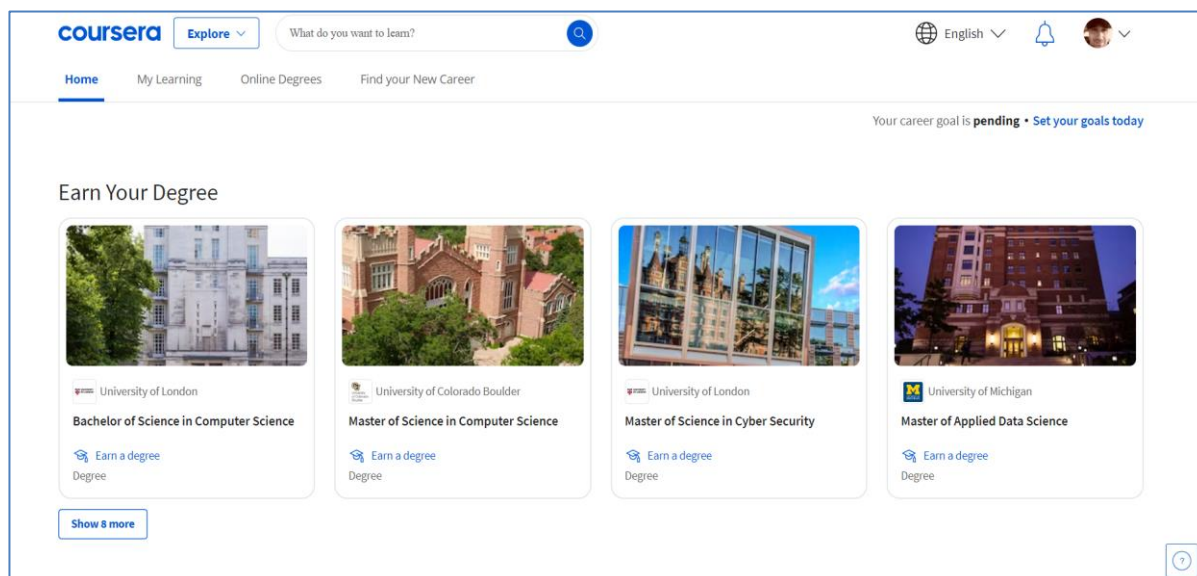


Figure 1 Coursera - a preview of the portal interface

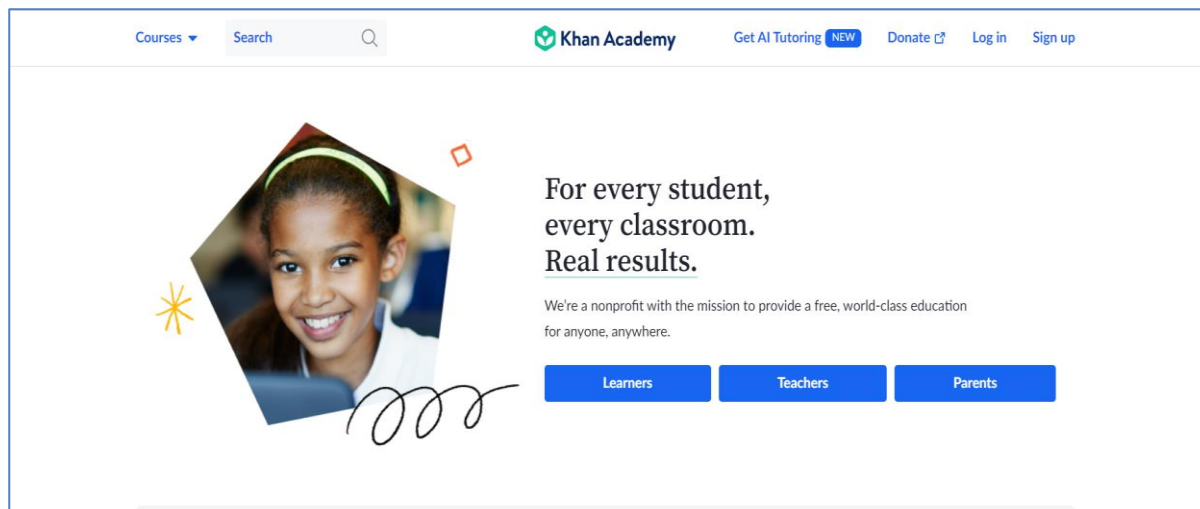


Figure 2 Khan Academy - a preview of the portal interface

As for these systems, we call them Learning Management Systems (LMS). To be more precise, we classify an LMS as a complex all-in-one e-learning platform that integrates various tools into a functional mechanism.

Dawley (2007, p.11) defines it as an integrated tool set (including tools such as chat, discussion board, gradebook, e-mail, and content storage such as a digital drop box) to the online learner. According to Alassaf et al. (2014, p.39), it is a virtual learning environment that should be able to do several functions, e.g. centralising and automating administration, assembling and delivering learning content rapidly, and personalising content and enabling knowledge reuse. Araújo Júnior and Marquesi (2009), as cited in Oliveira et al. (2016, p.160) perceive a Learning Management System as a virtual environment that aims to simulate face-to-face learning environments with the use of Information Technology.

Simulating and virtualising face-to-face communication is a tag marker of current communication that is de facto setting a new quality in the teaching-learning process. It is not only about changing the form but also touches on missing emotional stimuli being significant for in-person interaction. For some learners, this is easier and more convenient, but for other ones, it can be missing an important feature.

4 TRANSFORMATION PROCESSES TOWARDS EFFICIENCY AND FUNCTIONALITY

The economisation of market processes demands high efficiency and functionality. In this atmosphere, where everything is done for profit and measurable nominalised outputs, the educational sector is searching for its way. Therefore, in the field of Teaching English as a Foreign Language (TEFL), there are efforts to do so. The key words repeated are modernity, functionality, and applicability. But the question remains whether only nominal performance indicators of teachers' work are those most suitable and objective, we mean quantification.

We emphasise that not everything can be nominalised. At the centre of our viewpoint are primarily qualitative improvements. We wrote in one of our latest articles (Burcl, 2023, pp. 500-504) that personal integrity of teachers must be viewed in a complex way. What is more – being an innovator, facilitator, or creative motivator? Is it measurable? We can judge their modernity from multiple angles. *“Either we will emphasise trendiness and thus the ability to react and decide on a currently valid and beneficial element, or we will appreciate the pragmatic individualistic approach of a teacher. The principal aspect of all this is choosing the quality.”* (Burcl, 2023, p.500).

Next, there is a misconception idea or concept that all sectors must undergo the same kind of transformation (conditioned geographically, methodologically, in terms of the goals, etc.) or at least, based on the same principles, e.g. inclusion, diversity, multiculturalism/interculturalism, plurilingualism/pluriculturalism. It can be demonstrated by the tendency to put ICT everywhere in the teaching-learning process – just to have it because it is modern, that is why it should be involved and visible, we mean overusing. Another example is accentuating excessive openness and willingness to accept various intercultural aspects rather than pragmatism in communication.

If we take the whole educational sector as a separate entity, the same universalised managerial processes as in other sectors (industry, health care, social matters, etc.) can be applied because particular issues, such as occupational health, safety, wages, tax policies, HR development strategies, or others are common for all. This is at a level of overall systemic setting, but each sector has its non-transferable and unique features. Therefore, the managerial processes

dealing with these specifics must be strictly precise as to content and methodological approaches. So to be problem-oriented, all modernisation or innovative transformations must be highly individualised and specified. This also applies to TEFL. Teachers are those who are knowledgeable and own a particular set of skills that should make them eligible to choose the correct way to go. Consequently, it must be supported by the systemic legislative giving them more space and autonomy, with a motivational impact.

Specifically, we find it insufficient at universities. We are not competitive because of incompetence but because of the incomparable conditions for academic work compared to developed countries. On the other hand, at the same time, we are demanded research and published outputs at a high level. The difference between us and those developed countries, minimally in the EU, is also in public spending on education. On the below, Figure 3 shows the position of Slovakia among the EU countries in terms of education spending – tertiary education – in % of GDP in 2020. For more details, we advise to read the OECD’s brochure 'Education at a Glance' (OECD, 2023).

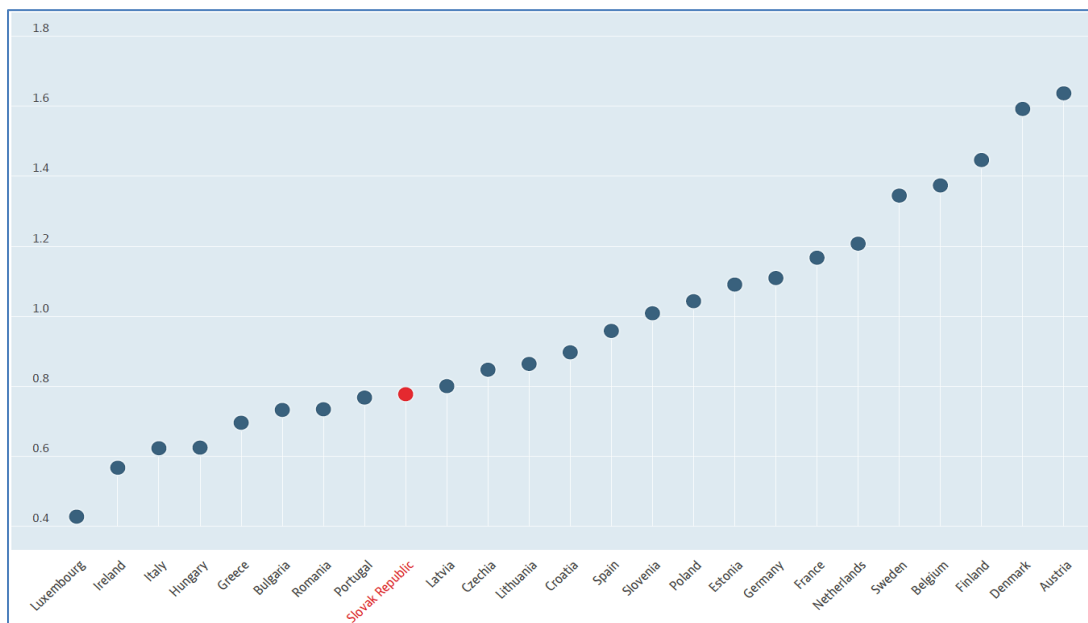


Figure 3 Education spending Tertiary, % of GDP, 2020 or latest available according to OECD (2024)

5 TEFL CHALLENGES AND PROBLEMS

Besides involving ICT, intercultural, inclusive, and other factors in TEFL, we identify several challenges we should focus on – glocalising, gender neutralising, and AI. Each of them can contribute to reshaping and redefining the field of TEFL. Their influence is not balanced because it depends on the preferences of national policies of particular states.

5.1 Glocalising

The topic of glocalising is more vivid in the territories of previous British colonies, e.g. India and some African countries. English still dominates there, frequently as a second language, and schools are aligned to the British and Cambridge Curricula. That sounds good, only if it did not mean total ignoring of domestic culture and realia. Since the learning curriculum in English is universalised, it is designed to promote British culture and realia. Due to this, the learning content of textbooks and other educational materials used is designed that way, too. Demanding more localised content closer to the learners and their socio-cultural background and participation of native English teachers in the preparatory pre-editing and pre-publishing process is valid. So an approach that prefers the balance between the source and target cultural contents within TEFL is awaited, combining global and local views, making it via a consensual platform – glocal.

According to Kramsch (1993, p.203), there should be a uniform balance between representation of both the target and the source culture. Also Taş (2010, p.173) underlines that there can be drawbacks to textbooks, like equalising certain ideas and disregarding facts, fostering misinterpretations, idealising certain concepts, and not accurately

portraying gender roles and relationships. Consequently, the discrepancy between the actual world and the life that is portrayed in textbooks – which occasionally oversimplify things like dialogue beginnings and endings or speaking exercises involving greetings and farewells – can be unpleasant. Put differently, while these conversational practices may be unquestionably effective, learners lack agency and choice when they are unaware of their authenticity or naturalness. This creates a superficial learning environment that ultimately results in an inefficient teaching-learning process. That is why ideal textbooks should include three types of culture: target, source, and international.

This agenda is actual also in Slovakia because we see some problematic points in the learning content of approved EFL textbooks for the Slovak market.

5.2 Gender neutralising

Gender neutralising in TEFL refers to the practice of using language and teaching materials that do not reinforce traditional gender stereotypes or assumptions. This approach recognises the importance of inclusivity and diversity in the classroom, creating a more welcoming environment for all learners regardless of their gender identity.

In liberal surroundings, it can be widely applied without any restrictions, but more traditional – conservative – ones (such as Slovak) are not fully open to these principles. We detect potential problems in class management, communication, and grammar. As this agenda penetrates public space and redesigns the public discourse, TEFL will have to react to that by changing the methodological and communicative approach, because it is about to be a problematic issue for the mother tongue, too. Ludbrook (2022, pp. I-IV) notes that even the EU and global institutions try to pioneer this with the use of special language guidelines for the adoption of gender-neutral language, resp. neutral and unobtrusive bias-free language. One of these strategies for gender neutralising in TEFL is instead of defaulting to gendered pronouns like "he" or "she," use gender-neutral pronouns like "they".

5.3 AI – Artificial Intelligence

Artificial Intelligence has the potential to be a carrier of radical changes. The question is to what extent it would be allowed to interfere with the teaching-learning process because it is a matter of ethics at first. Generally, it is expected that the learners will be autonomous and independent. Meanwhile, we are more pessimistic than optimistic whether in thrall to sophisticated technology they are resistible to unlimited possibilities to overcome the academic ethical norms and regulations.

MyTEFL (2023) recognises a few changes brought to TEFL by AI:

- **Intelligent Tutoring Systems:** AI-powered intelligent tutoring systems offer personalised and adaptive learning experiences to students. These systems use natural language processing (NLP) algorithms to analyse student responses, provide immediate feedback, and tailor instructional content based on individual needs. Intelligent tutoring systems can simulate conversations, offer grammar and vocabulary exercises, and even generate custom lessons based on a student's proficiency level.
- **Language Assessment and Feedback:** AI has improved language assessment by automating the grading and feedback process. AI algorithms can evaluate written or spoken responses, analysing grammar, vocabulary, pronunciation, and other linguistic features – instant feedback, highlighting areas for improvement, and offering suggestions for further study.
- **Virtual Language Assistants:** AI-powered virtual language assistants, such as chatbots.
- **Language Learning Applications:** AI-based language learning applications, such as Duolingo.
- **Language Generation and Translation:** AI-driven language generation and translation tools can generate coherent sentences, paragraphs, or even whole texts, assisting learners in developing writing skills.
- **Data Analytics and Learning Analytics:** AI algorithms can process vast amounts of learner data to generate insights and recommendations for educators. It can help identify common errors, learning patterns, and areas where students struggle the most.
- **Pronunciation and Accent Improvement:** AI applications can analyse learners' pronunciation and provide targeted feedback – learners can compare their pronunciation with native speakers and receive guidance.

- Content Creation and Customisation: AI can generate language learning materials, including exercises, quizzes, and interactive lessons.

Despite the scepticism that AI contributes to 'dehumanising' education, we guess that the position of human foreign language teachers will remain untouched. We predict a kind of synergy in future approaches within the field of TEFL – we mean a co-operative partnership between human foreign language teachers and AI. After all, in the end, it will all be affected by the human factor anyway.

6 CONCLUSION

In this article, we intended to discuss the transformation processes and challenges within the field of Teaching English as a Foreign Language (TEFL). We came to the point when we discussed the relevance of human foreign language teachers in the teaching-learning process. In the centre of our focus were the facts that are frequently overlooked. That is why we chose the title 'That Yet Overlooked in TEFL'. There is not enough time for discussion. Moreover, we see a rapid step-up of changes that must be guided under control. No matter if it is nominal performance indicators, reduction of the human factor involved, or AI. The most important thing is to stir up a professional discussion that will change the view of the so-far-overlooked details in TEFL.

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Exploring the Impact of Technology on Critical and Creative Thinking in Education: A Case Study in Durrës, Albania

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Abstract

The use of technology in the educational system is increasingly being practiced and has opened up new opportunities to enrich the learning experiences of pupils and students. This study aims to explore the ways in which technology can be used effectively to develop critical and creative thinking. To carry out this study, the survey method was used and through interviews and Google Form data were collected through 20 questions within a wider questionnaire, from 260 young people aged 15-30 in the city of Durrës. The questionnaire assesses students' perceptions of the impact of technology use on critical thinking skills and creativity. Data analysis to identify correlations between technology use and critical thinking was done through the SPSS program. The findings of this study will contribute to the understanding of the potential benefits and challenges associated with the integration of technology in education and provide insights for educators and policy makers on the effective use of technology to foster critical thinking, creativity.

Keywords: technology, education, critical thinking, creativity

1. INTRODUCTION

The very rapid development of technology and its increasing use in education has transformed teaching and learning methods. As technology continues to be used more and more in education, it is very important to explore how it can be used to promote critical thinking and creativity.

The development of critical thinking skills is considered an essential goal of education, because it empowers students to analyze, evaluate and use information, make reasoned judgments and solve their problems. In his article "Critical Thinking: What it is and Why it Counts" Facione shows that according to experts the cognitive skills at the core of critical thinking are interpretation, analysis, evaluation, conclusion, explanation and self-regulation. Many philosophers, Socrates, Locke, Kant, Poper, etc., emphasize the importance of autonomous reasoning and critical thinking for individuals and society as a whole. Equally important is the ability to be creative because it enables young people to think outside the frames, generate new ideas and face challenges in different ways. In the Albanian educational system, although the importance of developing these skills is emphasized, we can still say that very little is being done in this direction. "Albanian schools, although they have in their curricula the development of creative thinking and critical thinking and place much emphasis, they still continue to focus on mastering material content rather than mastering it through creativity, imagination and critical thinking as the most and very useful skills to be fostered for the future of their students" (Haxhihyseni, 2015).

This research study aims to explore the ways in which technology can be used to promote critical thinking and creativity, considering the importance of the efficient use of technology in educational contexts. By examining the relationship between technology use and skill development, this study aims to shed light on effective strategies to be

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used, identify potential challenges, and provide insights for policymakers on maximizing the benefits of technology while maintaining a balance between pedagogical goals and efficient use of technology.

Through a mixed methods approach, including surveys and literature review, this study analyzes data from a diverse sample of youth (260) in different educational settings. The research will assess students' perceptions of technology integration and its impact on critical thinking skills and creativity. The findings of this study will contribute to a deeper understanding of the potential benefits and challenges associated with the use of technology in education.

By exploring the intersection of technology, skill development and educational effectiveness, this research aims to contribute to the ongoing discourse on effective technology integration, empowering students with the skills needed in a dynamic and digital world of the 21st century.

2. METODOLOGY

The study will focus on measuring students' perceptions of the integration of technology in education and its impact on critical thinking skills and creativity. In this research, quantitative and qualitative analyzes were used, as well as the analysis of secondary data extracted from similar studies. The quantitative method consists in the analysis of 20 questions of a wider questionnaire, which was completed by young people of the city of Durrës, aged between 15-30 years, in the period September-October 2023. The secondary data are the result of the review and of the in-depth analysis of a literature specifically related to the impact of the use of technology in education and its impact on students' critical thinking and creativity.

In this research, the questionnaire was used, which was completed in direct communication but also through Google Form for those young people who live far away or who are unable to meet in person. Sampling is purposeful, taking into account factors such as social – economic conditions, age and educational level, to ensure a more representative group.

The analysis of the questionnaires for the selected sample was carried out with a confidence level of 90% and a margin of error of ±5%. The formula for calculating the Sample Size (SS) in the case where the population is finite is as follows where:

$$Z=1.65, p=0.5, e=5\%, N=73000$$

$$SS = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N}\right)}$$

$$SS= 271$$

Our sample contains information from 260 questionnaires as a portion of the questionnaires that were not sufficiently completed to be part of the analysis were removed from the original database.

Part of this process was the creation of the database with the collected data as well as their processing and analysis. Their processing and analysis were carried out through SPSS 25.0 and Excel software packages. The Cronbach Alpha coefficient was used to test the internal consistency of the questionnaire.

3. LITERATURE RIVIEW

The use of technology in educational contexts has become a widespread topic of research, given the prevalence of technology use by young people, and has focused on the opportunities it offers to improve teaching and student skill development.

Various philosophers have addressed the impact of using technology to develop critical thinking skills and creativity in young people, among them the two most prominent are Seymour Papert and Don Ihde. Papert in his book "Mindstorms: Children, Computers, and Powerful Ideas" addresses the idea of how technology, especially computers, can empower students to engage in meaningful experiences that promote critical thinking and creativity. He argues that when students use technology to create and manipulate digital artifacts, they develop problem-solving skills and gain a deeper understanding of complex concepts. Computers, he points out, can be used as creative instruments through which children can explore, experiment and express their ideas.

Don Ihde is another philosopher who has written extensively on the relationship between humans and technology. In his book “Expanding Hermeneutics: Visualism in Science” he explores the impact technology has on human perception, cognition and creativity. He argues that the use of technological tools such as cameras, microscopes and computers mediate our experience of the world and shape our ways of thinking and problem solving. Ihde emphasizes the importance of critically evaluating the use of technology by recognizing the potential it offers to enhance human capacities and the potential to limit or bias our perspectives.

Many studies highlight the positive impact of technology on critical thinking skills. Digital tools and resources provide opportunities for students to engage in active learning, problem solving, and information evaluation. Reychav et al. (2015) in their study came to the conclusion that the use of tablets and videos affects some elements of critical thinking such as identifying the problem, recognizing new information related to the problem, repeating information and searching for new information that was not presented. Technology enhanced learning environments facilitate higher order thinking skills and promote critical thinking. The use of digital tools positively affects the formation of critical thinking in students (Meirbekov et al., 2022). Shieh & Nasongkhla (2024) argue that there is positive correlation between motivation to use social networks and critical thinking and that university students who have higher information and learning performance have better critical thinking and reflection skills. Interactive simulations, online discussions, and technology-supported collaborative projects have been shown to enhance students' ability to analyze complex issues, think critically, and make informed decisions (Means et al., 2010; Kay, 2012).

The literature also suggests that integrating technology into the learning process positively influences and promotes creativity in various ways. (Li et al., 2022). The use of technology provides students with tools and platforms for self-expression, idea generation and creative problem solving. Digital media and creative software enable students to explore different forms of artistic expression and engage in multimedia projects. Valqueresma and Coimbra (2021) point out that to ensure that technology promotes the development of creativity and learning, it must be accepted as an inevitable cultural artifact of educational guides. When technology, they say, is combined with constructive pedagogy, it builds creativity and learning. Research by Özen, & Duran (2021) shows that technology-supported creative activities such as digital storytelling increase students' creative thinking skills and originality. According to their findings, it was found that digital storytelling brings developments in fluency, originality, imagination, analytical thinking, different perspectives, media elements and content dimensions. Furthermore, technology-mediated collaboration and access to various online resources can broaden students' perspectives and stimulate innovative thinking.

Although they highlight the potential benefits of using technology in education, the researchers also emphasize the need to be careful in this process, so that it does not become an obstacle in the teaching and learning process. A study by Hew and Brush (2007) points out that to have an effective integration of technology in education it is important to take care of user-friendly interactions, reliable technological infrastructure and appropriate training for teachers. In order to maximize the benefits of technology integration in education, we must consider factors such as compatibility, reliability and alignment of technological tools with pedagogical goals (Ertmer, 2005). While Zhao et al., (2002) lists 11 factors that must be taken into account when we want to be efficient in the use of technology in school, factors that are divided into 3 areas: first, the training of students on how to use technology and the opportunities and limitations it brings; secondly, the change should be done in an evolutionary way, step by step and not immediately; and thirdly, suitable environment, healthy and functional infrastructure.

The literature reviewed demonstrates the potential of technology to promote the development of critical thinking and creativity in educational contexts. Interactive and collaborative learning experiences facilitated by technology can enhance students' abilities to think critically, express creativity, and engage in meaningful social interactions. However, it is important to analyze how we can achieve a balance between the efficient use of technology and pedagogical goals. Future research should focus on identifying effective strategies for seamless technology integration, providing appropriate support and training for educators, and evaluating the long-term impact of technology integration on student skill development and educational outcomes.

By synthesizing existing research, this literature review provides a foundation for further investigation into the effective use of technology to foster critical thinking and creativity. The findings highlight the importance of purposefully integrating technology, ensuring that it serves as a catalyst for skill development and enhances the overall educational experience.

4. RESULTS

For several years, information technology has become part of the educational system in Albania as well. Young people were asked about the impact of using technology on the development of critical thinking and creativity in them. According to the perception of 46% of the young people asked, the use of technology at school has increased their thinking skills, while 1/3 of them partially or completely disagree with this idea, even those who think that the use of technology has been a partial factor or has not affected at all their abilities in gathering or evaluating the necessary information.

Asked if the use of technology has increased their ability to gather and evaluate information effectively, 57% of them affirm that they agree and strongly agree, while only 4% disagree with this statement.

The increase in creativity as a result of the use of technology has received the positive assessment of 48% of those, as well as the fact that the use of technology has further developed the skills to express their ideas and thoughts more clearly, while 23% partially agree with this and 23% are neutral.

But what are some of the difficulties that the young people of this age have identified while using technology during their education period?

Among the most important, they mention the lack of internet and technological devices. Also, the difficult economic conditions of their families worsened even more the possibility of providing information and analyzing various phenomena. On the other hand, the limitation of information or even limited access time as well as the lack of knowledge are some other difficulties identified by young people.

But what should be improved mainly in educational institutions in Albania in the future, in terms of the use of technology?

Based on this question, some of them have expressed the idea of improving the infrastructure with laboratories and computer equipment, creating access for all pupils and students, but on the other hand, better teaching quality on the part of the academic staff or even the realization of assignments in electronic form, avoiding notebooks. Others express the need to increase the school budget in terms of technology.

The variables taken in this study are:

The independent variable is - The use of technology in education (which is measured by 10 questions).

The dependent variable is – Youth critical thinking and creativity (measured with 10 questions)

Before analyzing the connection and interaction of the variables between them, we first look at the factorial weights and their reliability coefficients.

The factorial weights of the questions on the use of technology are all greater than 0.4, therefore they all follow the further analysis, while their Alpha coefficient has a value of 0.976, a very high reliability value.

The factorial weights of the questions on the variable of critical thinking and creativity are greater than 0.4, while the value of the Cronbach Alpha coefficient is 0.742.

Hypothesis 1: Does the use of technology in education affect the development of critical thinking and creativity in young people?

To analyze this hypothesis, we refer to the construction of the simple linear regression equation. First, we look at the ANOVA analysis to find out whether or not it makes sense to talk about correlation between these variables. According to the following data, it is noted that, for $df(1, 258)$ and $F=56.236$, we have the value of $Sig.=0.000<0.10$, which shows that it makes sense to talk about a statistically significant relationship between these two variables.

Table 1 The ANOVA

ANOVA ^a					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	17.744	1	17.744	56.236	.000 ^b
Residual	81.406	258	0.316		
Total	99.150	259			

a. Dependent Variable: Critical thinking & creativity

b. Predictors: (Constant), Use of technology

According to the following analysis, it is observed that the use of technology affects the development of critical thinking of young people, even this factor explains 17.6% of the value of the change in the variance of the dependent variable - critical and creative thinking.

Table 2 Simple linear regression analysis

Model ^a	R Square	Adjusted R Square	t	Sig.
(Constant)	0.179	0.176	19.142	0.000
The impact of technology			7.499	0.000

Dependent Variable: Critical thinking and creativity

The simple linear regression equation has the form:

$$(\text{Critical and creative thinking}) = 2.291 + 2.251 (\text{Use of technology})$$

As can be seen, their relationship is positive, showing that the increase in the use of technology, which creates great and fast opportunities in providing information, recognition and faster analysis of concrete situations, positively affects the development of an indisputable critical thinking.

Research Question 1: Does youth's age sufficiently influence the development of critical thinking using technology?

The data of the ANOVA table comparing the averages of the age groups show that for df (2,257) and F=0.555 the value of Asymptotic Significance (2-sided) =0.575>0.10, concluding that age does not constitute a significant difference in developing critical thinking (Table 3).

Table 3 ANOVA of critical thinking and age

ANOVA					
Critical thinking	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1.210	2	0.605	0.555	0.575
Within Groups	280.093	257	1.090		
Total	281.304	259			

This conclusion is also reflected in the respective values of Sig. in the double comparisons of the age group related to critical thinking in the Post Hoc test through the Tukey procedure, from which it is observed that all values of Sig.

of these comparisons are greater than the value of 0.10, showing again that there are no differences in the age group regarding the assessment of critical thinking influenced by the use of technology (Table 4).

Table 4 Post Hoc Tests

Tukey HSD	Use of Technology			
(I) P3. How old are you?		Mean Difference (I-J)	Std. Error	Sig.
15-18 years old	19-24 years old	0.104	0.165	0.804
	25-30 years old	0.162	0.155	0.547
19-24 years old	15-18 years old	-0.104	0.165	0.804
	25-30 years old	0.058	0.159	0.929
25-30 years old	15-18 years old	-0.162	0.155	0.547
	19-24 years old	-0.058	0.159	0.929

Research Question 2: Does the economic situation of young people affect the development of critical thinking and creativity using technology?

Again, we analyze this question with reference to the Chi Square Test, which shows that the economic situation of their families does not have enough weight to be a dominant factor in their critical development. This conclusion is confirmed by the value of Asymptotic Significance (2-sided) = 0.141 > 0.10.

Table 5 Test of independence between critical thinking and creativity and economic situation

Chi-Square Tests				
	Value	Df	Asymptotic	Significance
			(2-sided)	
Pearson Chi-Square	9.638 ^a	6	0.141	
Likelihood Ratio	9.989	6	0.125	
Linear-by-Linear Association	2.803	1	0.094	
N of Valid Cases	260			

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is 2.15.

Research Question 3: Does residence affect youth's development of critical thinking and creativity using technology?

To answer this question, we refer to the analysis of the independence test for independent choices where we first see the values of Sig. in the Levene Test. In this test the value of Sig. = 0.501 > 0.100 which shows that the variances of these two groups (young people living in urban areas and those living in rural areas) are equal, so the groups are homogeneous between them (Table 6). This is easily verified by the values of their standard deviation, from which it can be observed that DSF= 0628 and DSQ= 0.615, i.e. almost the same (Table 7).

Then, referring to this conclusion by analyzing the t-test of the comparison of means, it is noted that the value of Sig. (2-tailed) = 0.305 > 0.10 which shows that there are no statistically significant differences between these groups. On the other hand, this is also shown in the respective values of their averages where MF = 3.09 and MQ = 3.18. Therefore, we can say that the impact of the use of technology on critical thinking and creativity is not affected by their place of residence.

Table 6 Test of independence between critical thinking and place of residence

Independent Samples Test							
Critical thinking	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Equal variances assumed	0.454	0.501	1.028	258	0.305	0.086	0.084
Equal variances not assumed			1.019	142.936	0.310	0.086	0.084

Table 7 Descriptive statistics

What is your place of residence?	N	Mean	Std. Deviation
City	182	3.18	0.615
Village	78	3.09	0.628

5. DISCUSSIONS

Integrating technology into education has become a dominant trend in educational settings. The findings of this study suggest, like a large part of the literature studies discussed, a positive correlation between the integration of technology in education and the growth of critical thinking and creativity in young people. In the perception of young people, the use of technological tools offers them more opportunities to engage in interactive learning experiences, to collaborate with peers, to provide information, to evaluate different perspectives and to build reasoned arguments. According to the data analysis, age, economic situation and place of residence are not influential factors regarding their perception of the impact of technology use. Additionally, integrating technology into education was found to stimulate creativity in students. The use of various technological tools gives students opportunities to become creative, experiment and express themselves in a clear and innovative way, to think outside the usual frames.

However, it is important to recognize that the effectiveness of using technology depends on various factors. These include access to technology resources and the extent to which teachers are trained to use technology effectively.

6. CONCLUSIONS

In conclusion, the integration of technology in education has a significant impact on the development of critical thinking and creativity in students. Through interactive learning experiences, collaborative projects, and access to a wide range of digital resources, students are provided opportunities to engage in deep learning, problem solving, and creativity. However, to maximize the benefits of technology integration, it is essential that educators receive adequate training and support and that policymakers prioritize investments in digital infrastructure and resources. By doing so, we can harness the power of technology to empower students with the skills they need.

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CLIL in Biology Using Activating Teaching Methods

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Abstract

The research study explores the implementation of the Content and Language Integrated Learning (CLIL) method in seventh-grade Biology classes within primary schools, employing activating teaching strategies. This paper comprehensively delineates the CLIL method, encompassing its historical background, various forms, types, and objectives. An examination of the advantages and disadvantages of CLIL is conducted, along with an elucidation of the role of the biology teacher within this pedagogical framework. The study involves research conducted in two distinct elementary school classes: a class without a specific language focus and a class comprising students proficient in English. The primary objective of the study is to find out change of student's attitudes after the CLIL implementation. Through data analysis in action research, pre- and post-questionnaire, the study seeks to determine any shifts in student attitudes following lessons conducted with the CLIL approach, utilizing activating teaching methods. Additionally, the research encompasses the analysis and evaluation of student preferences regarding the instructional methods employed.

Keywords: CLIL, Content and Language Integrated Learning, activating teaching methods, Biology, English language

1. INTRODUCTION

The constantly changing world necessitates adaptable education. Developing skills such as critical thinking, communication, collaboration, and creative problem-solving is crucial for success in the 21st century. The Content and Language Integrated Learning (CLIL) method offers a unique approach to skill development by integrating subject matter with language learning (Coyle, 2002).

Professor David Marsh's original definition of CLIL describes it as any activity where a foreign language serves as a tool for learning a non-language subject (Marsh, 2002). Coyle (2002) further characterizes CLIL as an educational instrument with the dual purpose of teaching a non-language subject while concurrently supporting language development. Emphasizing CLIL's dynamic and flexible nature, Coyle (2002) highlights its role as a versatile learning tool. For our research implementation, we incorporated *hard CLIL* (Bentley, 2010), taught during Biology classes with the inclusion of English language elements. The specific teaching methods employed will be further elucidated. We primarily utilized activating teaching methods, excluding the use of digital technologies. Examples of such methods include didactic games, concept maps, the Red or Green Card activity (true or false statements), 3-2-1 Activity, KWL Chart, and others.

Dalton-Puffer (2011) advocates introducing CLIL at the secondary education level after students have established literacy in their native language. Decisions must be made on whether CLIL will be universally implemented or divided into interest-based groups, with advantages including comprehensive student involvement and enhanced interdisciplinary collaboration among teachers. However, challenges encompass disinterest, heightened resistance from certain students, parental non-acceptance, and class heterogeneity (Procházková, 2012). At the secondary level,

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Pokrivčáková et al. (2015) note increased language proficiency, enabling students to engage with abstract concepts and apply analytical thinking. While the ages of 10 to 15 are considered optimal for expanding vocabulary in a foreign language, there's a risk of heightened student criticism and expression of opinions, posing challenges to attention retention. Gondová (2013) explains that teachers typically engage in the CLIL method when they have not studied a foreign language in combination with their specialized subject. In such cases, applying the method becomes more challenging, requiring teachers to seek methods directly supporting language instruction. However, it is likely that the ideal candidates for implementing the CLIL method in teaching are educators most adequately prepared, whose qualifications encompass both language and the specialized subject, such as the combination of Biology and English language (Salinková, 2023).

CLIL has been implemented in Slovak schools for over fifteen years, with experimental verification yielding positive results, leading to the Ministry of Education's recommendations. The Ministry advises that language instruction within CLIL should not exceed one-third (33%) of the weekly teaching hours for a specific subject. Slovakia predominantly witnesses the prevalence of CLIL in primary schools, with limited applications in secondary education. Notably, research in Slovakia has extensively explored CLIL's impact on academic performance and student motivation, revealing positive outcomes. Lasagabaster and Sierra (2009) highlight the significance of analyzing students' attitudes towards CLIL to better gauge its effectiveness. Furthermore, Herrera's (2015) research delves into students' perceptual changes before and after CLIL instruction, illustrating a transformation from initial difficulties to recognizing CLIL as a valuable approach for English language practice.

While finding a single best teaching method is challenging, Droščák (2014) emphasizes the importance of considering the most effective methods in specific conditions. Gondová (2013) advocates for constructivist principles within Content and Language Integrated Learning (CLIL), utilizing innovative and activating methods that support student motivation and engagement. Kordíková (2022) points out that activating methods used in teaching bring improvements through the CLIL method in developing higher cognitive skills, creative thinking, and collaboration. Therefore, this paper focuses on implementing CLIL method while using activating teaching methods as a tool for motivating, educating and engaging student at the lower secondary level of education in Biology courses.

2. METHODOLOGY AND RESEARCH DESIGN

The design of this research paper is based on The Action Research. Action research involves cycles of reflection, planning, and action. The chosen model was explained by Carr & Kemmis (1986) where the process of each cycle involves four steps: plan, act, observe, reflect. Action research involves systematically gathering and analyzing data with the aim of effecting changes, enhancements, or problem-solving initiatives. (Wallace, 1998). Action research is frequently utilized by external innovators who aim to initiate educational change, in addition to its widespread use in language teaching contexts (Warrican, 2006).

CLIL method was implemented into biology lessons for seventh-grade students in Slovak lower-secondary schools through the integration of the English language. The main research objective was to find out the shift in the student attitudes pre- and post- CLIL implementation towards the used teaching method. Following the stated research objective, the attitude questionnaire was chosen for collecting the relevant data. Therefore, the character of the research is rather qualitative with quantitative aspects based on the design of Action Research.

Plan:

- Develop a comprehensive plan for implementing the CLIL method in seventh-grade Biology classes, including the selection of appropriate topics from the thematic unit "Human and His Body" and designing activating teaching strategies.
- Create CLIL lesson plans that integrate English language elements and activating teaching activities such as Think Pair Share, Find Your Pair, Red or Green Card. The selection of activities was intended to integrate various modes of collaborative learning, including individual, pair, and group work. This approach aimed to cater to diverse language proficiencies by encompassing speaking, writing, and listening skills alongside the content of the selected subject matter.

Think Pair Share consists of combination of individual and group work. In the initial stage, students are prompted to contemplate a designated topic or question individually (think). Subsequently, they share and discuss their ideas in pairs with classmates (pair). In the final stage, students disseminate their collective information with the entire group and teacher (share). This activity facilitates the comparison of information and student opinions, potentially leading

to their refinement, supplementation, mutual acceptance of differing viewpoints, collaboration, and reciprocal learning (Kordíková, 2023).

Find Your Pair activity is designed to facilitate collaborative learning by tasking students with locating peers possessing complementary cards. Through discourse and knowledge exchange, students engage in a process of mutual comprehension and exploration of the subject matter depicted on their respective cards, fostering a collective understanding of the material (Salinková, 2023).

- Create pre- and post- implementation questionnaires for pupils of elementary schools with the emphasis on their attitude shifts.
- Ensure that the lesson plans are adaptable and can be implemented without relying on digital technologies, considering the resources available in the school settings.

Act:

- Implement the planned CLIL lessons in two distinct elementary school classes: one without a specific language focus and one with students proficient in English.
- Distribute pre-implementation questionnaire and collect data before implementing CLIL method.
- Conduct the lessons according to the developed CLIL lesson plans, incorporating activating teaching methods to engage students and promote language learning alongside Biology content.
- Ensure active participation of all students, including those with learning difficulties, by using varied teaching strategies.

Observe:

- Observe the implementation of CLIL lessons in both classes, paying attention to student engagement, participation, and responses to the teaching methods employed.
- Collect observational data on attitudes towards CLIL and activating teaching methods.
- Document any challenges or successes encountered during the implementation process and gather insights for further analysis.

Reflect:

- Reflect on the observed outcomes of the CLIL implementation, considering both quantitative data from pre- and post-implementation attitude questionnaires and qualitative observations from classroom interactions.
- Analyze the attitudes of students towards the CLIL method and activating teaching strategies in promoting student engagement, language learning.
- Identify strengths and areas for improvement in the implementation process and lesson design, drawing on insights from student feedback and teacher observations.
- Use the reflective analysis to inform adjustments and refinements to future CLIL lesson plans and teaching practices, aiming to enhance student learning experiences and outcomes.

In accordance with the stated research design and objectives, we formulated research questions: *How will students' attitudes change after the implementation of the CLIL method? Which activating teaching methods will students prefer?*

3. DATA COLLECTION

The research sample for our research consisted of 32 students. The first sample (Group 1) included 11 students instructed in a traditional way where the curriculum follows an updated national school educational program. The second sample consisted of 21 students (Group 2). These students were involved in a program with extra lessons in the English language, i.e. covering curriculum for both language and general education of lower-secondary level. None of the students had prior experience with the CLIL methodology. Both groups of students are accustomed to traditional classroom settings without interactive boards or other digital technologies. This characteristic aided us in conducting research using activating teaching methods without the use of digital technologies. As part of the research sample's characteristics, it is important to note that both groups integrated students with learning difficulties, such as attention disorders, ADD, ADHD, therefore during lessons, it is necessary to maintain their attention using varied activating methods.

The chosen method was action research as described in stages above. Due to the limitation in selecting classes, we opted for research without a control and experimental group, with both selected classes being suitable for the research. To conduct the research, we chose a questionnaire developed according to the needs of the research (adapted from Ištvaníková, 2022) with emphasis on attitudes administered twice. In the questionnaire, students expressed their agreement or disagreement using a Likert scale within 17 statements. The second administration of the questionnaire took place after the completion of seven CLIL lessons using activating teaching methods. The questionnaire, consisting of the original 17 items, was supplemented with two questions asking for the three most preferable activating methods used during the research. The sub-question asked for their reasoning behind the selection. Students were asked to provide their opinions on whether these activities are important to be used in class.

To note, the questionnaire was presented in the participants' native language to ensure thorough understanding and authentic responses. Following ethical principles, all participants including the school management, teachers and pupil's parents were initially informed and consented to their voluntary participation in the study. Simultaneously, the identities of the participants were not disclosed, ensuring their anonymity throughout the research process. We asked them to only write the name of the school they attend to distinguish two schools participating in the research.

4. RESULTS

Both research samples expressed their attitude toward the examined issue twice. Our complete research sample consisted of 32 students, and we documented 64 fully filled questionnaires. Seventh-grade students completed the questionnaire before the implementation of the CLIL method in biology classes and after attending seven CLIL lessons. The questionnaire comprised 17 items with attitude expression on a 5-point scale. Each scale value was assigned coefficients, and average values were calculated. The assigned coefficients ranged from 1 to 5, representing a value of 1 for the most positive attitude and 5 for the most negative attitude. The scale values with assigned coefficients were as follows: *strongly agree* – 5, *agree* – 4, *undecided* – 3, *disagree* – 2, *strongly disagree* – 1. Four items were based on students' negative experiences: 3, 4, 6, and 10. During the analysis, we determined the reversed value for these statements. The percentage representation of the value was calculated from the sum of the number of responses multiplied by their coefficient.

The average value of responses from students in the non-linguistic class before the use of the CLIL method in teaching was 3.04. This value is closest to the coefficient 3, which represents "*undecided*." The options "*agree*" and "*strongly agree*," representing positive attitudes, predominated over negative attitudes before the use of the CLIL method in the linguistic class. The highest percentage representation is for the coefficient 4, corresponding to "*agree*." The option with the lowest coefficient, indicating a negative attitude, constituted nearly 2.5% of the total rating. The "*undecided*" option represented one-fifth of the total rating, at 21.32%. However, the average rating for students in the language class was 3.31 during the first questionnaire completion, which, despite the high percentage of positive responses, corresponds to the coefficient 3, i.e., "*undecided*."

The next findings represent a questionnaire administered after CLIL lessons with activating teaching methods. In the non-linguistic class the highest share was achieved by the value with coefficient 5, "*strongly agree*." The lowest value was represented by coefficient 1, indicating complete disagreement, at just under 1%. In comparison with the questionnaire before the implemented method, there is a proportional percentage improvement of 5.12%. We observed an almost halved percentage value decrease at coefficient 2, "*disagree*." Similarly, significant is the increase in students' responses for the options "*agree*" and "*completely agree*." The average value of students' responses was 3.70. The closest to this value is coefficient 4, "*agree*," representing a positive shift in attitudes by one degree. The change occurred from coefficient 3, "*undecided*," to coefficient 4, "*agree*." In linguistically gifted class the average responses of students are 4.15, which is closest to the coefficient 4, "*agree*". The students achieved an average score of 3.31 – coefficient 3 – "*undecided*". We can see a shift of one coefficient towards a more positive evaluation compared to the results from the questionnaire survey before the implementation of the CLIL method. We observed that the positive evaluations of "*agree*" and "*strongly agree*" represent more than 90% of the percentage distribution. We also note a significant decrease in the frequency of coefficient 3 – "*undecided*".

After these analytical steps, intervals representing student attitudes were created: positive attitude, neutral attitude, and negative attitude:

Positive attitude: $< 3.21 - 5.00 \geq$

Neutral attitude: $\leq 2.80 - 3.20 \geq$

Negative attitude: $\leq 1.00 - 2.79 >$

The next step involved assigning the calculated values to the intervals and naming the attitude. Subsequently, we compared the attitudes before the research implementation with the results of the questionnaire survey at the end of

the research. The non-linguistic class had an initial research average of 3.04, closest to the "undecided" coefficient, expressing a neutral attitude within the given intervals. In the second questionnaire for this class towards the end of the research, we calculated an average of 3.70 – the closest coefficient being 4 – "agree," which is assigned to a positive attitude. Therefore, we can assert that the students' attitude in the non-linguistics class towards the use of the CLIL approach through activating teaching methods has improved from neutral to positive. Expressing the established intervals, we observe an improvement in the linguistically gifted class. In the initial questionnaire, students achieved an average score of 3.31 – coefficient 3, expressing "undecided". However, when assigning the interval, we note that based on this average, students already initially felt a positive attitude towards our research. In the second questionnaire survey, students achieved an average score of 4.15 – coefficient 4, expressing "agree". According to the intervals, this value also corresponds to a positive attitude.

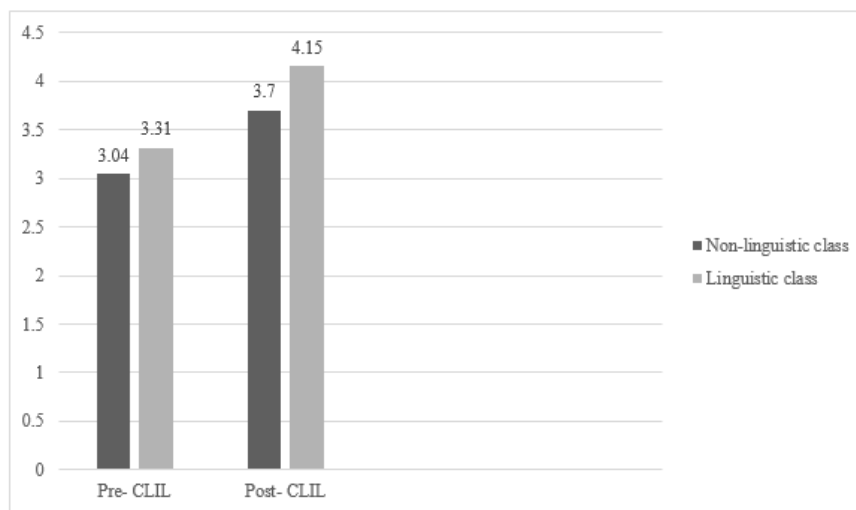


Figure 1. Average Response Scores Pre- and Post- CLIL Implementation

5. DISCUSSION

Based on the provided analysis, we answer the stated research questions as follows. *How will students' attitudes change after the implementation of the CLIL method?* The students in Group 1, the non-linguistic class, have shifted their attitude towards the implementation of the CLIL approach with activating teaching methods, progressing from a neutral to a positive attitude. Improvement was also observed in Group 2, however, their attitude towards the CLIL method was already positive in pre-test. The implementation also corresponds to the same interval, confirming the attitude with an even higher average score within the questionnaire.

A questionnaire given to students in both seventh-grade classes after completing the CLIL method was expanded with two questions. Therefore, we state the results of the selected research question: *Which activating teaching methods will students prefer?* Both groups, Group 1 and Group 2, had a choice of 13 options since we included 13 different activities during the lessons. Some activities were repeated twice during the lessons, while most were included only once. When expressing interest in activities, we did not differentiate between linguistically gifted and regular classes. Our goal was to determine which methods seventh-grade students prefer in general, regardless of their language abilities. The three most selected activities were: Think Pair Share; Find Your Pair; and Red or Green Card.

The CLIL method enables students to learn a specialized subject through a foreign language, which can be more interesting and motivating for them as they acquire new information while improving their language skills. Activating teaching methods, such as group work and didactic games, can further enhance students' motivation and engagement in lessons. As confirmed by Czura and Papaja (2013) in a study conducted in Poland, students see the advantage of using the CLIL method in actively participating in the teaching process. Activating teaching methods that promote communication and interaction among students, such as the resulting activities Find Your Pair or Think Pair Share, can provide opportunities for students to develop their communication skills in the English language. Implementing the CLIL method through other activating methods supports critical thinking, creative problem-solving, collaboration, and self-reflection among students, fostering the development of cognitive, social, and emotional skills. By concurrently learning content and language, there is a synergy achieved between these two aspects of instruction.

Through our research, we confirm that while students are open to new methods, their initially neutral attitudes, as evaluated during the analysis, may stem from concerns about increased demands, greater emphasis on their work, or

additional homework. Throughout the course of the research, we tried to address these concerns. In Group 1, students expressed a neutral stance in the first questionnaire before the method's implementation. In Group 2, the initial assessment represented a positive attitude. According to the specified intervals and the compared scores from the questionnaires, we observe that the attitude in Group 1 improved from neutral to positive. In contrast, students in Group 2 initially expressed a positive attitude, and the higher scores after the implementation affirmed this positive view.

6. CONCLUSION

The research successfully implemented the Content and Language Integrated Learning (CLIL) method into seventh-grade biology lessons, focusing on the integration of the English language. The primary objective was to examine the change in student attitudes before and after the CLIL method implementation. The research design included the development of CLIL lesson plans, the distribution of pre- and post-implementation questionnaires, and the analysis of the collected data under the action research design. The findings revealed a positive change in attitudes within the non-linguistic class, shifting from a neutral to a positive attitude following CLIL implementation. The linguistically gifted class, which initially exhibited a positive attitude, maintained and even improved their stance towards CLIL. The analysis of selected activating teaching methods indicated a preference for strategies such as Think Pair Share, Find Your Pair, and Red or Green Card among seventh-grade students, regardless of language proficiency.

The study adhered to ethical principles, ensuring participant confidentiality and obtaining informed consent and anonymity. The use of the native language in the questionnaire facilitated authentic responses. The findings contribute valuable insights into the effectiveness of CLIL methodology in diverse classroom settings, emphasizing the importance of tailoring teaching methods to suit the needs and preferences of students.

Despite the positive outcomes observed for students in two elementary school classes, we consider important to note that the sample of 32 students is small for generalizing the complex issue. However, it is applicable to the research questions we have set. Expanding pedagogical research could involve tracking the acquired level of knowledge and the degree of development in reading, writing, listening, and speaking skills in a foreign language. Similarly, we propose the implementation of a pedagogical experiment within two research groups, experimental and control.

The predefined objectives were successfully achieved during the implementation of the method in elementary schools. We believe that even in classrooms without access to digital technologies, teaching can foster student activity through the selection of appropriate methods. Naturally, we believe that teachers, like students, will not fear this method and will embrace all the challenges brought by Content and Language Integrated Learning instruction through activating teaching methods.

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Appendix A. Translated questionnaire for students of seventh grade

A.1 Attitude Questionnaire for 7th-Grade Students

Hello! Please fill out this questionnaire independently and honestly.

The school I attend:

In each line, mark only one option. Thank you!

	strongly agree	agree	undecided	disagree	strongly disagree
1. I like Biology lessons					
2. I would like to have Biology lessons more often than I do now					
3. I get bored during Biology lessons					
4. Every Biology lesson is the same					
5. We do various activities during Biology lessons					
6. Biology lessons are mostly about the teacher's explanation, and we do not participate					
7. We play games during Biology lessons					
8. I always easily understand the topics in Biology					
9. We use various tools during Biology lessons					
10. I am interested in Biology only because of the teacher					
11. I am active during Biology lessons					
12. I like English language lessons					
13. We speak in English language during Biology lessons					
14. I can imagine Biology lessons combined with the English language					
15. Activities in English language during Biology lessons would interest me					
16. I would like Biology lessons in English					
17. I would like to know biology vocabulary in English language					

Part 2 of the questionnaire

1. Which CLIL method activity did you like the most in Biology lessons? You can circle up to 3.

- a) Think Pair Share
- b) Find Your Pair

- c) Odd One Out
- d) Finish the Sentence
- e) Guess the Lesson
- f) K-W-L tabuľka
- g) 5-3-1 activity
- h) Mind the Gap
- i) Bingo!
- j) Word Association
- k) Red or Green Card
- l) Mind Map
- m) Worksheets

Write here why you chose these three:

2. The methods listed in the previous question are also called "activating methods." We all experienced them together in biology with the CLIL. As you know, CLIL is the integration of language and another non-linguistic subject; in our case, it was English language and Biology. In this question, I need you to write finish the sentence.

I think it is important to use activating methods and CLIL because...

Your answer:

Observational and Diagnostic Tool for Determining the Level and Form of Formative Assessment in Czech Schools

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Abstract

The current form of formative assessment in the educational practice of Czech primary and lower secondary schools faces criticism, especially because most teachers still prefer summative assessment. Formative assessment has not yet been systematically embraced within the national educational program. However, the general assumption is that teachers do work with formative assessment, but it has not yet been revealed how and how often. The present paper points out the existence of different forms and levels of formative assessment that allow categorizing the degree of formative assessment in teaching. The aim of the present paper is to summarize the already existing tools (which are based on D. Wiliam's concept of formative assessment) and to create a new, diagnostic and observational tool suitable for the educational reality of Czech primary and lower secondary schools (especially at the lower secondary schools and relevant years of multi-year general secondary schools) allowing to capture and analyze the form and level of formative assessment of teachers in teaching. The developed tool will be used to identify the level and form of formative assessment among teachers who seek to implement strategies of formative assessment in their practice.

Keywords: formative assessment, diagnostic tool, school assessment

1. INTRODUCTION

Research findings point to the need for quality education, and one option is rigorous planning and reflection of teaching with respect to individualization and differentiation. One way is to emphasize responsive teaching or formative assessment. A key element in achieving this goal is to diagnose the current state of teaching with regard to the needs of pupils and to look for ways to make it more effective. However, many of the strategies of formative assessment used by teachers are used rather sporadically and intuitively. Only certain strategies are selected, but these do not have the potential to improve teaching in this sense. Moss and Brookhart (2009) point out that formative assessment is a complex process based on the interconnectedness and functionality of all formative assessment methods. Although there are 'good practice' countries where formative assessment has found its place in curricular documents (Birenbaum et.al .2015), this may not reflect the high level of formative assessment in teaching. On the contrary, we can also mention countries (Colombia, Saudi Arabia, etc.) that prefer summative assessment despite the proven benefits of formative assessment (El Ebyary, 2013; Muñoz, et al.,2012).

However, the current form of formative assessment in the educational practice of Czech primary and lower secondary schools still faces criticism. Despite the proven benefits of formative assessment (Black & William, 1998, 2010), it seems that primary and lower secondary school teachers still prefer summative assessment (NÚV, 2019; ČŠI, 2018). Similar findings also emerge from the OECD report (2012). According to Laufkova (2016), little research has been devoted to the issue of assessment in Czech schools. This supports the claim of the authors Straková and Slavík (2013). They note, among other things, that the existing research is mostly theoretical in nature, compared to empirical

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research. Although schools are trying to introduce formative assessment through the training of teaching staff, there has been no significant research evidence to date on whether teachers actually use formative assessment in their teaching, whether and if so, which practices teachers use, or whether working with formative assessment in Czech primary and lower secondary schools actually leads to improved educational outcomes for pupils.

However, the general assumption is that Czech teachers work with formative assessment more implicitly, but it has not yet been established how and how often. According to McMillan (2010), there are strategies that occur in different forms and at different qualitative levels. These practices allow categorizing the extent of formative assessment in teaching. This categorization leads to the determination of the quality and intensity of formative assessment. On the basis of this information, National Institute for Education (NÚV, 2019) assumes that the current form of formative assessment reflects a rather low formative level in the educational reality of Czech primary and lower secondary schools.

The existence of different forms and types of evaluation is also evident in terms of legislation. The current Czech school as an autonomous institution in the field of evaluation of pupils' performance is based on Act No. 561/2004 Coll., specifically Section 69, and Decree No. 48/2005, Sections 14 to 16 (MŠMT, 2024). The mentioned Act stipulates that the use of different types of assessment is the responsibility of the school headmaster (after approval by the school board); it should be noted that the Act thematises more summative assessment, i.e. more precisely assessment at the end of the assessment period. Also, the current Framework Educational Program for Elementary Education (RVP ZV) emphasizes formative assessment only marginally and does not pay much attention to formative assessment in teaching (MŠMT, 2023). Although the general anchoring in the legislation gives teachers the space to implement formative assessment, in the educational practice of schools this is reflected in the fact that formative assessment varies across primary and lower secondary schools, and therefore also among teachers. For example, compared to other countries (Norway, Canada, Australia, etc.) where formative assessment is anchored in curricular documents (Birenbaum et.al 2015), Czech schools are still largely autonomous in the process of implementing this mode of assessment.

These and other facts, which will be mentioned later in the text, led the authors to develop a diagnostic observation tool that monitors the level and resulting form of formative assessment in teaching. This tool can help a researcher, supervisor, or colleague to determine the current level and form of formative assessment of a selected teacher, and to identify strengths and areas that need work. In this way, it is possible to contribute to the quality of teaching in Czech primary and lower secondary schools. We acknowledge the fact that the form of formative evaluation is always highly variable and influenced by other internal and external factors of the educational process, which is also confirmed by McMillan (2010). The following chapter discusses the current situation in the implementation of formative assessment in Czech primary and lower secondary schools and the existence of different levels and forms of formative assessment.

2. THE CURRENT SITUATION IN THE IMPLEMENTATION OF FORMATIVE ASSESSMENT

Although there is evidence that formative assessment can contribute to better educational outcomes for pupils and the education system as a whole (e.g. Black & Wiliam, 1998, 2005; Bell & Cowie, 2001; Hattie & Timperley, 2007; Fluckiger et al., 2010; Wiliam, 2010; Florez & Sammons, 2013; Fletcher-Wood, 2021; Burner, 2023; Kalfsyel et al, 2023; Johansson et al., 2023), there is still a lack of research that looks at supporting teachers who want to implement formative assessment in their teaching (Schneider & Randel, 2010; Andersson & Palm, 2018). As mentioned in the introduction, this is no different in the Czech Republic (Laufková, 2016; Straková & Slavík, 2013). Below, we present results from research related to formative assessment practices, which are based on Black and William's (2009) concept of formative assessment. These include: a) assessing where pupils are in the learning process, what challenges they are going through, how they understand the material; b) feedback, where the teacher gives feedback to pupils that moves them further in the learning process; c) clearly defined success criteria and making sure pupils understand them; d) peer assessment and support for pupils in the learning process. Pupils work together and help each other; e) self-evaluation of performance – self-evaluation. Pupils evaluate their own performance and work individually to improve.

According to a report by the Organisation for Economic Co-operation and Development (OECD, 2012), little emphasis has been placed on the assessment skills of future teachers in the Czech Republic during their preparation. This includes, for example, insufficient definition of learning aims, insufficient work with criteria or insufficient feedback from the teacher. However, it should also be mentioned here that, according to the TALIS report (2019), Czech teachers largely use strategies that promote clarity and comprehensibility of teaching, which are prerequisites for formative assessment and good learning outcomes. As many as 89 % of the teachers surveyed report that they set clear aims at the beginning of the lesson, which is a higher percentage than the EU average (81 %). However, the question is whether teachers confuse the topic of the lesson with its aim or whether teachers only provide the

information that is requested in the questionnaire. For example, Stará and Starý (2018) in their case study found that for none of the ten teachers surveyed did the learning aims appear in explicit form. However, there is still a lack of sufficient qualitative studies to support these findings.

Knowing the criteria for assessing pupils is also an important part of the assessment process. Individual teachers have different criteria for grading that they do not make their pupils aware of, nor are teachers able to specify them. As Czech teachers do not use criteria work systematically, it would be useful to change this. This change should also be implemented for different teaching subjects (Žlábková & Rokos, 2014; Straková & Slavík, 2013).

The situation in Czech primary and lower secondary schools is also unfavourable in terms of peer assessment and self-assessment. According to Czech School Inspectorate (ČŠI, 2018) pupils are not encouraged to actively participate in the evaluation process, and opportunities for autonomous and peer evaluation are created rather sporadically. Formative assessment as an effective tool for monitoring and evaluating pupils' progress and as a means of providing feedback on educational progress and for enhancing motivation to learn is absent in the work of teachers. The fact that the situation has not improved in the use of the formative assessment methods in question is confirmed by the ČŠI report (2020). According to this report, self-assessment and peer assessment methods are used only minimally.

However, according to the ČŠI (2019/2020, 2021), a positive finding – in relation to the recent emergency caused by the COVID-19 pandemic – is the prevalence of verbal assessment in more than half of primary and lower secondary schools. The high incidence of providing more detailed feedback on pupils' work without grading was also positive, with up to two-fifths of primary and lower secondary schools reporting this. Self-assessment had also begun to occur more frequently in some schools, but this was only in one per cent of schools compared to the rest. It should also be noted that these are results that were collected in the context of an emergency situation and therefore during online teaching, which has its own specificities compared to contact teaching.

In the field of research on peer assessment and self-assessment, case studies are also emerging in the Czech environment. In the context of peer assessment, we can mention the research of Rokos and Lišková (2019), in this research it turned out that pupils did not benefit much from peer assessment due to the fact that they were not able to formulate their recommendations with constructive feedback and descriptive language. Another example can be found in Laufková's study. While peer assessment was not observed in the older study (2013) – according to the author, it was only used to a limited extent – in the more recent study (2017), peer assessment was observed within one of the teachers. Peer assessment was also valued by pupils here. Similar findings can be attributed to the above studies by Laufková in the context of pupils' self-assessment.

Despite the fact that the positive benefits of formative assessment in education are proven and demonstrable abroad and in case studies in the Czech Republic (e.g. Black & William, 1998, 2010; Laufková, 2017a), the current RVP ZV with effect from 2023 (MŠMT, 2023) does not work much with formative assessment. It is worth noting, however, that the Strategy for Education Policy in the Czech Republic 2030+ (MŠMT, 2023) works with formative assessment to a much greater and more fundamental extent, for example, to support teaching where there is evidence of learning, formative feedback or self-assessment.

It follows from the above statements that there is not enough emphasis on formative assessment in Czech schools and teachers prefer summative assessment, as also discussed by the ČŠI (2018, 2020). According to these findings, pupils are not encouraged to actively participate in the assessment process and the level of formative assessment is thus very low, which is also influenced by the preference for a transmissive teaching method. The ČŠI also points to the existence of noticeable differences between the primary and lower secondary schools, both in terms of pupils' active participation and the extent to which errors are dealt with, i.e. the promotion of self-assessment, peer assessment (see above) and the provision of feedback. According to Laufková (2017a), another shortcoming of Czech schools is that they fail to analyze pupils' learning outcomes and thus possibly improve their learning outcomes. Thus, it can be argued that the implementation of measures is insufficient in this respect. Pupils are then missing out on the benefits of formative assessment, which have been partially proven in the Czech Republic.

The authors build on the work of McMillan (2010), who looks at the level of formative assessment. Since this is not a Czech publication, McMillan's concept was adapted for use in the Czech environment. The development of the tool was preceded by an analysis of the literature on formative assessment and its implementation. We identified strategies of formative assessment based on D. William's concept and other research closely related to formative assessment (e.g. respectful communication by T. Gordon, mind-set by C. Dweck, or H. Fletcher-Wood's responsive teaching). These practices are implemented across methodological categories in teaching (e.g., learning aims, working with criteria, differentiation and individualization in teaching, or the role of motivation in pupil learning). Based on this analysis, categories were developed that can be monitored and evaluated in identifying the extent and subsequent form of formative assessment in teaching. The following subsection explains each category of the instrument for assessing the level of formative assessment. The categories also represent indicators for assessing the final, implemented form of formative assessment.

2.1. Applied categories of observation and diagnostic tool

The tool consists of a total of 15 categories. We draw on the concepts of a series of observation tools such as The Formative Assessment Classroom Observation Protocol – FACOP (Johnson, 2015a), The Framework for Teaching – FFT (Danielson Group, 2022.), and the variability of formative assessment characteristics (McMillan, 2010). These tools (FACOP and FFT) are designed to support effective teaching and learning and, together with the variability of formative assessment characteristics, are based on D. William’s (2009) concept of formative assessment. It is also worth mentioning that the FFT tool conceptualises formative assessment as effective teaching (OECD, 2005), so the authors only focused on categories directly related to formative assessment.

This concept of formative assessment is appropriate for the development of our tool "Observation and Diagnostic Tool for Determining the Level and Form of Formative Assessment in Czech schools" in the environment of Czech primary and lower secondary schools and the relevant years of multi-year generally secondary schools, and reflects the resulting form of formative assessment that we are trying to implement (the form is expressed in a high level of formative assessment). The developed tool should capture the variability of formative assessment as it occurs in practice in different degrees and forms.

The tool’s categories created and adapted are chosen based on the latest knowledge and also reflect the expertise of the authors of the present theoretical study. For example, the specified assessment criteria are based on an educational goal; the descriptive language of feedback is also used in self- or peer-assessment and is part of respectful communication, etc.

We present the developed tool in the following Table 1.

Table 1. Tool for determining the level and form of formative assessment in school practice

Observed categories of formative assessment	LOW LEVEL OF FORMATIVE ASSESSMENT	MEDIUM LEVEL OF FORMATIVE ASSESSMENT	HIGH LEVEL OF FORMATIVE ASSESSMENT
RESPECTFUL COMMUNICATION	Communication between the teacher and pupils and among pupils themselves is not respectful. The needs of all individuals are not respected. Rules are not established or are not followed. There is not a safe classroom climate. Certain pupils are favoured.	Communication between teacher and pupils and among pupils themselves respects the needs of most (but not all) pupils. Rules are set but not consistently followed. There is a classroom climate in which not all pupils feel safe.	Communication between teacher and pupil and among pupils themselves is respectful. Everyone respects the dignity and needs of everyone in the classroom. Rules are set and followed. Everyone in the class feels safe and accepted as they are.
SETTING EDUCATIONAL AIMS	The aim of the lesson is not stated (or it is confused with the topic of the lesson). Evidence of learning is not formulated. Methods and forms of teaching are not chosen with regard to the learning aim(s).	The lesson aim is not measurable/verifiable and/or achievable. Evidence of learning is not based on aims. Teaching methods and forms are not always aligned with aims.	The teacher sets a lesson aim that is measurable/verifiable and achievable. Evidence of learning is based on the aim. All methods and forms of teaching are directed towards the achievement of the aim.

CREATING AND WORKING WITH CRITERIA	Assessment criteria are not set or shared with pupils.	The criteria are not based on the aims, they are set rather formally and without discussion (or with limited discussion) with the pupils. They are given to the pupils during the work, not before it starts.	The assessment criteria are based on the aims, are set together with the pupils (or consulted with the pupils) and are available to the pupils before the work itself.
FEEDBACK (timeliness)	Feedback is not a natural part of teaching. It is often delayed (a few days after the assignment is handed in). Pupils do not pay attention to feedback.	Feedback is not yet a natural part of teaching. It is both immediate and delayed, with no justification for the time lapse.	Feedback is a natural part of teaching. Immediate and specific for lower achieving pupils; delayed for higher achieving pupils. Pupils accept feedback and recognise its value.
FEEDBACK (language)	General and vague wording. Judgmental feedback language is used.	Both general and specific formulations. Both descriptive and evaluative feedback language is used.	Formulations are used that specify pupil performance. Only descriptive feedback language is used.
RESPONSIVENESS OF TEACHING	The teacher does not plan the teaching with the needs of the pupils in mind. Techniques of the pupils' current state of understanding are not applied.	The teacher partially plans lessons with the needs of the pupils in mind. Techniques to determine the current state of pupils' understanding are used randomly.	The teacher adapts teaching to the needs of the pupils. Thoughtfully incorporates techniques to determine the current state of pupils' understanding and plans further teaching based on these.
EFFECTIVE QUESTIONING	The teacher rarely uses effective questioning strategies to gather evidence of all pupils' learning; the teacher asks mostly closed questions that do not develop pupils' independent thinking; the answers obtained from pupils are not used for further work with the class.	The teacher uses effective questioning strategies that provide evidence of most pupils' learning; pupils' responses are used in part for further work with the class to achieve aims.	Teacher uses effective questioning strategies throughout the unit that systematically provide evidence from all pupils about their learning (e.g., passes); asks open-ended questions that stimulate pupils' thinking; teacher often uses pupils' responses for their further learning.
PARTICIPATION IN CLASS DISCUSSION	Questions and discussions are between the teacher and selected pupils; pupils do not engage in dialogue or ask each other questions.	The teacher offers opportunities to participate in discussions, but only some pupils respond or participate in the discussion.	The teacher successfully engages pupils in discussion; pupils actively participate in the discussion and ask each other questions.

DIFFERENTIATION IN ASSIGNING TASKS	All pupils work on the same task created by the teacher (there is no differentiation).	Pupils have limited choice of tasks based on their level of the subject matter.	The pupil chooses the task at the level of their maximum (in the zone of closest development) in cooperation with the teacher.
TYPE OF ASSESSMENT ACCORDING TO THE RELATIONSHIP STANDARD	Assessment is applied according to a normative relational standard (comparing pupils with each other).	Assessment according to normative and individual relational standards is applied.	Pupils are assessed on the basis of individual or criterion-referenced standards (this allows the progress of each pupil to be monitored).
ENCOURAGING SUCCESS	Teachers and pupils are predominantly mistake-oriented and tend to avoid activities where they are at risk of making mistakes. Pupils attribute their success to external causes (e.g. coincidence), failure e.g. to their ability. Knowledge is preferred (effort, perseverance and learning strategies are not appreciated).	The approach to mistake is not uniform – sometimes it is appreciated, sometimes it is penalised. The strategy of avoiding failure prevails among pupils, but we also observe an adequate performance orientation. Knowledge is appreciated, but also effort.	Mistake is perceived positively by the teacher and pupils – as part of the learning process. Teachers and pupils support and encourage each other in their learning, i.e. they value effort and perseverance. They apply and recommend learning strategies to each other that help to achieve the aim.
MOTIVATION TO LEARN	Pupils' extrinsic motivation to learn (rewards and punishments, desire for recognition by others) is predominant.	The teacher supports the extrinsic and intrinsic motivation of the pupils.	The teacher themselves is intrinsically motivated and supports especially the intrinsic motivation of the pupils to learn.
USE OF TECHNOLOGY FOR FORMATIVE ASSESSMENT	The teacher does not use technology to support formative assessment where it would be effective. Technology is used sporadically.	The teacher partially uses technology to support formative assessment, the use shows signs of systematicity.	The teacher effectively and systematically uses technology to support formative assessment.
SELF-ASSESSMENT OF PUPILS	Pupils are not given any opportunities for self-assessment; where appropriate, they are asked to summatively grade their work.	The teacher offers occasional opportunities for pupils to self-assess. The task is usually designed to develop pupils' realistic self-assessment.	The teacher provides opportunities for pupils to self-assess. Tasks are designed to develop pupils' aim, evidence-based self-assessment.
PEER ASSESSMENT	Pupils are not given any opportunities to engage in the assessment of their	The teacher offers limited opportunities for pupils to assess the work of their classmates	The teacher provides opportunities for pupils to assess the work of their classmates and give

	peers' work; where appropriate, they are asked to grade the work of their classmates.	and give feedback to each other. Pupils are not systematically encouraged to provide descriptive feedback, i.e., peer assessment has a rather limited impact on the quality of pupils' work.	feedback to each other. Pupils are systematically encouraged to give functional feedback. Peer assessment has a positive impact on the quality of pupils' work.
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All these categories contain three levels of formative assessment (low, medium and high). The three levels thus form points of contact on a continuum of quality in the implementation of formative assessment. The first level is labelled low, the second one medium, and these levels represent random and undeveloped or as yet unsystematic uses of formative assessment. The third level, high, reflects an exemplary use of formative assessment, which is desirable for teachers. A high level of implementation of formative assessment has a significant impact on the comprehensive development of pupils, on the self-assessment of all participants in the teaching process and on independent learning. At this level, the quality of the teaching process is improved because exemplary strategies of formative assessment are present.

2.2. Description of each category of tool

In the following text, we describe the selected categories of the tool. The categories represent the individual criteria for assessing the final form of formative assessment in Czech primary and lower secondary schools and these are further elaborated into three indicators. We present at a high level the expected form of formative assessment, which is an inspiring example of educational practice. If a teacher receives feedback on the level and form of formative assessment in their teaching based on the use of this diagnostic tool, further targeted actions for improvement can be planned based on these findings.

The first criterion works with the concept of **respectful communication**, which we consider crucial for learning to take place and is therefore a kind of starting point for the application of formative assessment. When communication in school is based on mutual respect and democratic principles of partnership, there are positive relationships in the classroom between teacher and pupils and between pupils and each other. This state is a conducive climate for learning, where making a mistake is not a fault, where it is normal to ask for help and where it is possible to get effective support to improve one's learning (Gordon, 2015).

The second criterion reflects the teacher's work with the **teaching (or educational) aims** that are central to the monitoring of what the pupil is expected to achieve at the end of the lesson (Marzano & Kendall, 2007), i.e. with evidence of learning, and play an important role in planning teaching with respect to pupils' current knowledge and skills – which is why we also emphasize responsiveness of teaching as one of the important categories (Fletcher-Wood, 2018). Thus, we build on internal differentiation – because the aims, needs, and knowledge of individual pupils vary widely. If the teacher works with defined aims, is able to formulate and present appropriate **assessment criteria** and thus provide formative feedback to pupils, these criteria reflect high formative levels if they are appropriately formulated, are available to pupils before the task itself and are ideally co-created with pupils (Nightingale, 2018; Wiliam, 2011; Stevens, 2005; Guskey, 2001). If the teacher compares planned learning goals and actual achievement, they can provide pupils with information about their individual progress, which leads pupils to reflect on their own achievement and also their metacognition (Stary, 2016). M

The next category is undoubtedly **feedback**, which is at the heart of formative assessment (Black & Wiliam, 1998; Hattie & Timperley, 2007; Parr & Timperley, 2010; Hattie, & Clarke, 2019) running across all categories. It is not only the timeliness (immediacy) that is important in a teacher's use of feedback, but also the manner in which the feedback is given. According to Laufková (2017), the use of descriptive language in place of evaluative language is preferable to formative feedback. Immediacy, i.e. giving immediate feedback that reflects a high formative level, is also important within the timeliness of feedback. According to Shavelson et al. (2008) or Christie (2002), this immediate feedback is described as unplanned formative assessment because the teacher uses appropriate moments in the lesson to provide it, reflecting high levels of formative assessment. These moments can be used to identify pupils' misconceptions or to guide pupils towards correct understanding (Heritage, 2007).

In order to provide formative feedback, task(s) or question(s) should be created to find out what the pupils know, can do or have accomplished. Thus, the so-called **techniques for ascertaining the current state of pupils' understanding** are effectively used in teaching (Wiliam & Leahy, 2015). One can use both draws (or spatulas, lottery

tickets, no hands up technique) or mass voting systems that allow checking at the same moment where all pupils in the class are on the way to the target, e.g. hand signals, ABCD, white/erase boards, Mentimeter, etc. The starting point for effective feedback is to ask clear and unambiguous questions in relation to the aim and to tailor further teaching to the answers received.

Especially in recent years, the emphasis in formative assessment has shifted towards communication and interaction between pupils and teachers. The category of **effective questioning** is used to gather information. However, this alone is not enough, the teacher must work systematically with this category, because according to Wainer (2011) information only becomes evidence if it is interpreted with a purpose in mind. Such **evidence of pupils' (learning)** is collected continuously by the teacher; without it, it is impossible to conduct formative teaching (Wiliam, 2015; Fletcher-Wood, 2018). Instead of **assigning learning tasks**, for example, this may involve asking questions, as well as other techniques aimed at gathering evidence of pupil performance. This category is also linked to assigning learning tasks, which in turn are linked to learning aims and monitoring pupil progress, which only highlights the interconnectedness of the categories in the tool.

In teaching, pupils' questions should prevail over the teacher's questions (Hattie, 2012). Abroad (cf. Brualdi, 1998 in Hattie, 2012) and in the Czech Republic (cf. Šed'ová et al., 2019), communication initiated by the teacher, who exercises their power position in the classroom and reinforces different social relations with pupils, prevails. In addition, closed questions of lower cognitive demand, with a focus on remembering facts, predominate in communication. In doing so, Hattie (2012) adds that pupil engagement in the learning process already happens during communication – teachers learn a lot about their influence on the learning process by listening to pupils who are thinking aloud. If our aim is to develop pupils' thinking, we can do so by asking questions of a conceptual nature that reveal pupils' level of understanding (cf. Wiliam & Leahy, 2015).

The tool also tracks pupils' motivation and achievement characteristics. In addition to **intrinsic motivation**, Ryan and Deci (in Crehan, 2018) define four types of extrinsic motivation – **integrated regulation** (the aims of the activity coincide with the aims of the pupil), **identification** (the pupil consciously adopts the aim of the activity as their own), **introjection** (the pupil is motivated by a desire for the approval of others), and **extrinsic regulation** (the rewards of carrots and sticks, i.e. rewards and punishments). The ideal is therefore a pupil (but also a teacher) who is intrinsically motivated to do the required work or who already has a strong need for meaningfulness and believes in the importance of education (has internalized the same aims as the school). Such pupils and, consequently, teachers have a positive attitude towards learning, are efficient, happy and psychologically well. Therefore, rather intrinsic motivation can be considered highly formative. Such motivation stems mainly from the cognitive needs of the pupil (Hrabal, 1989). In other words, a pupil who is intrinsically motivated learns what they enjoys, which can be revealed from the teaching through pupil engagement. Pupils experience intrinsic satisfaction from the learning activity performed and show a higher quality of understanding and comprehension of the context (Pavelková, 2002). Buss (2013) states that motivation can have a far greater impact on the final learning outcome than feedback and that the effect of feedback, the form of feedback and motivation interact.

The aim and task of the teacher is to influence pupils who have a low tendency to achieve success and who most often attribute their failure to their lack of ability (including i.a. pupils with a fixed mind-set). The teacher should encourage and reward these pupils for their efforts – that they can succeed if they can be better, if they can be more diligent. Thus, there is a shift in attributions from ability to effort, where the goal is for pupils to learn to attribute their failure to lack of effort rather than luck. Thus, we draw here on the **mind-set** concept of C. Dweck (2017). This means that we value the pupil's effort, persistence, the learning strategies used and their progress. Therefore, the tool tracks the presence of such behaviour and rates it as highly formative.

The type of evaluation applied is therefore related to this item. The normative assessment (or social standard) is an assessment of relative performance. It leads to comparisons between pupils because it is based on measuring the pupil's performance against the performance of others who have performed the same task. Therefore, the measure is a social standard set in relation to a particular group or population of pupils, and the grade is the same instrument. On the other hand, criterion-referenced assessment, which is referred to as absolute performance assessment, is fairer and more predictable because the pupil's performance is judged in terms of selected and known criteria. In particular, it supports the cognitive function of assessment, allows for continuous improvement and facilitates the monitoring of the pupil's individual learning journey. However, this journey is best facilitated by assessment according to the so-called **individual relational standard**. The fact that the pupil is assessed in relation to their previous performance has proved useful both for pupils with an orientation towards avoiding failure and for underperforming pupils who have an adequate performance orientation. Belief in one's own progress allows for a more stable experience of success and has a positive effect on the pupil's self-concept (Pavelkova, 2002). The tool would also not be complete without the inclusion of a **self-assessment** category that encourages the promotion of pupils' responsibility for their learning (Black & Wiliam, 2009). Self-assessment is a process in which pupils evaluate their own work. It is, therefore, an

assessment that is entrusted to the pupils: an assessment that the pupils themselves can manage, understand, explain, justify or defend to the best of their ability. This skill leads the pupil to metacognition i.e. reflection on their own learning processes, promotes pupils' self-cognition, self-confidence and the development of study skills, helps them to regulate the learning process, to become aware of their own progress, and reinforces responsibility for their performance. The term *assessment as learning* (AaL), i.e. learning by assessing or evaluating one's learning, has been adopted abroad for this concept of assessment (Earl, 2003). Self-assessment is one of the most important elements of formative assessment. Thus, autonomous assessment (self-assessment) is seen as one of the aims of pupil learning. Thus, the integrated role of learner self-assessment is considered highly formative.

The penultimate category in the tool is **mutual or peer assessment**. Wiliam and Leahy (2015) refer to the skill of peer assessment as a strategy for *activating pupils as learning resources for each other*. The purpose of this assessment is to help the assessed pupil improve their performance, but peers should not be involved in summative assessment. It is, however, valuable in commenting on the performance of other pupils, thus it is another form of feedback (Topping, 2009). Mutual feedback is particularly important in creating a participatory learning environment (Kollar & Fischer, 2010). Therefore, in order for it to be applied in the classroom, there must be an open (supportive) classroom climate, which is crucial for the whole functioning of formative assessment (see Category 1). Peer assessment therefore requires learners to be evaluators and provide constructive feedback to each other. The advantage of peer assessment is that the learner is drawn into the learning process and can consciously influence it, thus becoming an active participant in the learning process (Starý, 2016). This is also closely related to the category of participant involvement or task selection, where the highly formative level reflects the involvement of all learning actors equally. Active participation of learners also develops key competences, as the pupil takes responsibility for their learning. The integration of peer assessment in pupils can therefore be considered highly formative. Last but not least, the tool also includes a category dealing with the **use of technology for formative assessment**. These technologies bring reinforcement of formative assessment methods and techniques and strengthen the active role of the pupil in assessment. By using them, teachers can provide immediate feedback. The ability of technology to enable formative assessment in this way is desirable for both pupils and teachers. However, as with all educational technologies, teachers must be adequately prepared to use effective questioning methods, otherwise the use of technology will miss the mark (Williams & Kingham, 2003). Particularly in the recent pandemic situation, it has been crucial that teachers use these technologies appropriately. Some platforms such as MS Teams, Google Classroom and ZOOM also use formative techniques such as thumbs or different emoticons, allowing the teacher to track evidence of learning and also incorporate follow-up feedback; platforms such as Mentimeter, Socrative, Quizzis, Kahoot! and others have proved to be effective.

2.3. Analysis and evaluation of the data obtained by the tool

As part of the analysis and evaluation of the data, it is planned to track the occurrence of the observed categories and levels of formative assessment – observation and evaluation are then enabled by the individual descriptors of each of the three levels.

According to McMillan, low-level formative assessment is very similar to summative assessment. At this level, formative assessment has not yet occurred or occurs sporadically. McMillan (2010) refers to it as formative assessment devoid of guidance (McMillan, 2010).

id-level formative assessment represents the presence of formative practices that correspond to random and unrefined formative assessment that ultimately cannot support the learning of every pupil in the classroom.

High level of formative assessment has a significant impact on the learning of every pupil in the classroom. All strategies of formative assessment occur at this level and are implemented with high quality and intensity by both teachers and pupils.

However, the tool is designed to capture through descriptors the level of formative assessment in different categories, which will help diagnose strengths as well as challenges that need to be worked on. The ideal then is a high level of formative assessment in all categories – it is then truly a complex process based on the interconnectedness and functionality of all formative assessment practices as stated by Moss and Brookhart (2009).

If the instrument is used as a research tool rather than a diagnostic tool, inter-observer agreement can be determined within the reliability framework. The degree of agreement can be expressed as a percentage of agreement, Cohen's kappa or using correlation (Gavora, 2010). Another possibility within reliability is then internal consistency of the observation system, i.e., determining the relationship between categories rather than observers, which can also provide interesting data for the researcher.

3. DISCUSSION

Through the presented tool, it is possible to identify the current form of formative assessment at the classroom level. The aim of the tool is to highlight teaching strengths and areas that could be worked on. Our aim is to support the effective and constructive assessment in the primary and lower secondary school education system, especially the classroom. We draw on Looney's (2011) analysis of the impact of universal testing that focusing on the process of teaching and learning and improving classroom-based assessment are important for sustained improvement in the achievement of all pupils in the classroom (cf. Black & Williams, 1998, 1998a). As Straková and Slavík (2013, pp. 278–279) state, assessment should be an integral part of learning and respond directly to pupil performance. They should provide good information about each pupil's knowledge and skills as well as their thinking so that teaching can be adapted to their needs.

Therefore, the tool presented should not serve as a tool to prescribe the final form of assessment to schools or serve as a restrictive tool in the hands of officials (cf. Monsen, 2002; Simmons, 2002; Lander & Ekholm, 1998) – instead, it should support a diagnostic function, i.e., to determine the form and level of formative assessment that can be used to plan and implement formative assessment practices at the classroom level, but also at the school level. By promoting a school assessment culture towards formative assessment goals, more progress can be made on this issue – see *Kritéria hodnocení kvalitní školy (Kvalitní škola, 2024)*, which is part of the Czech Education Policy Strategy 2030+, and as part of the Quality School criteria – see *Kvalitní vzdělávání směřující k dobrým vzdělávacím výsledkům všech žáků je základem kvalitní školy (ČŠI, 2022)* or one of the expected outcomes for a teacher graduate – especially in areas 2, 3 and 4 see *Kompetenční rámec absolventky a absolventa učitelství (MŠMT, 2023)*.

Therefore, the key elements resulting from the analysis of the situation in our setting are: the creation of an assessment that promotes the interaction of all actors in school assessment, the introduction of formative assessment procedures and its design, and the subsequent use of a diagnostic and observational tool. By consistently working with educational aims, monitoring pupils' progress and actively involving pupils in the learning process, formative assessment thus becomes a central element in teaching and learning.

4. CONCLUSIONS AND LIMITATIONS

The starting point for the creation of this tool was the still not entirely satisfactory situation regarding the introduction of formative assessment in Czech primary and lower secondary schools. The aim of this paper was to present a tool that would allow the actors of educational reality or the researcher to analyse their level and the resulting form of formative assessment in teaching. The tool created can be used to determine the level and form of formative assessment in the classroom of a particular teacher whose efforts are to implement strategies of formative assessment in their practice, and to support the learning of each pupil in the classroom.

We are convinced, in line with both Czech and not Czech research, that formative assessment (in its broader sense) brings benefits to all actors in educational reality. The presented tool offers the possibility to identify the level and form of formative assessment in teaching, thus enabling teachers, colleagues, teaching graduates and schools to identify areas that could be worked on for more effective learning for all pupils in the classroom. We bring a much-needed focused attention to the weaknesses in the current operation of formative assessment in school practice for our context. With a better understanding of the underlying conditions, both internal and external, we can contribute to quality support for teachers or schools. Exemplary strategies of formative assessment can become effective if they are more widely used and do not become isolated to the level of selected classes or schools.

In the context of current research and scientific knowledge in the field of formative assessment, it is important to note that although the presented tool is based on the latest knowledge, the coverage of the topic is not complete. However, it represents a significant step forward, as this instrument, originally conceived in a foreign context, has been adapted and reshaped to meet the specific needs of Czech schools. It is also necessary to stress that this tool should not be perceived as a restrictive mechanism, but on the contrary as a means to promote the improvement of educational processes within the Czech educational system.

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Training Student Teachers for Learners' Individual Needs

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Abstract

The paper aims to identify the competencies student teachers should possess to work with pupils with learning disabilities in reading comprehension classes. The research is concerned with students with learning disabilities and the development of professional teachers' competencies in reading comprehension classes. As will-be teachers lack the knowledge and competencies necessary to teach students with learning disabilities, the paper will propose several affective, intervention strategies and techniques to support learners with SEN when developing their reading comprehension skills. The theoretical framework will delve into the reading comprehension process, specific teachers' professional competencies necessary for educating students with learning disabilities and distinctive characteristics of learners with SEN. Additionally, it will shed light on strategies, techniques and methods that can assist novice teachers in reading comprehension classes. Consequently, different aspects of inclusive education should play an inseparable part in pre-service teacher training, as the current school education indicates a growing number of learners with special or individual educational needs. This situation raises also attention to the necessity for mentor teachers to receive specialized training to develop teacher trainees' competencies in working with exceptional learners. To meet the individual needs of dyslexic and dysgraphic learners, teachers must be trained to handle stressful and conflict situations, while also assisting these learners in acquiring the same skills and knowledge as their peers. Achieving this requires teacher trainees to not only enhance their professional competencies but also cultivate their cooperative spirit and boost their motivation and self-confidence.

Keywords: students with learning disabilities, reading comprehension, affective and intervention strategies, techniques, teacher training

1. INTRODUCTION

Due to the increasing number of pupils with special educational needs in foreign language classrooms, several aspects of inclusive education should become integral to pre-service teacher training. This situation also calls for the training of mentor teachers who are responsible for developing the competencies of will-be teachers who need to get acquainted with different modes of work with pupils with learning disabilities.

Novice teachers need to be trained to teach pupils with learning disabilities. This can be done through workshops while forming a portfolio of activities reflecting possible modes of work with such pupils in lessons. The paper will emphasize developing reading skills while proposing several strategies, methods and techniques, necessary for shaping the skills mentioned above. As pre-service teachers lack the knowledge and competencies necessary for teaching pupils with learning disabilities, this paper will shed light on several affective and intervention strategies that can contribute to developing reading comprehension skills in students with learning disabilities. Moreover, teachers require a deeper understanding and knowledge of how to use rubrics in order to conduct more directed or targeted assessments, thereby bringing us closer to formative assessment. Another approach involves implementing projects

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to solve problems or task-based teaching, which may engage individuals with dominant analytical skills. On the other hand, teachers should be educated on how to modify classroom settings and task structure for SEN learners, as holistic thinkers demand a comprehensive understanding of a lesson's content, not forgetting about using strategies such as mind-maps.

1.1. Training novice teachers and shaping their competencies

In terms of teacher training, the key role of pre-service teachers in the process of teacher training and education needs to be stressed, while promoting the professionalism of pre-service teachers and equipping them with relevant knowledge and skills. This can be achieved by boosting their self-confidence and reinforcing their awareness of their pivotal role in inclusive education. In preparing will-be teachers, it is essential for them to not only become acquainted with various teaching strategies, and methods, but also to become familiar with designing materials and activities that can contribute to developing the reading comprehension skills of their SEN learners. This needs to be done by supporting the environment focusing on improving learners' attention, perception, critical and divergent thinking. The main goal is to increase the quality of practical training of future teachers, which could be done by increasing their motivation and self-confidence, thus ensuring the willingness of young teachers to remain in the teaching profession.

1.2. Foreign language text competence

Due to the negative results of international assessment studies (PISA, OECD), the issue of foreign language text comprehension has become a very topical issue not only in scientific and professional communication but also in the broader social discourse. As a result, learners need to be able to understand different types of text and be able to use the information obtained from the text, as it is nowadays perceived as a necessary cognitive and speech capacity of an individual in learning languages, which is not only essential in working life but also in everyday situations.

Thanks to the extensive research conducted by both foreign and local educational and psychological experts, we now have a enough scientific knowledge on the processes involved in text comprehension at an individual level. To delve deeper into this topic, it is essential to explore the fundamental concepts of receptive text competence (Chvalova, Stranovska, 2019).

The word "competence" in applied linguistics refers to the ability to communicate effectively and is one of the most controversial concepts, often associated with the renowned linguist Chomsky. In the 1980s, Widdowson (1983) clarified the distinction between competence and capacity, and also brought a new perspective on the concept within discourse analysis and pragmatics, where the text needs to be understood within the context. In this sense, communicative competence can be seen as the ability to use knowledge as a means of constructing meaning in language. Widdowson (1983) argues that competence is not an ability but a driving force of creativity, which is crucial for comprehending a foreign language text. Savignon (1972), suggests that competence is based on linguistic performance, as the latter can be observed, developed, maintained and evaluated, thereby linking it to language proficiency. The model of communicative competence was enriched by Bachman (1996), who called communicative competence "communicative language ability", i.e. communicative language proficiency, which was extended by Palmer (1996), while adding a few interesting facts. They argue that many characteristics of language users are related to their common characteristics, current knowledge, affective schemas and language ability, thus greatly influencing communicative language ability.

1.3. Development of communicative language skills in SEN learners

To develop communicative language skills, teachers must actively engage learners with learning disabilities in activities that foster a greater inclination towards reading. This can become the driving force and key to expanding their vocabulary. As Stein (2022) states, reading is a cognitive process that needs to be connected to the brain. Therefore, it is necessary to involve students with learning disabilities in activities that allow them to draw upon their prior experience and implement memory-based exercises (e.g. memory activity games). By doing so, they can cultivate their attention and perception, since their working memory often poses a significant challenge. This, in turn, requires repeated exposure to the material they have read. Pupils with learning disabilities, especially dyslexics, are motivated to learn English by words that overlap in the Slovak language, whether it is in the professional field, in advertising or in fashion. Hence, it is crucial to design exercises for dyslexic students that revolve around topics they encounter in their daily lives, while also addressing the three key levels (biological, cognitive, and behavioral) that present the greatest difficulties for them (Stranovska, Chvalova, Poulikova, 2023).

Within the professional special-pedagogical and psychological literature, prevalent terms include specific learning disabilities or behaviours, as well as specific learning disorders. These concepts are superordinate to the previously mentioned terms, such as dyslexia, dysgraphia, dysortographia, dyscalculia, dyspinxia, dysmusia, and dyspraxia. The last three terms are unique to the Czech Republic and Slovakia and are not found in foreign literature (Vogelova, 2021).

Dyslexia and dysgraphia are two common learning disabilities that have a significant impact on learners' reading, writing, and communication abilities. Dyslexia specifically impairs reading, word recognition, and spelling skills, while dysgraphia affects writing, including both handwriting and the organization of thoughts (Shaywitz, 2003). These challenges can have a negative impact on academic performance. However, with the appropriate support and accommodations, individuals with dyslexia and dysgraphia can overcome these obstacles and achieve academic success. In addition, if these difficulties are not recognized and addressed, it can result in wasted time and effort for teachers and an ineffective learning process for the students. Therefore, it is crucial to raise awareness about these learning disabilities and provide the necessary support to unlock the full potential of individuals with dyslexia and dysgraphia (Stranovska, Chvalova, Poulikova, 2023).

First of all, it is necessary to provide more time for students with learning disabilities to ask quick-response questions, as they have problems with automatic recall of concepts (Krejčová, Hladíková 2019). Due to the numerous problems with remembering longer instructions, it is recommended to give clear and concise instructions to individuals with learning disabilities before the exercise.

When guiding individuals with dyslexia and dysgraphia, teachers must strive for clarity and assistance. This can be achieved by implementing straightforward language, incorporating visual aids, and engaging multiple senses to enhance their comprehension (Lyon, Shaywitz, 2003). Consequently, it is recommended to break down instructions into manageable segments and offer written materials for reference. Furthermore, it is important to continuously assess comprehension and provide additional time when necessary. As a result, encouraging students to make their own decisions and providing positive reinforcement can keep them highly motivated (Richards, 1990). Teachers should also be available for individual support, foster self-advocacy, and collaborate with specialists to ensure a customized and inclusive learning experience (Huang, 2018). Finally, flexibility and regular communication with both students and parents are essential in effectively addressing the unique needs of these learners.

1.4. Shaping teacher competencies for Inclusive Education

As this study is focused on SEN learners, it is important to stress the significance of inclusive teaching which has become an obligatory professional competence for teachers in many countries (Burns, 2010). Unfortunately, many scholars in Europe and abroad are skeptical about pre-service and in-service teachers addressing the educational needs of diverse pupils. Therefore, we would like to shed more light on specific competencies that are considered to play a pivotal role in teaching students with learning disabilities (Kenedou, 2014).

First of all, teachers' competencies can be seen as skills and knowledge that enable a teacher to be successful in inclusive practice and have a significant impact on student achievement. For instance, teachers who excel in delivering instruction, assessment, classroom management and personal qualities, tend to positively influence final student outcome (Krischler, M. and Pit-ten Cate, 2018). Hence, it is not surprising that teachers' preparation and certification appear to be the strongest indicators of teachers' knowledge and skills, thus reflecting the strongest predictors of students' achievement in reading (Darling-Hammond, 2000). Furthermore, the Multidimensional model of teacher competence (Kunter et al., 2011, 2013) reflects that teacher competence, that not only includes cognitive aspects, such as skills and knowledge, but also beliefs related to learning, motivation and self-regulation. These aspects can determine the extent to which a teacher can successfully master the situation (Klieme, Hartig, & Rauch, 2008). Similarly, Bandura (2001) proposes that competence not only involves knowledge and skills but also the ability to use these successfully in different situations, many of which may contain unpredictable and stressful elements. To this extent, research indicated that teachers' beliefs in their ability to positively affect student learning were associated with better student achievement.

Therefore, such beliefs are considered an integral part of teachers' competence and are similar to what Bandura (2001) describes as efficacy. This not only reflects perceived ability but also influences an individual's motivation, i.e. when an individual's feelings of task proficiency increase, he/she will be more motivated to perform reading tasks. As a result, teachers should encourage learners to take full responsibility for their learning, by selecting materials for their reading classes, and self-regulating their study routines to suit their individual needs and preferences. To encourage students to read more, teachers should seek out reading materials that align with their interests, enabling

them to read them at their own pace. This shows us the way how to incorporate affective strategies when shaping reading comprehension in students with learning disabilities.

The knowledge and skills of teaching strategies and approaches that meet the needs of all children seem to be key competencies that are necessary for effective instruction of children with special needs who can benefit from education in regular classrooms. Thus, the ability to plan flexible instruction and identify differences between SEN learners can help pre-service and in-service teachers to be able to adapt learning goals, content and the environment to the needs of individuals and the whole class (Florian, 2012). Consequently, in the US and Europe, it is commonly accepted in the US and Europe that for inclusive practices to be effective, teachers must be able to provide instructional practices that are tailored to each student's special needs (Odom et al.; Watkins, 2012).

More precisely, individualized educational planning is needed for inclusive practice to support each student's learning and achievement, as opposed to teaching from the general curriculum. As a result, teachers should be willing to support all students and value the diversity of their learners (European Agency for Development in Special Needs Education, 2011). To meet learners' individual needs, differentiation and student interaction should be recognized as one of the key elements in shaping teacher competency in this regard (Perrenoud, 2008). Besides that, implementing inclusive practices frequently calls for inter- and intra-professional cooperation, which is still not consistently reflected in teacher training programmes or educational practices (Lütje-Klose & Urban, 2014). Therefore, incorporating differentiated learning should not be overlooked when working with SEN learners, as it is the way how to make the entire process more effective. According to Tomlinson (2014), teachers who differentiate are those providing a variety of learning options, and using a teaching approach, thus allowing the learner to use his or her senses.

Evidence-based studies show that teachers need to provide appropriate challenges for learners who are struggling to learn and those who are gifted (Ismajli & Imami-Morina, 2018). In addition, teachers who differentiate enable students to work collaboratively with peers, individualise instruction, use assessment to inform instruction and provide students with multiple ways to express what they have learned (Bryant, Maarouf, Burcham & Greer, 2016).

1.5. Differentiated instruction in teaching reading to SEN learners

Other studies in other countries have found that teachers' challenges in implementing differentiated instruction include time constraints, inability to cover content in the specified time, classroom space that is too compact to create learning centres and workstations, rigidity of the school timetable, how to link formative assessment to instruction, and lack of teaching materials (Aldossari, 2018; Bryant, Maarouf, Burcham & Greer, 2016; Ismajli & Imami-Morina, 2018).

Implementing differentiated instruction is particularly important when developing reading comprehension in students with learning disabilities. Reading as a process has been studied by psychologists, education scholars and linguists for decades, but reading as a skill has been overlooked. When investigating reading, the role of creativity needs to be considered as it represents a long-term process, that is dynamic and enables SEN learners to cope with problematic situations and produce solutions that are usually accompanied by innovative and effective ideas (Chvalova and Stranovska, 2019). In the last decades particularly mastering reading comprehension skill has been given great importance especially when working with individuals with special learning disabilities, who are presented with psychological deficits, which can hinder the process of reading comprehension. Besides these problems, including low self-esteem and anxiety, dyslexic and dysgraphic learners might struggle with cognitive issues such phonological processing difficulties, working memory limitations and attention problems which create significant barriers to understanding and interpreting foreign language text.

To lower the level of anxiety and heighten students' self-esteem teachers should possess positive personality traits,

such as a sense of confidence, trustworthiness and respect. This way they can create a supportive and engaging learning environment that promotes reading comprehension. Showing empathy and understanding students' individual needs and interests can help teachers tailor their instruction to better meet their requirements, thus leading to more successful learning outcomes (Stranovska, Chvalova, Poulikova, 2023).

Therefore, it is essential for teachers to explore the common interests of learners, familiarize themselves with the family environment, and actively listen to students to understand their intended messages. To support memory, concentration, perception and attention processes of SEN learners, it is recommended to use intervention and affective strategies which can be extremely beneficial for learners with dyslexia and dysgraphia. The following activities included in the Intervention Programme were carefully selected to cover a variety of texts suitable for developing the established predictors that influence reading comprehension among learners at an A2 proficiency level, specifically catering to the needs of lower secondary school students.

The following activities are recommended for classes with students with learning disabilities :

1. Attention and concentration: informative and private user texts: a leaflet, a poem, a letter;
2. Attention, concentration and memory processes: informative text: a recipe – instruction manual);
3. Perception and linguistic competence: informative science-popular text: blogs, journals;
4. Perception, cognitive structuring and linguistic competence; informative text: personal narratives, non-formal language use;
5. Perception, cognitive structuring and linguistic competence: personal narrative text: sharing life stories;

With appropriate instructions, applying these activities can support pupils with learning disabilities in developing their reading comprehension skills. Consequently, one lesson for a reading class is described.

Each lesson is comprised of three primary stages – an introductory pre-reading phase, a while-reading phase, and a post-reading phase. The introductory phase entails a warm-up activity, leads to stimulation of a selected predictor, and links language and cognitive processes. Moreover, it activates the affective level of experience by lowering anxiety in foreign language and supporting learners' engagement in reading the selected text. The purpose of the while-reading stage is to establish a connection between the task and the comprehension of the text, tailored to the learners' proficiency level. This stage gradually develops towards more complex processes. The final phase predominantly involves relaxation techniques, activities that facilitate the conclusion of the text's theme, and addressing emotional aspects. During this phase, students listen to music while reading a narrative or a short story in a foreign language. The primary objective of this stage is to create a serene atmosphere for learners, thereby aiding their comprehension of the foreign language text (Gadušová, 2020). One such activity involves sharing life stories, which can be particularly enriching as it showcases the journey of a learner with special educational needs (SEN) who has achieved success in life. These techniques are highly beneficial in enhancing resilience among SEN learners, enabling them to develop a greater sense of empathy towards others. Furthermore, these activities have the potential to boost their confidence and improve their reading comprehension skills, thereby enhancing their self-esteem.

One of the essential competencies that teachers must possess is the ability to effectively respond in challenging situations. The following guidelines should be considered when working with students who have dyslexia and dysgraphia (Vogelova, 2020):

- 1 It is crucial not to take any comments personally.
2. Maintain a professional approach in all interactions.
3. Develop proficiency in self-soothing techniques.
4. Refrain from reacting impulsively when feeling agitated.
7. Be aware of the learner's personality traits and show empathy towards them.
8. These regulations are equally applicable to parents of children.

Having this in mind, teachers should be more aware of the research into individual variables, which can bring new insights into teaching reading comprehension lessons. Studying learners' personality traits can reveal important findings and answers to questions related to students' emotional state and behaviour. After all, knowing our learners' personalities can help us interpret troublesome behaviour arising in different situations, thus giving us the advantage of differentiating students from each other (Phares, 1991). Furthermore, identifying actions or activities that trigger negative or positive emotions when reading a text can be enriching for creating further materials focused on reading comprehension techniques and strategies, which can support dyslexic students in the teaching process.

Z. Vogelova (2020) has proposed several strategies for working with dyslexic and dysgraphic students. These strategies include implementing the Pomodoro technique in English classes to enhance learners' concentration, implementing brain-gym exercises to improve attention and perception, and creating a classroom environment that students love. Additionally, allowing students to sit wherever they prefer, even if it means sitting on the floor, and encouraging them to create and adhere to their schedules based on allocated time can also be beneficial. Besides that, teachers are recommended to outline tasks for the learners to complete, while not forgetting about monitoring the progress of students on an individual basis. By adopting these strategies, educators can create an inclusive and supportive learning environment for dyslexic and dysgraphic students.

In addition to classroom management, teachers should take into account the following facts and strategies (Vogelova, 2020):

1. It is important to recognize that the brain can sometimes deceive us by giving a false signal that a student has learned something simply by looking at the text. This highlights the need for teachers to apply effective assessment methods to ensure genuine understanding and remembering of the material.

2. Encouraging students to discuss the recent subject matter in English with their parents or younger siblings can be a valuable learning strategy. By explaining concepts to others, students reinforce their understanding and gain new perspectives on the topic.

3. Designing tests that are based on the subject matter and the material studied can be an effective way to assess students' comprehension and fixation. This allows teachers to identify areas where further instruction or clarification may be needed.

4. Allowing students to explore their interests and satisfy curiosities by watching relevant videos on the internet can enhance their engagement with the text. This approach encourages independent learning and helps students make connections between the subject matter and real-world applications.

5. A useful technique for improving reading comprehension is to encourage students to underline only the keywords in the text. This helps them focus on the most important information and enhances their ability to extract meaning from the reading material.

6. Another effective strategy is to encourage learners to write down the key concepts they need to learn on slips of paper, thus enabling them to review and study these concepts independently, promoting active learning and retention.

7. It is crucial to support a habit of daily learning in students, immediately after class. By reviewing and consolidating what they have learned in school, students reinforce their understanding and improve long-term retention of the material.

8. Allowing students to create mind maps can be a valuable tool for organizing and visualizing their understanding of the subject matter. This visual representation helps students make association between different concepts and facilitates a deeper understanding of the material.

1.6. Affective Strategies Supporting Teachers for learners with SEN

By considering these facts and implementing these strategies, teachers can enhance the learning experience for their students and promote effective knowledge acquisition and retention.

Implementing the above-mentioned strategies can lead to enhancing engagement both in learners' and teachers' work in lessons. On the one hand, learners will be more eager to learn and communicate in the target language, on the other hand, teachers might feel more satisfied with their job, so they will be less likely to develop job burnout (Høigaard, R., Giske, R., & Sundsli, K., 2012). This also implies the fact, that teacher engagement is linked to better teacher performance and a greater commitment to the teaching profession (Bakker and Bal, Han et al., 2016). As a result, teacher outcomes including engagement, job satisfaction, well-being, self-efficacy, and quality of classroom instruction are related to teacher emotions (Burić & Macuka, 2018; Frenzel et al., 2015, 2016; Sutton & Wheatley, 2003). Besides that, these aspects are also associated with student outcomes such as student emotions, motivation, classroom discipline, behavior and academic performance, which might be often difficult to handle, especially by pre-service or novice teachers (Frenzel et al., 2018; Rodrigo-Ruiz, 2016; Sun & Leithwood, 2017). Consequently, teachers can only contribute to developing the reading comprehension skills of SEN learners, if they can control emotions themselves. They need to remain calm in challenging situations with dyslexic or dysgraphic learners, as they can easily get frustrated or anxious, when they are not able to understand the task or the text, they read. Therefore, teachers need to bear in mind that emotions can affect engagement and performance, and thus influence cognitive resources, motivation and self-regulatory processes.

Finally, selecting appropriate affective strategies that have an impact on the reading process can be seen as an important teacher's competence. It is their responsibility to establish a calming atmosphere reflecting an optimal mental state accompanied by a reasonable amount of challenges and risks when working with dyslexic and dysgraphic learners. Reading tasks tend to pose difficulties for these learners. Hence, teachers need to create a teaching environment that is free from fear and stress, allowing each learner to express their emotions and collaborate with others. There are numerous techniques available to help learners develop a positive mindset while reading and reduce their anxiety levels. One such technique is the emotional freedom technique (EFT), also known as tapping, which has been utilized for many years to address phobias (Petrasova, 2020, Stancekova, Chvalova, 2021). As a result, EFT could be used in experiential learning, thus contributing to enhancing learner confidence in a foreign language and lowering their level of anxiety (Craig, 2011).

Neurography is another method that has gained popularity in the past four years and could be used with SEN learners. It is a form of art therapy coined by Russian psychologist Piskarev (2020), which enables the individual to learn about inner problems while drawing simple shapes e.g. circles, triangles or figures. It is a creative approach helping students handle their emotions and relieve stress and tension.

One of the last strategies, pre-service teachers should be familiar with is fluency strategy, which often goes hand in hand with music. For the reluctant reader, music may play a crucial role in promoting fluency and it is an ideal tool for teaching not just receptive but also productive skills (Register, 2001). According to Davies (2000), there are many similarities between the development of musical skills and literary acquisition, making this the ideal combination for giving the student the most effective instruction. Music connects the left and right hemispheres, facilitating rapid and effective learning. This way any reading task is not only enjoyable, but it also motivates learners and lowers the level of affective filter and anxiety in learners.

2. CONCLUSIONS

Due to poor international assessment results (PISA, OECD), foreign language text comprehension has become a topical issue in scientific and professional fields. It is now perceived as an essential cognitive and speech capacity for individuals learning languages, not only in working life but also in daily situations.

Thanks to extensive research into the reading process, teachers have a good understanding of the processes involved in text comprehension. Furthermore, communication competence has become a topic of debate in applied linguistics, with differing perspectives on its nature and role in language comprehension. It is not only seen as the ability to use knowledge to construct meaning in language, but it is also underpinned by language proficiency, as well as other characteristics that influence language use.

When developing communicative language skills in students with learning disabilities, reading is seen as a process that is connected to the brain. This can be reflected through activities that engage learners' previous experiences and involve memory activities, which can lead to improving attention and perception. Dyslexic learners especially may be motivated by English words that overlap with Slovak.

Teachers must be familiar with specific learning disabilities such as dyslexia, and dysgraphia, which currently belong to the most common learning difficulties of SEN learners in Slovakia.

When working with learners with learning disabilities, teachers should not forget about providing dyslexic and dysgraphic learners with clear and concise instructions and breaking down tasks into manageable segments. They must strive for clarity and assistance and should always be available to address their exceptional learners with individual support.

The European Commission's policy places great importance on the professional competence and training of teachers. This is particularly important when it comes to working with students who have special needs. As a result, teachers should be trained to develop their professional competencies, when working with students with learning disabilities. Accordingly, the main emphasis is put on providing learners with clear and precise instruction tailored to meet learners' individual needs. Therefore, differentiated instruction and student interaction have become key elements in developing teacher competency. This includes inter- and intra-professional cooperation, implying teachers' willingness to support all students and respect their diverse needs. Teachers should therefore encourage students to be responsible for their learning and look for reading materials that align with their interests.

Furthermore, teachers should be trained in how to make use of effective teaching approaches such as the Pomodoro technique and brain-gym exercises, which are indispensable in teaching SEN learners. This and creating a classroom environment that students love can be effective in supporting learners with dyslexia and dysgraphia. In addition, teachers should be aware of students' personality traits and react appropriately in challenging situations.

Thus, creating a supportive and engaging learning environment is crucial for learners with learning disabilities. Being aware of individual variables can help teachers adapt their teaching modes in reading class to the needs of each student. The other aspect teachers need to consider is the impact of emotions on engagement and performance, as selecting the appropriate affecting strategies can positively influence the reading process for dyslexic and dysgraphic learners. From our teaching experience, the most effective strategies supporting emotional stability proved to be using art therapy and music, which can make reading tasks more enjoyable and reduce anxiety in learners.

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Disciplinary Literacy and Critical Thinking in the Context of Bilingual Education in Slovakia

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Abstract

This paper presents the project that is conducted in Slovakia as a response to European trends and teaching practice in the introduction of Content and Language Integrated Learning (CLIL) in lower and upper secondary levels of education, i.e. teaching non-linguistic subjects through a foreign language. The project looks at bilingual education from a different angle, not from the point of view of the development of language competences, but examines the impact of bilingual education on the acquisition of academic or disciplinary literacy, i.e. acquisition of domain-specific mental processes, knowledge, skills, relevant subject competences in dominant academic subjects (Mathematics, Biology, History, or in relevant educational areas in the context of the curriculum reform) and at the same time for the development of general domain mental processes reflected at the level of constructs of students' critical thinking. The main intention and contribution of the research is to clarify the mentioned relational ties. We expect that the findings will have a major impact on the creation of didactic guidelines in the field of CLIL and bilingual education at a national level. The project also presents a current stage of bilingual education and CLIL methodology in the Slovak Republic within the framework of participation in the European COST project CLILNetLE – Toward bi/multilingual disciplinary literacies.

Keywords: disciplinary literacy, critical thinking, bilingual education, COST CLILNetLE

1. INTRODUCTION

Content-and-Language-Integrated-Learning (CLIL) has emerged as a powerful pedagogical approach, involving the teaching of non-language subjects through a foreign language. Since its inception in the 1990s, CLIL has gained prominence, becoming a mandatory component of European education in certain contexts. EU language policy supports CLIL, aligning with the goal of fostering a Europe of multilingual citizens (European Parliament, 2021). CLIL not only enhances the foreign language proficiency of European school graduates but also equips them with professional language skills essential for future employment (Marsh & Frigols, 2007; Scott & Beadle, 2014). English often serves as the target language in CLIL due to its status as a lingua franca (Mauranen, 2012; Jeong, 2021). As CLIL becomes integrated into mainstream education, there is a pressing need to substantiate its benefits and its ability to accommodate diverse learners. While CLIL shares similarities with other forms of bilingual education, its distinctiveness lies in its "dual focus" on both content and language (Coyle et al., 2010). However, despite this emphasis on integration, many CLIL programs still struggle to fully integrate content and language teaching, materials,

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curricula, and assessment practices. Although early research predominantly viewed CLIL as a language teaching methodology and focused on language outcomes, recent scholarship emphasizes the importance of conceptualizing CLIL as integrated language and content learning (Nikula et al., 2016; Coyle, 2018). This shift underscores the significance of language use at the content-subject interface, emphasizing the acquisition of academic literacy—the ability to comprehend, analyze, and produce complex knowledge relevant to specific academic disciplines (McConachie & Petrosky, 2009). In this context, drawing on research from related pedagogical frameworks such as academic language and subject-specific language becomes essential. Such research highlights the developmental trajectories of students in mastering the language of instruction for subject-specific purposes, such as writing laboratory reports in chemistry and accessing subject-specific knowledge (de Oliveira, 2011; Uribe & Prediger, 2021). These skills are crucial for overall educational success (European Commission, 2012).

Furthermore, the study of multilingual students has led to the development of language-sensitive didactics for subject teaching, recognizing the unique learning trajectories and needs of students whose mother tongue differs from the language of instruction (Mercator Institute). This underscores the importance of catering to the linguistic diversity present in educational settings to ensure equitable access to quality education for all learners. However, the link between learning academic literacy in the main language of instruction and in the CLIL target language has not yet been systematically explored, and therefore pedagogical advice in this direction is limited. Across a growing body of CLIL research on disciplinary literacies, CLIL learners consistently demonstrate increased lexical gains compared to their non-CLIL comparison group. Several studies investigating the exact nature of such gains found that students in the CLIL group used subject-specific lexical and phraseological concepts with greater confidence (Gablasova 2014; Rieder-Bünemann et al. 2019). The research also identified the development and use of typical discourse patterns of specific school subjects, such as history or natural sciences (e.g. Evnitskaya & Morton 2011; Lorenzo 2017; Bieri 2018). Existing findings highlight that different school subjects have specific bilingual disciplinary literacies and would benefit from more subject-specific expertise input. Language learning research highlights the influence of out-of-school learning, especially through digital media (Sundqvist & Sylvén 2016), but this finding has been neglected in the context of disciplinary literacy/literacies so far. So there is no survey either. Nevertheless, there is a potential link between CLIL teaching and pan-European initiatives aimed at improving digital competence (e.g. the EU Science Centre's EU DigComp Framework). In addition, CLIL research has also developed conceptual tools for examining discourse patterns across subjects and levels. These include mainly the construction of cognitive discourse Functions, which describe recurring language patterns used in the classroom to verbalize the cognitive functions of the processes involved in learning subject content, e.g. defining or evaluating (Dalton-Puffer 2013). CLIL researchers have developed models to capture the developmental trajectory of specific subjects, discourse patterns that clearly state the relationship between content learning and language learning: e.g. specific discursive patterns (e.g. Whittaker et al. 2011; Hüttner & Smit 2018) and the Pluriliteracies Model (Coyle & Meyer 2021), which provide a broader framework. Taken together, these findings suggest that CLIL supports very specific aspects of integrated language and content learning, namely the ability to use a foreign language to produce texts (both spoken and written) that are appropriate for specific subjects. This ability will be labeled as bilingual disciplinary literacy, so as to capture their complementarity with existing and/or growing disciplinary literacy/literacies in the mother tongue and/or main language of education.

2. AUTHOR ARTWORK

Despite such a solid foundation, research in this area remains fragmented, mostly focusing on individual aspects of bilingual literacy. Furthermore, CLIL research is spread very unevenly across Europe, so there are few geographic/educational contexts that have explored this issue in depth and empirical evidence supporting existing models of bilingual academic literacy is limited. CLIL research on bilingual academic literacy at this point needs more systematic data on:

- a) patterns of trajectory use and learning in specific subjects and in relation to the learning of academic literacy in the mother tongue and,*
- b) application and critical evaluation of any of the proposed models.*

This is the only way to create a framework for the transformation of models into clear didactic guidelines. The stated intention requires the harmonization of professional knowledge in subject and language education.

2.1. State of the Art in Slovakia

The project Didactic effectiveness of the CLIL method in the 1st grade of elementary school in teaching foreign languages (Pokrivčáková, 2012) was a project that drew attention to the implementation of CLIL in the first grade of elementary school. The project found a positive impact of CLIL lessons on the development of communication skills in a foreign language, but the impact of CLIL lessons on overall knowledge in non-language subjects was not investigated. CLIL is mostly applied in Mathematics, Natural Science, Civics, Arts, PE and Music. Another project that verified the implementation of the CLIL Methodology in lower secondary education took place in 2013-2018 (Menzlová, 2020). 11 primary schools were involved, teaching CLIL in the subjects of Biology, Geography, Mathematics, ITC, History, Music, and Religious Studies. This project was aimed at verifying the improvement of communication skills in the target language. In the conclusions, an average improvement in communication skills was found: in receptive skills - in listening and reading comprehension, and from productive skills - in writing. Both projects investigated improvement in communication skills in the target language and increase in motivation. None of them dealt with the increase of knowledge in the content of education, or in the development of critical thinking. The initiators of the mentioned projects appealed to insufficient training of teachers for the preparation, planning and implementation of CLIL lessons.

2.2. Methodology of Planned Project in Slovakia

Bilingual education has a longstanding tradition in secondary education in Slovakia. Alongside mandatory language instruction, the cultivation of academic literacy commences in non-language subjects during lower secondary education, facilitated by the implementation of the Content and Language Integrated Learning (CLIL) methodology. While CLIL lessons are encouraged by school management and endorsed by authorities, the planning, material preparation, and execution often fall to individual teachers or a collaborative effort between an English language instructor and a subject teacher. However, there is currently a dearth of research within our locale that examines the impact of bilingual education on the acquisition of academic literacy and the specific mental processes—both domain-specific and domain-general—that develop within the instruction of particular subjects. Recognizing this gap in scientific understanding within the department of education and didactics, our research team has outlined the following objectives for our project:

- Define the framework and extent of bilingual education and the implementation of CLIL methodology at the secondary education level in Slovakia, within the context of state educational programs.
- Conceptualize the term disciplinary literacy and delineate its constructs across selected educational domains for lower and upper secondary education, aligning them closely with those defined by the European research community (as part of the international COST project).
- Utilize the conceptualization to adapt European assessment tools for measuring disciplinary literacy across chosen educational domains and subjects, modifying them to suit the languages utilized in bilingual education settings in Slovakia.
- Identify and adapt diagnostic instruments for measuring specific constructs of students' critical thinking, building upon existing conceptualizations of critical thinking.
- Assess the level of academic literacy and selected constructs of critical thinking among lower and upper secondary students, examining the impact of bilingual education and CLIL methodology on these constructs.
- Draw conclusions and analyze results for national purposes and for inclusion in international comparisons of academic literacy with a focus on bilingual education and CLIL methodology.
- Identify instances of good practice in the development of academic literacy through bilingual education and CLIL methodology at both lower and upper secondary levels, and disseminate these findings to educational institutions, as well as to the broader scientific and professional community.

2.3. Expected benefits

The key contribution of the project lies in its analysis of the impact of bilingual education on the acquisition of academic literacy in specific subjects such as Mathematics, Biology, and History, as well as on selected domain-general cognitive processes related to critical thinking. Currently, there is a lack of scientific understanding regarding the acquisition of disciplinary literacy in subjects taught in a language other than the student's mother tongue. The project aims to fill this gap by examining the relationship between bilingual education and academic literacy acquisition. The primary goal of the project is to elucidate the connections between bilingual education, disciplinary

literacy, and critical thinking skills within the specified subjects. The findings of this research are expected to have significant implications for the development of didactic guidelines in the field of Content and Language Integrated Learning (CLIL) education and bilingual education. Additionally, the project seeks to contribute to a national study on the implementation of bilingual education and the utilization of the CLIL methodology. Furthermore, it aims to participate in an international comparative study facilitated by the European project COST CLIL-NetLE (www.clilnetle.eu), in which the Slovak Republic is involved through the principal researcher and one co-researcher. This involvement will provide valuable insights into the global landscape of bilingual education and CLIL methodologies, fostering cross-cultural understanding and collaboration in educational research.

2.4. Project Timeline

In the initial year of our project, drawing from prior research endeavours such as those conducted by Pokrivčáková (2012) and the ŠPÚ (Menzlová, 2020), we aim to fill the existing gap by comprehensively examining the impact of the CLIL methodology on the development of selected language competences among students. While previous studies have shed some light on this matter, there remains a dearth of comprehensive research specifically addressing the state of bilingual education and the implementation of CLIL in secondary education in Slovakia.

During the initial phase (January 2024 – August 2024), our research team will diligently focus on delineating the framework and scope of bilingual education and CLIL methodology across lower and upper secondary education levels in Slovakia. We will employ primarily descriptive methodological procedures and exploratory research methods to thoroughly understand the current landscape. This phase will involve data collection from various educational institutions and stakeholders, as well as analysis of existing policies and practices. The expected timeframe for completing this phase spans the school years 2021/2022, 2022/2023, and 2023/2024.

Following this, in the second phase of our project (September 2024 – January 2025), our research endeavours will shift towards the conceptualization of academic literacy (also known as disciplinary literacy) and its corresponding construct levels. We will delve into defining and categorizing the essential components of academic literacy across different educational domains and subjects. This phase will involve a comprehensive literature review, consultations with experts, and the development of conceptual frameworks. By elucidating the concept of academic literacy, we aim to lay a solid foundation for subsequent phases of our research.

During the third phase of our project (February 2025 – August 2025), our primary focus will be on developing or adapting assessment tools to measure academic literacy within specific educational domains, including mathematics, information technology, humanities, and social sciences. These tools will be aligned with the state educational programs for both lower and upper secondary education levels. Additionally, we will create language variations of these tools and identify or adapt instruments to measure critical thinking constructs relevant to the respective age groups. Methodologically, our emphasis will be on conducting thorough content analysis and validating these tools to ensure their appropriateness for the intended purposes and age-specific contexts.

Moving forward to the fourth phase of our research (September 2025 – June 2026), our team will collect data to assess the level of academic literacy in mathematics, biology, and history across various educational domains. Concurrently, we will evaluate the level of critical thinking in selected constructs among students enrolled in bilingual education programs at elementary schools and bilingual grammar schools in Slovakia, comparing them with control groups. Subsequently, we will rigorously analyze and interpret the results obtained from these assessments.

Transitioning into the fifth phase (September 2026 – December 2026), we will draw comprehensive conclusions based on the findings, addressing both national objectives and the requirements of a European comparative study within the COST project. Our research design for this phase will be grounded in a relational framework, utilizing adapted assessment tools within the testing methodology. As part of our dissemination efforts, we will publish identified "examples of good practice," highlighting effective approaches to developing academic literacy through bilingual education and the CLIL methodology at both lower and upper secondary education levels.

3. PROJECT METHODOLOGY AND RESEARCH TEAM

The methodological procedures utilized in our research will primarily adopt a quantitative research design. In the initial stage, we will employ a descriptive methodological approach to assess the state of bilingual education and the implementation of the CLIL methodology in lower and upper secondary education settings in Slovakia. To achieve this, exploratory methods will be utilized, including structured and semi-structured interviews, questionnaires containing closed and semi-closed items, and scale items. Additionally, content analysis of school documents such as educational programs, annual reports, and other relevant sources of statistical data will be conducted.

During the conceptualization procedure, a combination of qualitative and quantitative content analyses will be employed, along with the creation of an overview study on the concept of disciplinary literacy. Furthermore, expert assessment and triangulation of the identified constructs will be utilized to ensure robustness and validity.

To identify disciplinary literacy and selected constructs of critical thinking, we plan to utilize tests such as the Watson-Glaser test (2000) and adapted tests of academic literacy post-validation process.

Our research sample in the first phase will consist of school managers from primary and grammar schools where the CLIL methodology is implemented and bilingual education is conducted. Subsequently, during the testing phase, a research group of pupils from primary and grammar schools, specifically selected years of bilingual grammar schools and gymnasiums with implemented CLIL methodology, will be created through deliberate selection.

In addition to qualitative document analysis, a deliberate selection of school documents and documentation, along with information sources published in selected scientific databases, will be utilized based on determined keywords related to academic literacy and critical thinking. Our focus will particularly be on selected educational areas, including the field of natural sciences, mathematics, work with information, and history.

The composition of our investigative team is meticulously designed to ensure comprehensive coverage and expertise across various disciplines relevant to the study of CLIL methodology and bilingual education. For the first time, our project systematically brings together researchers from different fields, thereby enhancing the depth and breadth of our investigation. Specifically, our team includes experts in foreign language didactics who have extensive experience in researching CLIL methodology, including participation in Erasmus projects. Their wealth of knowledge in this area ensures a nuanced understanding of language acquisition within the CLIL framework. Furthermore, we have members specializing in mathematics, biology, and history didactics. Many of them have been directly involved in curriculum reform efforts and have contributed to the creation of content and performance standards within their respective fields of education. Their expertise will be invaluable in assessing the impact of bilingual education and CLIL methodology on academic literacy across different subject areas. Additionally, our team comprises experts in pedagogical methodology and psychology. Their insights are crucial for comprehensively examining cognitive functions and academic literacy within the context of bilingual education. Their expertise will enable us to explore how CLIL methodology influences critical thinking skills and other cognitive processes essential for academic success.

In summary, the diverse composition of our investigative team ensures that we can approach the study of CLIL methodology and bilingual education from multiple perspectives, thereby enriching the depth and rigor of our research efforts. The paper concludes by reaffirming the significance of the proposed project in advancing our understanding of bilingual literacy and critical thinking in Slovak schools. It emphasizes the potential impact of the research on informing educational policies and practices, ultimately contributing to the enhancement of student learning outcomes in the country.

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Enhancing Learning through Digital Games: Exploring the Pedagogical Potential of DGBL

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Abstract

The paper provides a brief introduction to the topic of Digital Game-Based Learning and addresses relevant research within this area of research. Furthermore, we addressed potential benefits and pitfalls of Digital Game-Based Learning and provided the literature overview.

Keywords: Game, Gamification, literature review, learning, education

INTRODUCTION

Among many different implications the constant technological advancement has brought us, it has also changed the way we spend our leisure time. The current generation of children and teenagers might find more comfort in spending time at home as contrary to the previous generations, when technology was not as mainstream. Digitalisation is inevitable, and this trend is often associated with a negative bias. In this paper, we will describe terminology connected to digital game-based learning (DGBL) as well as explore research regarding this approach.

1. *Development of DGBL and description of basic terminology*

In the last decades, we observe a booming trend in digital gaming worldwide [1]. A survey on video gaming indicated that in chosen countries of Europe (Spain, France, Italy, the UK and Germany) 50% of participants declared playing video games [2]. Perhaps as a reflection to this ongoing trend, scholars have seen this as an opportunity to further delve into digital gaming and explore its potential across many different disciplines [1].

The first significant efforts to connect the use of digital games and learning, was carried out by [3, 4], even though the initial research started as soon as the end of 20th century [1]. Prensky in his other work [5] characterized the new generation of the children born in the 21st century as digital natives. The “digital natives” have known the sensation of solving their boredom or curiosity with the technology since their birth and got used to it (if not dependant), as opposed to the previous generation who were only acquainted to the technology gradually while it developed – “digital immigrants” [5]. Their efforts helped to open new approach to digital gaming and recognised it as one of the tools for learning, thus establishing Digital Game-Based Learning (hereinafter DGBL).

The term game refers to a play with specified rules, goals, and challenges mainly for the purpose of entertainment [6]. Game-based learning as such, enables the students to learn new terminology with immediate feedback of the knowledge acquired stemming from the interactive nature of the approach [7]. Game-Based learning can be perceived as achieving the determined learning outcomes through game content and play, while providing the learners a

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problem-solving space and challenges to overcome which may lead to a feeling of achievement [8]. In other words, Game-Based Learning is the adoption of games for educational purposes [9]. If we understand game-based learning as an educational approach or strategy, then serious games are its instrument.

The previous concept of game-based learning has been around for centuries but utilizing **video games in learning** has become particularly popular since the 2010s [10]. Sykes (2018) understood Digital Game-Based Learning (DGBL) as learning through applications which were designed to meet educational goals and achieve the desired educational outcomes. This kind of learning can also be considered as a method, which gives the students the opportunity to explore different parts of the game while at the same time developing their skills and expanding their knowledge [11].

Commonly associated with game-based learning, **the term gamification** could be easily misconceived for game-based learning. Defined as “the process of using gaming elements in non-game contexts”, gamification has been gaining more attention within the academic discourse mainly since the 2010s, even though this term was coined in 2008 [12]. Examples of game elements may include levels, points, badges, avatars, quests, social graphs, or certificates [13]. Gamification uses game elements such as the reward system to achieve results but combines it with the already existing training modules [9]. This methodology of using the game design elements and mechanics in activities that are not inherently game-based has been reported to provide extra motivation and engagement for the learners [14]. Therefore, game-based learning does not necessarily have to be connected to gamification.

Apart from game-based learning, Reinhardt & Sykes [15] also distinguished another term very closely connected: **game-enhanced learning**. Game-enhanced learning refers to the use of commercial off-the-shelf digital games (COTS), which are then utilized for learning [1]. In game enhanced learning, the researchers do not participate in the design of the game but shape their activities and techniques around the game. As COTS games are very popular among many students one can argue that the learning (conscious or sub-conscious) can still take place within their comfort zone.

2. Section Research in DGBL

Research reported effectiveness of DGBL in affective outcomes [16], and motivational outcomes [17]. Motivational outcomes are often characterized as a subcategory of affective outcomes [18], similar to the [19] taxonomy of educational objectives. Additionally, digital games create opportunities for intercultural learning [20], give the gaming participants the opportunity to engage in a diversity of spoken and written discourse [21], and access to authentic texts [15]. Digital games often strive to create a community of like-minded learners, where they can share their progress or achievements with friends [22–24], and simulate the social context [25]. Furthermore, Saprudin et al., [26] suggests utilizing DGBL in larger classes, as the academic achievement of students was notably higher than the achievement of the students within small classes.

Effective vocabulary acquisition facilitated by DGBL has proven useful in subjects such as physics [26], aviation [27] and language learning [28]. Many researchers agree that DGBL can be highly effective in vocabulary acquisition ([6, 29–35]. The learning process is taking place constantly while gaming [36], which means that the gamers will often not even notice that their knowledge is increasing.

Implementing DGBL in a real classroom requires a lot of thorough preparation, therefore the lack of knowledge on digital gaming may hinder its effectiveness [31]. Not all digital games are useful for learning and within those where the vocabulary acquisition is plausible, traditional techniques (such as pre-teaching vocabulary and dictionary work) would be recommended [33]. Additionally, Rasti-Behbahani & Shahbazi [37] suggested, that gender could play an important role as of the predictors of the success of DGBL and vocabulary acquisition. Furthermore, being immersed in the game itself does not always guarantee the gaming participant is immersed in the target learning topic [38], as this kind of immersion may bring additional cognitive load onto the students which may hinder their learning process [39].

CONCLUSION

In this paper, we discussed the terminology that is commonly used when discussing the topics of DGBL: Game, game-based learning, gamification, and game-enhanced learning. We took a closer look at research which has been conducted in within this topic. With the aid of a substantial amount of relevant research, our findings reveal that DGBL found positive effects in areas such as physics, aviation, or language learning, mainly connected to vocabulary acquisition. Additionally, we discussed the potential benefits and pitfalls of DGBL.

We believe that our research may serve as a review of available information of DGBL and be potentially used in other original research to deepen the knowledge regarding this approach. The limitation that needs to be

addressed is mainly the scope of the study and depth of information provided, as this study is only intended to introduce the topic of Digital Game-Based Learning.

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Quality Evaluation of College English Teaching in Applied Universities Based on Empirical Analysis

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Abstract

The segmentation of the quality assessment of college English teaching in Chinese applied undergraduate universities, problems in evaluating college English teaching quality in Chinese applied undergraduate universities are identified through questionnaire surveys and field visits to four applied colleges and universities in Wuhan. Through a combination of quantitative and qualitative analysis methods, a model for evaluating the teaching quality of English majors in Chinese applied undergraduate universities is constructed scientifically and rationally.

Keywords: Applied undergraduate university, college English, ; teaching quality

1. INTRODUCTION

1.1 Research background

1.1.1 Increasing demand for international language professionals in a globalized economy

Since the 21st century, mutual communication and interdependence among countries worldwide have deepened. Mastering the international standard language is necessary for national economic development, political communication, and cultural exchange. As a global language, trade language, and communication auxiliary language, English has been widely and deeply used in various fields such as science and technology, business, medical care, and sports. Foreign trade exchanges, international etiquette, letters and telegrams, import and export documents, and contract signing also use English as the standard common language. Therefore, English plays a vital role in the economy, politics, and culture of countries worldwide. The development of a country's language has become an essential means of promoting the soft power of that country, and the development of foreign language skills is an integral part of the development of a country's language and the ability to tell its story abroad (Jiang,2023) . Along with implementing China's "One Belt, One Road" strategy, English has become an important bridge to promote communication and cooperation between China and other countries, especially for English learners, which brings significant opportunities (Mao,2022) . In the context of the "One Belt, One Road" strategy, there is an increasing demand for talents with a certain level of English proficiency and professional skills in various industries,

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which requires higher education institutions to train talents who can not only master essential English communication but also be competent for jobs related to international exchange (Li,2022) .

1.1.2 The importance of college English teaching in cultivating the comprehensive quality of applied undergraduate talents

Since China's reform and opening up, public English in Chinese universities has been positioned as the primary English for "building a common core of language" (Li,2011) . Public English teaching helps students develop their thinking skills and learning abilities, integrate, process, and acquire multiple pieces of information in English, and enhance their intercultural awareness by setting tasks and creating realistic contexts (Yang,2015) . Therefore, the applied undergraduate public English course is not an insignificant public course but a compulsory course to enhance comprehensive ability. The deep integration of general English teaching and applied undergraduate education can improve the intercultural communication ability and awareness of applied undergraduate talents on the one hand and enhance students' professional and technical ability and social practice on the other.

1.2 Research Questions

1.The current status of Research on teaching quality evaluation was found through literature combing, and subdivisional research directions on the assessment of college English teaching quality in Chinese applied undergraduate universities were identified.

2.By conducting a questionnaire survey on four applied universities in Wuhan, China (with 200 questionnaires distributed, including 100 students, 52 teachers, 28 education experts, and 20 academic management personnel) and conducting on-site visits (with three teacher representatives, three education expert representatives, and three student representatives each), problems were identified in the evaluation of public English teaching quality in applied undergraduate universities in China.

3. Based on literature research and statistical surveys, a scientific and reasonable model for evaluating the teaching quality of English in Chinese applied undergraduate universities is constructed through quantitative analysis.

1.3 Research Objectives

With the deepening of economic globalization and the implementation of the "Belt and Road" strategy worldwide, the demand for applied English in various fields involved in current foreign trade is growing. Application-oriented undergraduate universities aim to cultivate high-quality, application-oriented talents with strong social adaptability and competitiveness. This study focuses on the quality of public English teaching in applied undergraduate universities, with the aim of comprehensively, objectively, and scientifically evaluating the teaching quality of general English in universities to ensure the achievement of educational goals, the improvement of academic quality, and the management of teaching effectiveness.

1. To study research directions for the quality of public English teaching in applied undergraduate universities in China based on Research on the current status of teaching quality evaluation.

2. To identify issues in evaluating public English teaching quality in applied undergraduate universities in China.

3. To explore constructing a Quality Evaluation Model for Public English Teaching in Chinese Applied Undergraduate Universities to evaluate the level of public English teaching in applied undergraduate universities in China.

2. LITERATURE REVIEW

2.1. Applied undergraduate universities and their characteristics

Higher education is divided into three levels: research-oriented universities, applied undergraduate universities, and skilled universities. It is proposed to vigorously develop application-oriented undergraduate education. Among the 1200 regular undergraduate universities in China, more than 600 will gradually transform into application-oriented undergraduate universities, and the transformed undergraduate universities will account for 50% of the total number of universities.

Firstly, research-oriented universities primarily focus on cultivating research-oriented talents, with scientific Research as the centre, possessing a deep reserve of professional theoretical knowledge, exploring and discovering new laws, and serving as a highland for academic innovation. In China, research universities are mainly distributed in 985 universities, 211 universities, or double first-class universities.

Secondly, application-oriented undergraduate universities are ordinary undergraduate universities that fall between research-oriented and skill-oriented universities. They generally refer to newly established undergraduate universities, some established undergraduate universities, and those under provincial vital levels. These universities mainly focus on professional construction, supplemented by disciplinary construction.

This article defines application-oriented undergraduate universities as universities that thoroughly learn, absorb and master existing theories, fully explore the applicability of theories, and effectively serve social development. Its most prominent feature is the emphasis on applying and practising theoretical knowledge. This theoretical knowledge must not be very advanced but reach a "sufficient" proficiency level.

2.2. College English

College English teaching is an organic component of higher education, and college English courses are compulsory for college students. College English is a teaching system guided by foreign language teaching theories, with English language knowledge and application skills, cross-cultural communication, and learning strategies as the main content, and integrating various teaching modes and methods such as computers and classroom teaching. The teaching goal of college English is to cultivate students' comprehensive English application abilities, especially their listening and speaking abilities, so they can effectively communicate in English in their future studies, work, and social interactions. At the same time, they can enhance their autonomous learning ability, improve their comprehensive cultural literacy, and adapt to the needs of China's social development and international exchanges.

2.3 Literature Review on Teaching Quality Assessment

Through extensive reading and extraction of literature, combined with the history of teaching quality evaluation, it was found that the United States was the earliest to propose a research topic on teaching quality evaluation. The United States and the United Kingdom have developed the fastest and most significant results in the Research of teaching quality evaluation systems. Currently, the systems are also relatively complete. In the 1990s, the United States emphasized the combination of educational goals, processes, and outcomes and began researching student satisfaction surveys, forming a systematic and reasonable evaluation model. In the 21st century, American scholars have developed multidimensional indicators to evaluate teaching quality, adding many new elements to the teaching evaluation system. China only began Research on teaching quality evaluation in the 1970s. Due to its late start, it can draw on many existing research results from abroad. Therefore, the development of teaching quality evaluation and Research in China is relatively rapid, but there is still room for improvement. At present, although the assessment of teaching quality in China is in the trial stage, the primary evaluation methods include student evaluation, leadership evaluation, peer evaluation, and self-evaluation. However, in the past decade, China has developed a large number of high-quality papers, including the construction of teaching evaluation systems and the application of quantitative research methods based on foreign teaching evaluation theories and China's teaching practices, and has initially formed theories and methods of teaching evaluation with Chinese characteristics. With the advent of the significant data era, more and more experts and scholars are calling for the integration of modern information technology and teaching evaluation, introducing extensive data analysis methods to quantitatively analyze statistical data so that teaching evaluation truly reflects the teaching level of teachers, and making the grading more detailed, rigorous, and scientific, to improve the accuracy of teaching evaluation.

2.4 Theory of Teaching Quality Evaluation

2.4.1 Behavioral goal oriented theory

Ralph, known as the "father of contemporary educational evaluation," first proposed the concept of "educational evaluation" in his famous "Eight Year Study" (1933-1940) report 《Smith Taylor Report》 (W. Tyler , 1969). He believes that "the process of educational evaluation is essentially the process of determining the degree to which the curriculum and syllabus achieve educational goals. This evaluation model is based on educational goals to determine the degree to which students' learning outcomes have earned educational goals. Tyler's behavioural

goal-oriented model mainly focuses on educational goals as the core of evaluation activities, believing that the essence of evaluation is to determine the process of achieving educational goals by implementing planned educational goals and determining the behavioural changes of people in the given target environment. Tyler attaches great importance to setting educational goals, believing that academic goals are the focus and key to evaluation. By setting goals for students, they can influence their actual behaviour and examine and find out whether the changes that occur through behaviour under these goals can achieve the existing effects and degrees. That is to say, using predetermined educational goals as a unified standard for evaluation to measure all established goals and ultimately selecting and testing the degree of achievement of predetermined goals in the evaluation results.

2.4.2 Student Effort Quality Theory

In 1982, C. Pace researched and developed the College Student Engagement Questionnaire (CSEQ), proposing the Quality of Student Effort theory and analyzing the factors affecting teaching effectiveness. He believes that the more time students invest in learning, the more knowledge they acquire. Instead, the more they can utilize the school's facilities and opportunities, the better they can achieve educational results. He emphasizes the importance of the teaching facilities, learning resources, and learning opportunities the school provides for teaching effectiveness (Yang,2013) .

2.4.3 Student Participation Theory

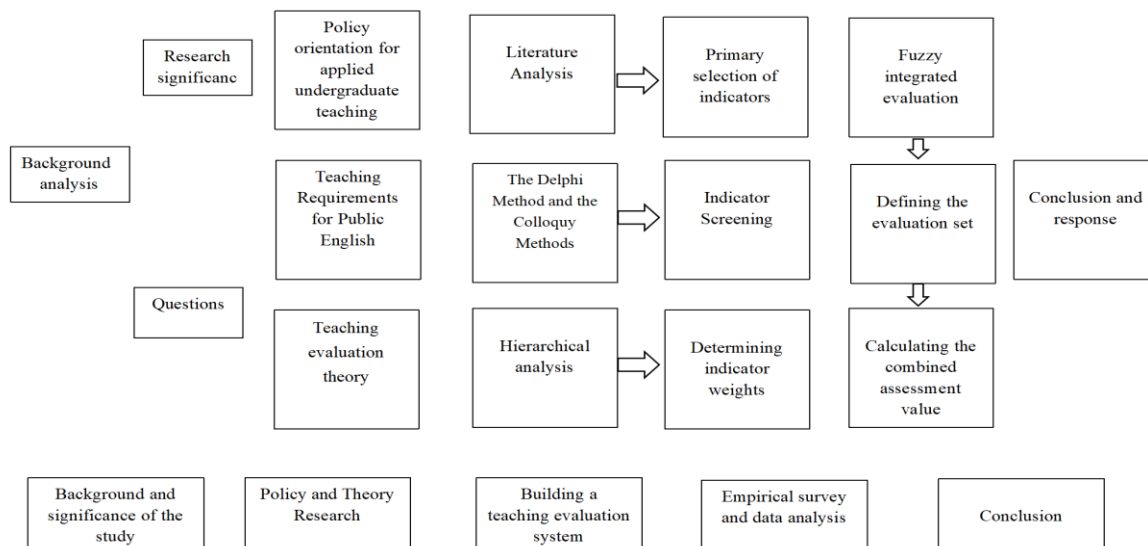
George D. Kuh proposed his understanding of student learning participation in 2006 based on previous Research. He believes learning participation is the interaction between students' efforts and the learning environment (Hu,2011) . Chinese scholars such as Su Hong and Zhang Jianshi believe (Su et al.,2007) that learning participation refers to the total amount of funds, time, and energy learners consume in the learning process. Wang Xuejian and Zhang Xiuli (Wang et al.,2011) defined learning participation from a psychological perspective, believing that learning participation is a positive and complete state that is related to learning and runs through the learning process. Professor Kong Qiping (Kong,2014) from East China Normal University believes that student learning participation refers to the interaction between individual engagement in the learning process and various elements in the teaching environment, mainly including three dimensions: cognitive participation, behavioural participation, and emotional participation. Whether in China or the United States, more and more scholars are paying more attention to the role of "students" in teaching. Therefore, the teaching evaluation process should highlight the importance of student evaluation.

2.5 Principles for determining the evaluation index system

A scientific and standardized teaching quality evaluation system is an important cornerstone to ensure the quality of education. Through evaluating teaching quality, teachers can summarize the experience and lessons of teaching work, and students can reflect on the shortcomings of their learning and life, forming a mechanism for supervision and urging, which is of great significance for future educational activities. Therefore, the evaluation index system for teaching quality public English courses in applied undergraduate universities must adhere to the six principles of value orientation, targeted evaluation, scientific comprehensiveness, combination of teaching, timely feedback, and work confidentiality.

2.6 Article framework

Figure 2-1 Article framework



This chapter analyzes the two concepts studied in this article ("Applied Undergraduate" and "College English") and one theory (Teaching et al.). This paper analyzes the orientation of application-oriented undergraduate college teaching from the perspective of China's macro policy, examines the teaching requirements of college English from the spirit of the document "China's College English Curriculum Requirements," and analyzes several points that should be paid attention to in teaching evaluation from the development of teaching evaluation theory. Furthermore, it is inferred that the research scope of this article is the evaluation of the teaching quality of college English in applied undergraduate universities rather than evaluating the teaching quality of professional English in research universities or higher vocational and technical schools. Then, based on the concept definition and theoretical support, this article proposes a theoretical analysis framework for evaluating the quality of college English teaching in applied undergraduate universities. This article points out the construction basis of the evaluation system for the quality of general English teaching in application-oriented undergraduate universities, which is guided by the needs of national college English application-oriented talents and starts from the positioning and teaching quality of school public English. Then, the architecture of the evaluation system was proposed, stating that the quality evaluation of general English teaching in applied undergraduate universities needs to form a multidimensional and comprehensive evaluation system that covers dimensions such as teaching attitude and ability, teaching content, teaching methods, teaching effectiveness, student evaluation, and teaching environment. At the end of this chapter, the entire article framework of this paper is proposed (as shown in Figure 2-1): The research problem is offered through the background and significance of the study, the scope of the study is proposed through policy and theoretical Research, the teaching evaluation system is constructed through the combination of quantitative and qualitative methods, the results of empirical analyses are obtained through the survey and statistics of questionnaire data on the teaching quality of college English at four applied undergraduate universities in Wuhan, and finally, the suggestions for improving the teaching quality of general English at applied undergraduate universities in China are put forward.

3. RESEARCH METHODOLOGY

3.1 Classification of Methods

1. Literature method. Collect sufficient literature on the teaching quality evaluation system and obtain as many factors as possible to evaluate teaching quality.

2. Delphi method. Also known as the "expert survey method," it was founded and implemented by the Rand Corporation in 1946. Essentially, it is an anonymous feedback inquiry method. The process involves obtaining expert opinions on the problem to be predicted, organizing, summarizing, and statistically analyzing it, then anonymously providing feedback to various experts, soliciting opinions again, concentrating, and providing feedback until a consensus is reached. The Delphi method optimizes and adjusts the factors for evaluating teaching quality.

3. Interview method. Interviews, also known as research-based conversations, collect objective and unbiased factual materials in oral form based on the interviewees' responses to accurately explain the population represented by the sample. The factors influencing teaching quality evaluation were optimized and adjusted through interviews with two representatives of frontline teachers, two current university students, and two education experts, considering their opinions.

4. Questionnaire method. The questionnaire survey method is one of the essential methods of empirical Research. Combined with M. Coldwell's classroom teaching design principle of "problem as the core, students as the main body, evaluation as the basis," this survey highlights the evaluation leading body status of "students," so the number of student surveys is the largest. Frontline teachers are the main body of teaching; on the one hand, they undertake the tasks set out in the syllabus; on the other hand, they understand the learning needs of the new generation of college students, so their opinions are critical, and their surveys are the second most important. Educational experts are professional people who study the results of teaching. However, their number is small; they usually have more in-depth insights into the factors affecting the quality of teaching. Academic administrators, teaching practice operators, and teaching and learning organizers must also be heard.

5. Analytic Hierarchy Process. AHP refers to a decision-making method that decomposes elements that are always related to decision-making into levels such as goals, criteria, and plans and conducts qualitative and quantitative analysis. By determining the hierarchical weights of each indicator in the college English teaching quality indicator system, the importance level of each level of indicator is reflected.

6. Fuzzy comprehensive evaluation method. This complete evaluation method transforms qualitative evaluation into quantitative evaluation based on the membership theory of fuzzy mathematics, which uses fuzzy mathematics to comprehensively evaluate things or objects constrained by multiple factors.

7. Case analysis method. A questionnaire to evaluate the teaching quality of college English in four applied undergraduate universities in Wuhan, through the college English teaching quality index system, combined with the hierarchical analysis method and fuzzy comprehensive evaluation method, to evaluate their teaching quality, analyze the teaching quality of college English in their institutions, and explore the shortcomings while summing up their successful experiences.

3.2 Technical Route for Building an Evaluation Indicator System

The idea of constructing an evaluation index system for the quality of public English teaching in application-oriented undergraduate universities is shown in Figure 3-1. From searching for literature based on previous teaching evaluations, the primary evaluation indicators are preliminarily organized and then determined through word frequency statistics and expert scoring. The secondary evaluation indicators are refined through interviews, field visits, literature, and other methods. Then, the secondary evaluation indicators are further screened through the Delphi method to build an evaluation indicator system for the quality of college English teaching in application-oriented undergraduate universities.

4. RESULT

4.1 Data Screening

4.1.1 First-level evaluation indicators of the quality of public English teaching

(1) Determination of first-level evaluation indicators

From CNKI, 15 articles with a high impact factor and the keyword "Chinese teaching quality evaluation" were chosen from 1989-2021, and the author sorted out the first-level evaluation indexes of these articles. The author conducts word frequency statistics for the keywords, as shown in Table 4-1.

Table 4-1 Keyword Frequency Statistics for Literature Level Indicators

	Teachers	Teaching and Learning condition	Teaching effect	Educational purpose	Student assessment	Teaching process	Teaching content	Teaching and Learning Methodology	Teaching Attitude and Competence
1	1	1	1	0	0	0	0	0	0
2	0	0	0	1	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	0	0	0	0	1	0	0	0	0
7	0	1	1	0	0	1	0	0	0
8	0	0	1	0	0	0	1	1	0
9	0	0	1	0	0	0	1	1	1
10	0	0	0	0	0	0	0	0	0
11	0	1	1	0	0	0	1	1	1
12	0	0	1	0	1	0	0	0	0
13	0	0	1	0	0	0	1	1	1
14	0	0	0	0	1	0	0	0	0
15	0	0	0	0	0	0	0	0	0
Total	1	3	7	1	3	1	4	4	3

By counting the keyword frequency of the first-level indicator keywords in China's teaching quality evaluation literature from 1989 to 2021, we found that the teaching effect appeared seven times with the highest frequency. Secondly, educational content and methods appear four times, followed by teaching conditions, teaching attitude and ability, and student evaluation three times. Other indicators such as teaching purpose, teaching staff, ideology, and politics are included in the review of China's education quality by some experts, while others are not, which indicates that there is no consensus on whether these indicators can accurately, scientifically and reasonably evaluate China's education quality. In contrast, indicators with high frequency, such as teaching effect, educational content, educational methods, teaching conditions, teaching attitudes, and students' evaluations, have been longstanding and, to some extent, recognized by most scholars; the author selects them as the first-level indicators for evaluating the quality of college English teaching in Chinese applied undergraduate universities.

4.1.2 Secondary Evaluation Indicators of the Quality of Public English Teaching

(1) Preliminary collation of second-level evaluation indicators

Through the expert interview method, literature method, and other methods, combined with the teaching characteristics of professionalism and applicability of college English in China's applied undergraduate universities, the author extends and deepens the second-level indicators based on the first-level indicators and preliminarily designs 30 second-level indicators (Tables 4-2).

Table 4-2 Keyword Frequency Statistics for Literature Level Indicators

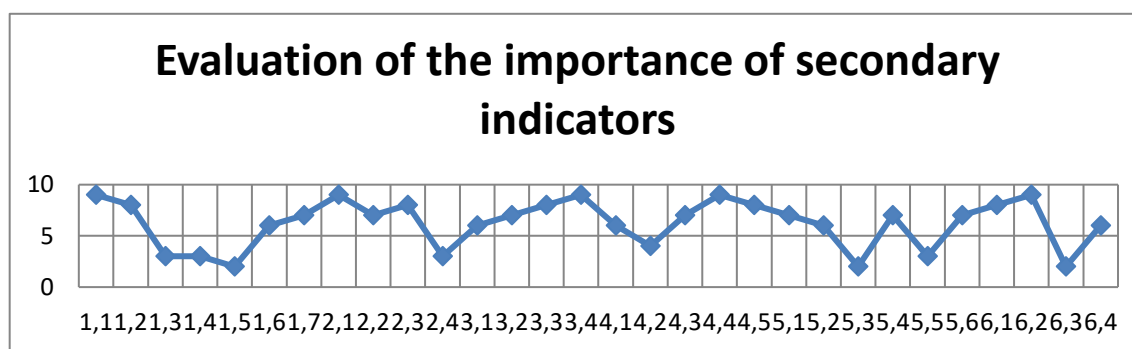
	Teachers	Teaching and Learning condition	Teaching effect	Educational purpose	Student assessment	Teaching process	Teaching content	Teaching and Learning Methodology	Teaching Attitude and Competence
1	1	1	1	0	0	0	0	0	0
2	0	0	0	1	0	0	0	0	0

3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	0	0	0	0	1	0	0	0	0
7	0	1	1	0	0	1	0	0	0
8	0	0	1	0	0	0	1	1	0
9	0	0	1	0	0	0	1	1	1
10	0	0	0	0	0	0	0	0	0
11	0	1	1	0	0	0	1	1	1
12	0	0	1	0	1	0	0	0	0
13	0	0	1	0	0	0	1	1	1
14	0	0	0	0	1	0	0	0	0
15	0	0	0	0	0	0	0	0	0
Total	1	3	7	1	3	1	4	4	3

(2) Determination of secondary evaluation indicators

Repeated exchanges with experts were conducted through the Delphi method to determine the final indicators. In the end, 22 important indicators were retained, and eight were discarded among the 30 secondary indicators. As shown in Table 4-3.

Table 4-3 Experts' assessment of the importance of secondary indicators



4.1.3 Descriptive introduction to the questionnaire

1. Questionnaire design and respondents

This study mainly adopts a questionnaire survey for data collection, and the target respondents are first-line teachers, university students, and academic staff who teach public English in four applied universities in Wuhan. The questionnaire adopts a matrix scale design, and four options are set under each module of teaching quality evaluation, which is "excellent," "good," "moderate," and "poor." "The higher the score, the higher the agreement of the respondents with the indexes of the options, which indicates the better the teaching quality under this dimension. This study used on-site and online questionnaires, inviting education experts, teaching staff, teachers, and students to complete the questionnaire with their experience. While distributing the questionnaire, the author broke the barriers of the previous purely expert survey and added the opinions of college students in addition to educational experts and frontline teachers when investigating the evaluation of teaching quality. Table 4-6 shows the questionnaires' distribution and recovery. 600 questionnaires were distributed, 591 were recovered; the recovery rate is 99%, and all the recovered questionnaires are valid.

Table 4-4 Statistics of Questionnaire Distribution and Return

Questionnaire Name	Questionnaire Distribution	Recovered Questionnaires	Recovery rate
Questionnaire for Evaluating the Quality of college English Teaching in Applied Undergraduate Universities	600	591	99%

2. Questionnaire statistics

This time, 600 questionnaires of "Questionnaire for Evaluation of the Quality of Public English Teaching in Applied Undergraduate Universities" were distributed in four applied undergraduate universities in Wuhan, and 591 valid questionnaires were recovered. One 156 were sent to frontline teachers, and 150 were recovered; 60 were sent to teaching staff, and 59 were recovered; 84 were sent to education experts, and 84 were recovered; 300 were sent to university students, and 298 were rescued.

4.2 Sample descriptive analysis

4.2.1 Determination of evaluation weights

The order of determining the weights of the public English teaching quality evaluation index system of applied undergraduate universities follows the steps of ranking the importance, constructing the judgement matrix, normalizing the process, finding the most significant characteristic root, conducting the consistency test, and determining the weights of the evaluation indexes at the first level.

4.2.1.1 Determining the weights of the first-level evaluation indicators

There are six dimensions in the first-level evaluation indexes, namely, teaching attitude and ability, teaching content, teaching method, teaching effect, student evaluation, and teaching environment, and the AHP hierarchical analysis is used to assign corresponding weights to each dimension here. The specific calculation process is given below.

1. Order of importance

Experts ranked the importance of the above six dimensional indicators through the Delphi method and obtained Table 4-5.

Table 4- 5 Order of Relative Importance

serial number	Category	Order of Importance
1	Teaching Attitudes and Competencies	5
2	Teaching content	3
3	Teaching Methods	1
4	Teaching Effect	6
5	Student Evaluation	4
6	Teaching Environment	2

2. Constructing the judgement matrix

The quantitative value of comparison between indicators is 1/2/3/4/5 from low to high, corresponding to equally important, slightly important, strongly important, and extremely important, respectively. Then, according to the scale method, two-by-two comparisons are made, and the judgement matrix of the first-level evaluation indicators is listed (as in Table 4-6).

4-6 Judgment Matrix for Tier 1 Evaluation Indicators

	Teaching Attitudes and	Teaching content	Teaching Methods	Teaching Effect	Student Evaluation	Teaching Environment
--	------------------------	------------------	------------------	-----------------	--------------------	----------------------

	Competencies					
Teaching Attitudes and Competencies	1.00	3.00	5.00	0.50	2.00	4.00
Teaching content	0.33	1.00	3.00	0.25	0.50	2.00
Teaching Methods	0.20	0.33	1.00	0.20	0.25	0.50
Teaching Effect	2.00	4.00	5.00	1.00	3.00	3.00
Student Evaluation	0.50	2.00	4.00	0.33	1.00	3.00
Teaching Environment	0.25	0.50	2.00	0.33	0.33	1.00

$$A_1 = \begin{bmatrix} 1.00 & 3.00 & 5.00 & 0.50 & 2.00 & 4.00 \\ 0.33 & 1.00 & 3.00 & 0.25 & 0.50 & 2.00 \\ 0.20 & 0.33 & 1.00 & 0.20 & 0.25 & 0.50 \\ 2.00 & 4.00 & 5.00 & 1.00 & 3.00 & 3.00 \\ 0.50 & 2.00 & 4.00 & 0.33 & 1.00 & 3.00 \\ 0.25 & 0.50 & 2.00 & 0.33 & 0.33 & 1.00 \end{bmatrix}$$

3. Normalization

Normalization by column vectors gives the matrix. Then, normalize by row vector to get the matrix.

$$B_1 = \begin{bmatrix} 0.23 & 0.28 & 0.25 & 0.19 & 0.28 & 0.30 \\ 0.08 & 0.09 & 0.15 & 0.10 & 0.07 & 0.15 \\ 0.05 & 0.03 & 0.05 & 0.08 & 0.04 & 0.04 \\ 0.47 & 0.37 & 0.25 & 0.38 & 0.42 & 0.22 \\ 0.12 & 0.18 & 0.20 & 0.13 & 0.14 & 0.22 \\ 0.06 & 0.05 & 0.10 & 0.13 & 0.05 & 0.07 \end{bmatrix}$$

$$W_1 = \begin{bmatrix} 0.26 \\ 0.11 \\ 0.05 \\ 0.35 \\ 0.17 \\ 0.08 \end{bmatrix}$$

4. Maximum Characteristics Root and Consistency Tests

$$A_1 W_1 = \begin{bmatrix} 1.00 & 3.00 & 5.00 & 0.50 & 2.00 & 4.00 \\ 0.33 & 1.00 & 3.00 & 0.25 & 0.50 & 2.00 \\ 0.20 & 0.33 & 1.00 & 0.20 & 0.25 & 0.50 \\ 2.00 & 4.00 & 5.00 & 1.00 & 3.00 & 3.00 \\ 0.50 & 2.00 & 4.00 & 0.33 & 1.00 & 3.00 \\ 0.25 & 0.50 & 2.00 & 0.33 & 0.33 & 1.00 \end{bmatrix} * \begin{bmatrix} 0.26 \\ 0.11 \\ 0.05 \\ 0.35 \\ 0.17 \\ 0.08 \end{bmatrix} = \begin{bmatrix} 1.61 \\ 0.65 \\ 0.28 \\ 2.24 \\ 1.03 \\ 0.46 \end{bmatrix}$$

5. Since $A_1 W_1 = \lambda W_1$, the maximum characteristic root of this matrix $\lambda = 6.21$. This matrix is of order 6, so $n = 6$.

$$CI = \frac{\lambda - n}{n - 1} = \frac{6.21 - 6}{6 - 1} = 0.04$$

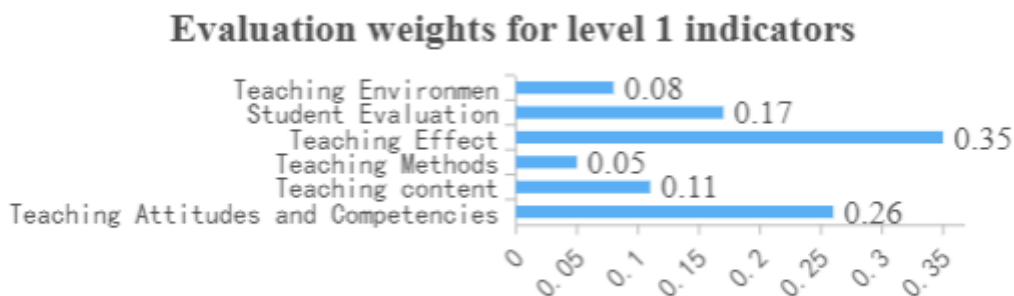
Based on the formula

$$CR = \frac{CI}{RI}$$

After checking the random consistency RI table, the 6th order RI value is 1.26, so $CR = 0.03$. $CR < 0.1$, it is considered that the consistency of this matrix is within the permissible range and meets the consistency test requirements.

6. Determination of evaluation indicator weights at the first level

Figure 4-7 Level 1 evaluation indicator weights



As seen in Table 4-7, the first level evaluation index with the most significant weight is teaching effectiveness, followed by teaching attitude and ability, and the tiniest weight is teaching method.

4.2.2 Determining the weights of second-level evaluation indicators

1. Order of importance

Experts rank the importance of the second-level evaluation indicators through the Delphi method and get Table 4-8.

Table 4-8 Order of importance of secondary evaluation indicators

Level 1 indicators	Serial number	Secondary indicators	importance
Teaching attitudes and competencies	1.1	Teachers are well-mannered, have a positive attitude and are active in the classroom	1
	1.2	Teachers treat each student fairly and objectively	2
	1.3	Teachers themselves have experience working in the post	4
	1.4	University teachers can be contacted at any time to help students with questions and concerns	3
Teaching content	2.1	Specialization of the content of the lessons	1
	2.2	Clarity of teaching objectives	2
	2.3	The content of the textbook is comprehensive	3
Teaching methods	3.1	Timely communication and exchange between teachers and students and frequent classroom interaction	1
	3.2	The classroom atmosphere is friendly and leads to collaboration and exploration	2
	3.3	Teaching methods are not based on indoctrination but on heuristics	3
	3.4	Teaching in a variety of formats, respecting the characteristics of individualized learning	4

Teaching Effect	4.1	The curriculum is engaging and stimulating	1
	4.2	Students will acquire suitable learning methods and study habits, and their overall ability will be significantly improved	2
	4.3	Ability to develop students' systematic English thinking	5
	4.4	Encourage participation and outstanding performance in English activities such as English skills competitions, conference interpreters, etc.	3
Student Evaluation	5.1	Students feel satisfied with the teacher's mental state during class	1
	5.2	Students look forward to every public English class	3
	5.3	Students will be able to build a systematic knowledge structure of English through teaching and learning	5
	5.4	Students are willing to take the initiative to communicate to the teacher about problems encountered in English learning and practice	4
Teaching Environment	6.1	Universities have the support of online environments for inquiry-based learning	1
	6.2	The University has a wealth of resources for learning English (online resources, library resources, photocopied materials, etc.)	3
	6.3	Universities have a more prosperous language environment (e.g. English speech contests, skills competitions, cultural events, etc.)	2

2. Constructing a judgement matrix

Taking the dimension of teaching attitude and ability as an example, the primary indicator of teaching attitude is divided into four secondary indicators, 1.1-1.4, and the specific calculation process is given below. For the convenience of tabulation, the serial number is temporarily used to replace the secondary evaluation indicators, so we get Table 4-9.

Table 4-9 Module Judgement Matrix for Teaching Attitudes and Competencies

	1.1	1.2	1.3	1.4
1.1	1.00	0.50	0.25	0.33
1.2	2.00	1.00	0.33	0.50
1.3	4.00	3.00	1.00	2.00
1.4	3.00	2.00	0.50	1.00

The matrix can be obtained from A_{21} ,

$$A_{21} = \begin{bmatrix} 1.00 & 0.50 & 0.25 & 0.33 \\ 2.00 & 1.00 & 0.33 & 0.50 \\ 4.00 & 3.00 & 1.00 & 2.00 \\ 3.00 & 2.00 & 0.55 & 1.00 \end{bmatrix}$$

3. Normalization

After normalization by column vectors, the matrix B_{21} is obtained, and then the row vectors of B_{21} are normalized to obtain the matrix W_{21} .

$$B_{21} = \begin{bmatrix} 0.10 & 0.08 & 0.12 & 0.09 \\ 0.20 & 0.15 & 0.16 & 0.13 \\ 0.40 & 0.46 & 0.48 & 0.52 \\ 0.30 & 0.31 & 0.24 & 0.26 \end{bmatrix}$$

$$W_{21} = \begin{bmatrix} 0.10 \\ 0.16 \\ 0.47 \\ 0.28 \end{bmatrix}$$

4. Maximum Characteristics Root and Consistency Tests

$$B_{21} * W_{21} = \begin{bmatrix} 0.10 & 0.08 & 0.12 & 0.09 \\ 0.20 & 0.15 & 0.16 & 0.13 \\ 0.40 & 0.46 & 0.48 & 0.52 \\ 0.30 & 0.31 & 0.24 & 0.26 \end{bmatrix} * \begin{bmatrix} 0.10 \\ 0.16 \\ 0.47 \\ 0.28 \end{bmatrix} = \begin{bmatrix} 0.39 \\ 0.65 \\ 1.89 \\ 1.12 \end{bmatrix}$$

Since $A_{21}W_{21} = \lambda W_{21}$, the maximum characteristic root of this matrix $\lambda = 4.03$. This matrix is of order 4, so $n = 4$.

$$CI = \frac{\lambda - n}{n - 1} = \frac{4.03 - 4}{4 - 1} = 0.01$$

Based on the formula

$$CR = \frac{CI}{RI}$$

After checking the random consistency RI table, the 4th order RI value is 1.24, so $CR = 0.01$; it is considered that the consistency of this matrix is within the permissible range and meets the consistency test requirements.

1. Consistency testing of other secondary evaluation indicators

In the same way, the consistency test is carried out on the secondary evaluation indicators of the five indicators of teaching content, teaching methods, teaching effectiveness, student evaluation and teaching environment, and the consistency test table is obtained (Tables 4-10). The table shows that the CR value of all the second-level evaluation indicators is less than 0.1, so the consistency of these matrices is within the permissible range and meets the consistency test requirements.

Table 4-10 Consistency test table

	Teaching content	Teaching Methods	Teaching Effect	Student Evaluation	Teaching Environment
λ	3.01	4.03	4.05	4.04	3.01
CI	0.00	0.01	0.02	0.01	0.00
RI	0.52	1.24	1.24	1.24	0.52
CR	0.01	0.01	0.01	0.01	0.01

5. Determine the relative weights of the secondary evaluation indicators

After analyzing the importance of ranking, constructing a judgement matrix, normalization, consistency test and other arithmetic processes, it is possible to determine the relative weights of the secondary evaluation indicators, as shown in Table 4-11.

Table 4-11 Relative weights of secondary evaluation indicators

Serial number	Content of secondary evaluation indicators	relative weight
1.1	Teachers are well-mannered, have a positive attitude and are active in the classroom	0.10
1.2	Teachers treat each student fairly and objectively	0.16

4.2.3	1.3	Teachers themselves have experience working in the post	0.47
	1.4	University teachers can be contacted at any time to help students with questions and concerns	0.28
	2.1	Specialization of the content of the lessons	0.16
	2.2	Clarity of teaching objectives	0.30
	2.3	The content of the textbook is comprehensive	0.54
	3.1	Timely communication and exchange between teachers and students and frequent classroom interaction	0.10
	3.2	The classroom atmosphere is friendly and leads to collaboration and exploration	0.16
	3.3	Teaching methods are not based on indoctrination but on heuristics	0.28
	3.4	Teaching in a variety of formats, respecting the characteristics of individualized learning	0.47
	4.1	The curriculum is engaging and stimulating	0.08
	4.2	Students will acquire suitable learning methods and study habits, and their overall ability will be significantly improved	0.14
	4.3	Ability to develop students' systematic English thinking	0.54
	4.4	Encourage participation and outstanding performance in English activities such as English skills competitions, conference interpreters, etc.	0.23
	5.1	Students feel satisfied with the teacher's mental state during class	0.07
	5.2	Students look forward to every public English class	0.15
	5.3	Students will be able to build a systematic knowledge	0.47
	5.4	Students are willing to take the initiative to communicate to the teacher about problems encountered in English learning and practice	0.31
	6.1	Universities have the support of online environments for inquiry-based learning	0.16
	6.2	The University has a wealth of resources for learning English (online resources, library resources, photocopied materials, etc.)	0.30
	6.3	Universities have a more prosperous language environment (e.g. English speech contests, skills competitions, cultural events, etc.)	0.54

Determining the weights of the evaluation index system

Eventually, the author summarises the results of each step and obtains the weighted system of evaluation indicators for public English teaching quality in applied undergraduate universities in Table 4-12. Among them, the weights of the second-level indicators are obtained by multiplying the corresponding weights of the first-level indicators based on the relative values calculated separately.

Table 4-12 Weights of the evaluation indicator system

Level 1 indicators	Level 1 evaluation indicator weights	Serial number	Secondary indicators	relative weight	absolute weight
Teaching	0.26	1.1	Teachers are well-mannered, have a positive attitude and are	0.10	0.02

attitudes and competencies			active in the classroom		
		1.2	Teachers treat each student fairly and objectively	0.16	0.04
		1.3	Teachers themselves have experience working in the post	0.47	0.12
		1.4	University teachers can be contacted at any time to help students with questions and concerns	0.28	0.07
Teaching content	0.11	2.1	Specialization of the content of the lessons	0.16	0.02
		2.2	Clarity of teaching objectives	0.30	0.03
		2.3	The content of the textbook is comprehensive	0.54	0.06
Teaching methods	0.05	3.1	Timely communication and exchange between teachers and students and frequent classroom interaction	0.10	0.01
		3.2	The classroom atmosphere is friendly and leads to collaboration and exploration	0.16	0.01
		3.3	Teaching methods are not based on indoctrination but on heuristics	0.28	0.01
		3.4	Teaching in a variety of formats, respecting the characteristics of individualized learning	0.47	0.02
Teaching Effect	0.35	4.1	The curriculum is engaging and stimulating	0.08	0.03
		4.2	Students will acquire suitable learning methods and study habits, and their overall ability will be significantly improved	0.14	0.05
		4.3	Ability to develop students' systematic English thinking	0.54	0.19
		4.4	Encourage participation and outstanding performance in English activities such as English skills competitions, conference interpreters, etc.	0.23	0.08
Student Evaluation	0.17	5.1	Students feel satisfied with the teacher's mental state during class	0.07	0.01
		5.2	Students look forward to every public English class	0.15	0.02
		5.3	Students will be able to build a systematic knowledge structure of English through teaching and learning	0.47	0.08
		5.4	Students are willing to take the initiative to communicate to the teacher about problems encountered in English learning and practice	0.31	0.05
Teaching Environment	0.08	6.1	Universities have the support of online environments for inquiry-based learning	0.16	0.01
		6.2	The University has a wealth of resources for learning English (online resources, library resources, photocopied materials, etc.)	0.30	0.02
		6.3	Universities have a more prosperous language environment (e.g. English speech contests, skills competitions, cultural events, etc.)	0.54	0.04

4.3 A Fuzzy Comprehensive Evaluation of Public English Teaching Quality

In the process of evaluating the quality of public English teaching in universities with applied undergraduate programmes, as the quality of education is reflected in the scores given by each rater, the raw data are subjective, so there will be a certain degree of ambiguity and uncertainty in the process of comprehensive evaluation, and the use of the fuzzy complete evaluation method can precisely use the vague language and tools of mathematics to solve this kind of problem. The idea is to establish four evaluation levels using semantic scales, formulate quantitative evaluation grading standards, and then calculate the comprehensive score according to the weighting system derived from AHP, corresponding to the corresponding level.

4.3.1 Identification of Evaluation Sets

The set of evaluation factors, i.e., the evaluation index system, is usually represented by U. In this paper, we use the semantic scale to classify the evaluation set into four levels: U=. This paper uses the semantic scale to

organize the review assigned into four levels: U=, divided into "good, medium and poor". The quantitative standard of evaluation set is shown in Table 4-13.

4-13 Quantitative criteria for evaluation sets

Evaluation Grade	Evaluation sets	value of a score
Excellent	u_1	$3 < x_i \leq 5$
Good	u_2	$2 < x_i \leq 3$
Medium	u_3	$1 < x_i \leq 2$
Poor	u_4	$0 \leq x_i \leq 1$

4.3.2 Application of Fuzzy Algorithms Based on Teaching Quality Evaluation System

The author studies the teaching quality evaluation of each module and the overall teaching quality evaluation of the public English evaluation session of the applied undergraduate University; the scores of each dimension of the questionnaire will be calculated, collated and summarised, respectively, combined with the fuzzy evaluation algorithm, the results of the fuzzy comprehensive evaluation of each index are obtained, and accordingly, the targeted opinions are given. Now, the questionnaire results will be counted to get the vote rate of each score segment of each secondary indicator.

The concept of fuzzy sets (fuzzy sets) was proposed in 1965 by Professor L. A. Zadeh, an American expert in automatic control, to express the uncertainty of things. As there are many reasons for the uncertainty of things, there are different kinds of fuzzy comprehensive evaluations of calculations to make diversified results predictions. Usually, there are three kinds, as shown in Table 4-14.

Table 4-14 Fuzzy Comprehensive Evaluation Calculations

Category	Algorithm	Meaning	Characteristics	Scope of application
Main Factor Determinant	$M(\vee, \wedge)$	take the minimum value take the maximum value	The outcome of the judgement depends on the factors that play a significant role in the overall evaluation.	For use in cases where a single judgement is optimal
Principal factor salient	$M(\cdot, \vee)$	Product Maximum	Highlighting main factors and taking into account others	For use in cases where a single judgement is optimal
Weighted Average	$M(\cdot, +)$	Multiply Add	Balanced balance of all factors according to weightings	Used in cases where the sum is required to be maximum

As the indicator system of this project is sound, the weight size of each indicator has been clarified, and it is a case of seeking the most significant sum of the whole; the algorithm of a fuzzy comprehensive evaluation of the weighted average type is to be selected. The evaluation results of the second-level indicators will be established as an evaluation set, and the data will be integrated into an affiliation matrix.

$$R = \begin{bmatrix} R_1 \\ R_2 \\ \vdots \\ R_i \end{bmatrix} = \begin{bmatrix} R_{11} & R_{12} & R_{1j} \\ R_{21} & R_{22} & R_{2j} \\ \vdots & \vdots & \vdots \\ R_{i2} & R_{i2} & R_{ij} \end{bmatrix}$$

Based on the scoring of the survey respondents, the matrix of $R_1, R_2 \dots R_6$ can be listed separately:

$$R_1 = \begin{bmatrix} 0.11 & 0.78 & 0.10 & 0.01 \\ 0.10 & 0.73 & 0.16 & 0.01 \\ 0.08 & 0.74 & 0.14 & 0.05 \\ 0.15 & 0.75 & 0.08 & 0.02 \end{bmatrix}$$

$$R_2 = \begin{bmatrix} 0.09 & 0.80 & 0.06 & 0.05 \\ 0.15 & 0.73 & 0.11 & 0.02 \\ 0.14 & 0.76 & 0.07 & 0.04 \end{bmatrix}$$

$$R_3 = \begin{bmatrix} 0.12 & 0.80 & 0.03 & 0.05 \\ 0.15 & 0.74 & 0.11 & 0.01 \\ 0.15 & 0.81 & 0.04 & 0.01 \\ 0.11 & 0.78 & 0.09 & 0.02 \end{bmatrix}$$

$$R_4 = \begin{bmatrix} 0.13 & 0.76 & 0.08 & 0.03 \\ 0.11 & 0.75 & 0.10 & 0.05 \\ 0.09 & 0.75 & 0.13 & 0.03 \\ 0.12 & 0.77 & 0.10 & 0.02 \end{bmatrix}$$

$$R_5 = \begin{bmatrix} 0.12 & 0.76 & 0.11 & 0.02 \\ 0.10 & 0.08 & 0.09 & 0.01 \\ 0.11 & 0.79 & 0.06 & 0.04 \\ 0.12 & 0.72 & 0.11 & 0.05 \end{bmatrix}$$

$$R_6 = \begin{bmatrix} 0.13 & 0.78 & 0.06 & 0.03 \\ 0.12 & 0.72 & 0.12 & 0.04 \\ 0.12 & 0.80 & 0.06 & 0.03 \end{bmatrix}$$

According to Table 4-17 Fuzzy Comprehensive Evaluation Calculations, the final summary is the evaluation matrix according to the weighted average algorithm R' .

$$R'_1 = W_{21} * R_1$$

$$=[0.02 \quad 0.04 \quad 0.12 \quad 0.07] \cdot \begin{bmatrix} 0.11 & 0.78 & 0.10 & 0.01 \\ 0.10 & 0.73 & 0.16 & 0.01 \\ 0.08 & 0.74 & 0.14 & 0.05 \\ 0.15 & 0.75 & 0.08 & 0.02 \end{bmatrix}$$

$$=[0.027 \quad 0.019 \quad 0.031 \quad 0.007]$$

$$R'_2 = W_{22} * R_2$$

$$=[0.02 \quad 0.03 \quad 0.06] \cdot \begin{bmatrix} 0.09 & 0.80 & 0.06 & 0.05 \\ 0.15 & 0.73 & 0.11 & 0.02 \\ 0.14 & 0.76 & 0.07 & 0.04 \end{bmatrix}$$

$$=[0.016 \quad 0.092 \quad 0.008 \quad 0.004]$$

$$R'_3 = W_{23} * R_3$$

$$=[0.01 \quad 0.01 \quad 0.01 \quad 0.02] \cdot \begin{bmatrix} 0.12 & 0.80 & 0.03 & 0.05 \\ 0.15 & 0.74 & 0.11 & 0.01 \\ 0.15 & 0.81 & 0.04 & 0.01 \\ 0.11 & 0.78 & 0.09 & 0.02 \end{bmatrix}$$

$$=[0.008 \quad 0.044 \quad 0.044 \quad 0.001]$$

$$R'_4 = W_{24} * R_4$$

$$=[0.03 \quad 0.05 \quad 0.19 \quad 0.08] \cdot \begin{bmatrix} 0.13 & 0.76 & 0.08 & 0.03 \\ 0.11 & 0.75 & 0.10 & 0.05 \\ 0.09 & 0.75 & 0.13 & 0.03 \\ 0.12 & 0.77 & 0.10 & 0.02 \end{bmatrix}$$

$$=[0.038 \quad 0.265 \quad 0.037 \quad 0.012]$$

$$\begin{aligned}
 R'_5 &= W_{24} * R_5 \\
 &= [0.01 \quad 0.02 \quad 0.08 \quad 0.05] \cdot \begin{bmatrix} 0.12 & 0.76 & 0.11 & 0.02 \\ 0.10 & 0.08 & 0.09 & 0.01 \\ 0.11 & 0.79 & 0.06 & 0.04 \\ 0.12 & 0.72 & 0.11 & 0.05 \end{bmatrix} \\
 &= [0.018 \quad 0.130 \quad 0.014 \quad 0.004] \\
 R'_6 &= W_{24} * R_6 \\
 &= [0.01 \quad 0.02 \quad 0.04] \cdot \begin{bmatrix} 0.13 & 0.78 & 0.06 & 0.03 \\ 0.12 & 0.72 & 0.12 & 0.04 \\ 0.12 & 0.80 & 0.06 & 0.03 \end{bmatrix} \\
 &= [0.009 \quad 0.048 \quad 0.006 \quad 0.003] \\
 \text{result } R' &= \begin{bmatrix} 0.027 & 0.019 & 0.031 & 0.007 \\ 0.016 & 0.092 & 0.008 & 0.004 \\ 0.008 & 0.044 & 0.044 & 0.001 \\ 0.038 & 0.265 & 0.037 & 0.012 \\ 0.018 & 0.130 & 0.014 & 0.004 \\ 0.009 & 0.048 & 0.006 & 0.003 \end{bmatrix}
 \end{aligned}$$

Finally, the final score C for the evaluation of teaching quality is determined according to the weighted average principle, based on the weighted average formula

$$C = \frac{\sum_{i=1}^n R'_i W_i}{\sum_{i=1}^n W_i}$$

so

$$\begin{aligned}
 c_1 &= \frac{(0.027, 0.019, 0.031, 0.007) \cdot (1, 2, 3, 5)}{0.027 + 0.019 + 0.031 + 0.007} = 0.77 \\
 c_2 &= \frac{(0.014, 0.080, 0.008, 0.004) \cdot (1, 2, 3, 5)}{0.014 + 0.080 + 0.008 + 0.004} = 0.33 \\
 c_3 &= \frac{(0.007, 0.044, 0.044, 0.001) \cdot (1, 2, 3, 5)}{0.007 + 0.044 + 0.044 + 0.001} = 0.18 \\
 c_4 &= \frac{(0.036, 0.266, 0.040, 0.009) \cdot (1, 2, 3, 5)}{0.036 + 0.266 + 0.040 + 0.009} = 1.07 \\
 c_5 &= \frac{(0.019, 0.127, 0.014, 0.006) \cdot (1, 2, 3, 5)}{0.019 + 0.127 + 0.014 + 0.006} = 0.51 \\
 c_6 &= \frac{(0.009, 0.059, 0.006, 0.002) \cdot (1, 2, 3, 5)}{0.009 + 0.059 + 0.006 + 0.002} = 0.23
 \end{aligned}$$

$$C = \sum_{i=1}^6 c_i = 0.77 + 0.33 + 0.18 + 1.07 + 0.51 + 0.23 = 3.09$$

The final C is 3.09, which is "good" according to the quantitative criteria of the evaluation set. Therefore, the last comprehensive evaluation of the quality of public English teaching in applied universities is "good".

5. DISCUSSION AND SUGGESTION

5.1 Discussion

Through the analysis of the application of the evaluation index system of public English teaching quality in applied undergraduate universities in Chapter 4, it is concluded that the overall quality of general English teaching in applied undergraduate universities in China is in the "good" category. The evaluation scores of the quality of public English teaching in applied undergraduate universities are summarised in Table 5-1.

Table 5-1 Evaluation scores of public English teaching quality in applied undergraduate universities

Level 1 evaluation	Level 1 evaluation	Level 1	serial	Relative	Level 2
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indicators	indicator weights	Evaluation Indicator Score	number	weight	Evaluation Indicator Score
Teaching Attitudes and Competencies	0.26	3.03	1.1	0.10	3.10
			1.2	0.16	3.03
			1.3	0.47	2.92
			1.4	0.28	3.19
Teaching content	0.11	3.12	2.1	0.16	3.03
			2.2	0.30	3.16
			2.3	0.54	3.13
Teaching Methods	0.05	3.15	3.1	0.10	3.12
			3.2	0.16	3.17
			3.3	0.28	3.26
			3.4	0.47	3.08
Teaching Effect	0.35	3.04	4.1	0.08	3.13
			4.2	0.14	3.02
			4.3	0.54	3.00
			4.4	0.23	3.12
Student Evaluation	0.17	3.07	5.1	0.07	3.11
			5.2	0.15	3.09
			5.3	0.47	3.09
			5.4	0.31	3.03
Teaching Environment	0.08	3.11	6.1	0.16	3.15
			6.2	0.30	3.05
			6.3	0.54	3.13

Since the range of scoring in this study is between [1-5], the difference in the resultant scores is minimal. Although the scores of the six modules of teaching attitude and ability, teaching content, teaching method, teaching effect, student evaluation, and teaching environment are between [3, 3.15], neither medium nor excellent, and the scores are all "good," which indicates that teachers and students have recognized the quality of public English teaching in universities with applied undergraduate programs in general, the teaching effect has room for further improvement. This indicates that teachers and students generally recognize the quality of public English teaching in applied undergraduate universities, but there is still room for further improvement in teaching effectiveness. Using the idea of dichotomy, with 3.10 as the dividing line, the scores of the three dimensions of teaching content, teaching method, and teaching environment are all greater than 3.10, indicating that teachers and students highly recognize the teaching quality of these three dimensions. In contrast, identifying the three dimensions of teaching attitude and competence, teaching effect, and students' evaluation is relatively lower.

5.2 Suggestion

1. In terms of weighting coefficients. The first-level evaluation indicators of teaching attitude and ability, conducting effectiveness, and student evaluation, which have a significant impact, should be given high priority. Teaching content, teaching effectiveness, and student evaluation are the first level of evaluation indicators; although less important than other indicators, we must pay attention to them. These six evaluation indicators are a whole, so each should be paid attention to.
2. From the evaluation results. The parts that scored better (such as teaching content, teaching methods, and teaching environment) should summarise their experiences to maintain high-quality teaching. The indicators that scored lower in the evaluation (e.g., teaching attitude and ability, teaching effectiveness, and student evaluation) should be reflected upon to explore higher-quality work methods.
3. As for teaching attitude and ability, universities with applied undergraduate programs should bring in more teachers with experience in the English language industry who can teach professional theoretical courses and

instruct students in English practice. Teachers should have an optimistic attitude and a good mental outlook, make a good teaching plan in advance, and prepare the lessons carefully. Secondly, they should have a correct teaching attitude, pay attention to the teaching of students according to their abilities, and treat every student equally. Finally, they should communicate more with students to improve the timeliness of feedback.

4. As far as teaching content is concerned, applied undergraduate universities should adhere to the English Teaching Guide for Chinese Universities as an outline, set targeted teaching objectives, and develop public English lectures and courses with professional characteristics to satisfy the learning needs of students of different majors and levels of general English.

5. As for the teaching methods, the combination of lecture and practice should be carried out throughout the teaching process of public English in undergraduate applied universities, and highly efficient teachers should constantly and flexibly adjust the teaching methods to make the courses more attractive, and at the same time reasonably arrange the class time to ensure the appropriate progress. As an essential educational indicator, Enlightenment is an important and indispensable factor in teaching. Through the teacher's guidance, the ultimate goal is to let students form the habit and ability of thinking in English.

6. For teaching effectiveness, as the saying goes, "Interest is the best teacher." Efficient teachers should explore the core charm of English culture, highlight the practical role of English in the industry, increase the infectiousness of the content of the lectures, focus on cultivating students' interest, strengthen the identity of the core values of English culture, and encourage the practice of English, to develop students' English thinking.

7. For student evaluation, schools should pay attention to the importance of student evaluation, understand the real needs of students in learning English, and incorporate students' needs into the teaching content and objectives to improve the quality of teaching. In addition, students should respect their teachers, maintain a certain degree of independent thinking and innovative spirit, listen to the teacher's arrangements, communicate with the teacher, develop good study habits while acquiring professional knowledge, and seriously discuss and interact with their teachers and classmates.

8. For the teaching environment, it is necessary to give full play to the institutional advantages of China's applied universities, to continuously invest funds, improve the campus network infrastructure, introduce richer teaching resources, and create a more prosperous English practice environment, so that college students can find opportunities to practice English in this in both the virtual network world and the actual real world, to improve their English proficiency.

9. University teachers and students should keep a heart full of enthusiasm, from self-improvement to collective improvement, from quantitative change to qualitative change, multiple linkages, and joint efforts to improve teaching quality. The applied undergraduate university is a base for cultivating applied talents, especially after China's strong support for applied undergraduate policies; applied undergraduate universities are the leading force in the higher education stage of the task, and there is a long way to go. Applied undergraduate universities should keep pace with the development of the times, continue to research and explore, and establish a sound teaching quality evaluation system and feedback mechanism to match the high quality of teaching activities.

5.3 Conclusions

Aiming at the segmentation of public English teaching quality assessment in Chinese applied undergraduate universities, this paper summarises the problems in evaluating public English teaching quality in Chinese applied undergraduate universities through questionnaire surveys and field visits to four applied colleges and universities in Wuhan. To address the problem, based on reviewing a large amount of literature and combining the teaching characteristics of public English in Chinese applied undergraduate universities, the questionnaire survey method, the Delphi method, hierarchical analysis, fuzzy comprehensive evaluation, and other methods were used to construct the evaluation system of the teaching quality of public English in Chinese applied undergraduate universities. Then, using quantitative and qualitative analysis methods, a teaching quality evaluation model of English majors in Chinese applied undergraduate universities is scientifically and reasonably constructed. Finally, based on the empirical study, the conclusion of this paper is put forward, that is, to improve the teaching quality of English majors in China's applied undergraduate universities; the following points should be achieved: 1) College teachers should have a good spirit, focus on teaching according to the student's abilities, and communicate with them promptly. 2) Teaching researchers and developers should develop public English lectures and curricula with characteristics of the applied undergraduate majors. 3) Teachers should use the combination of lecturing and practising to inspire the students' English thinking and encourage the practice of English in professional skills. 4) Teachers should strengthen their recognition of the core values of English culture to understand better and practice

the expression of the English way. 5) Students should cultivate good study habits while learning professional skills and discussing and interacting seriously with their teachers and classmates. 6) The university should improve the infrastructure of the campus network and provide more resources for English teaching and learning.

5.4 Innovations

There are three main innovations in this paper. First, the previous teaching quality evaluation was mainly centred on teachers' teaching, and the evaluation index was relatively fixed and single. This paper, for the first time, joined the students to participate in influencing factors indicators, constructed including teaching attitude and ability, teaching content, teaching methods, teaching effect, student evaluation, teaching environment, six aspects of the construction of a new, complete, diversified comprehensive evaluation index system, comprehensively reflecting the status quo of the quality of public English teaching in the applied undergraduate universities, and a thorough assessment.

Secondly, previous teaching quality evaluation has primarily stayed in the construction of theories and has yet to specifically analyze the quality of public English teaching in applied undergraduate universities. Applied undergraduate universities are an integral part of higher education with Chinese characteristics, and applied undergraduate universities account for 50% of the total number of Chinese colleges and universities. The undergraduate graduates of applied colleges and universities account for more than 80% of the undergraduate graduates of colleges and universities every year. While the world's scientific and educational communities are concerned about the teaching quality of China's 211/985 high-level universities, scientific and comprehensive evaluation of the teaching level of applied undergraduate universities can help to objectively understand the overall level of China's higher education development, and provide references for better talent cultivation and discipline construction.

Thirdly, the combination of hierarchical analysis and fuzzy evaluation method and its introduction to the evaluation of public English teaching in applied undergraduate universities eliminates the subjectivity of the evaluation process and improves the scientificity of data reasoning. In addition, not only was the expert questionnaire used in determining the evaluation set, but students were also encouraged to participate, and student evaluations were included in the evaluation index system, making the evaluation results more comprehensive and objective.

Limitations

Of course, there are shortcomings in this paper. First, there are limitations to the questionnaire survey. In this study, the questionnaire survey is carried out throughout the process of determining evaluation indexes, inviting evaluators to score, etc. Although the authenticity of the data is guaranteed, the data from the questionnaire survey is less due to the time urgency and the single target of the survey, which cannot comprehensively cover more provinces of the country's applied universities. Therefore, in future research, the researcher should prepare enough time to expand the scope of questionnaire distribution, take probability sampling, and other ways to distribute and recover the questionnaire to improve the comprehensiveness of the data. Secondly, although this paper eliminates a particular influence of subjectivity in formulating the weights of evaluation indexes, it still cannot guarantee complete objectivity. Suppose we want to approach objectivity without limit. In that case, we need to consider more factors, such as the evaluator's occupation, interpersonal relationship, etc., and the subsequent research needs to continuously explore a more comprehensive and complete evaluation system. Under the leadership of the strategy of strengthening the country with talent, China's teaching evaluation system will continue to be improved. The level of education will be raised to a higher level to cultivate more talents with both applied knowledge and English proficiency for the in-depth promotion and implementation of the strategy of "One Belt, One Road."

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The Importance of Linguistic Typology in Language, Culture and Communication

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Abstract

The study of linguistic typology is concerned with grouping languages based on similarities and external structural similarities, then grouping them into different structural types. It begins with the attention of language scientists and researchers to the diversity of linguistic features that can be compared and differentiated, then grouped based on similarities that can be observed. Universal language and universal grammar are two terms that are often mentioned and associated with linguistic typology. Theoretically, all natural human languages can and may be grouped into one group because genetically and in their physical form, the languages on earth have universal characteristics as the basis for the formation of language, in addition to having special characteristics that give rise to more than seven thousand recorded human languages. In the study, we tried to find out the importance of Linguistic Typology in language, culture and communication. Briefly, functional typology attempts to compare and group languages based on how the language functions as a means of communication, not based on its outward grammatical structure. However, grammatical construction and various grammatical features in human language are still used as the basis for its study.

Keywords: Linguistic Typology, Culture, Communication, Language Education

1. INTRODUCTION

Language is a natural phenomenon that plays a very important role in human life. Language exists because human exist, and human become humans because there is language. Observers and linguists, including humans in general, have come to understand that language is a natural phenomenon very closely related to humans. Man's close relationship with language means that some people do not see language as something strange. In fact, there are ordinary people who think that language no longer needs to be questioned because it is not something strange. Language is quite common and is a part of human life in daily life. This is probably why ordinary people do not care much about the uniqueness and magic of language, just as they do not care about the presence of stones and pebbles on riverbanks. On the other hand, observers and linguists actually "dedicate" all their attention and research powers to revealing the nature of language. They are acutely aware that language is a humanizing phenomenon. Without human language, it would be very difficult to function as the main creature in this world. In this context, since the development of human thought and culture, language observers have questioned and continue to question what language is. This simple question persists to this day and is a "trigger" for linguists to study language from a variety of perspectives, based on a variety of frameworks of thought and goals. However, everything they do focuses on answering the question: What is language?

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2. LANGUAGE AND CULTURE

The nature of language is so vast and complicated that it is impossible for the study of language to contain everything about the nature of that language. Among many things, the close relationship between language and culture is an important "link" that makes language very close to human life, the owners and speakers of the language itself. Apart from being an important element of culture, language is also a conveyor and vehicle for communication of cultural items themselves and culture exists and develops with the help of language (Duranti, 1997; Foley, 1997). In fact, as stated, philosophically, language can be a symbol and identity of its speakers, both individually and in groups. Observers and linguists no longer question the close relationship between language and culture. Both have a complex and systematic reciprocal relationship along with the development of human life (Artawa, 2005; Jufrizal et al., 2008). Duranti (1997), who stated that language is the most flexible, intelligent and most powerful tool developed by humans as their human culture, expressed the close relationship between language and the culture of its speakers, among other things. Language exists because there are humans, and humans are capable of exercising creativity and initiative in improving their lives in the form of cultural tools that enable them to continue to develop throughout time.

Language can replace direct physical action through understandable speech devices. Language, as the most powerful tool for conveying messages, allows humans to interpret the world and express the natural surroundings in the form of systematic speech and convey it to other people who are their speech partners. Systematic speech as a form of language implies that language is not born just like that and without rules. Language has grammar and usage that is adhered to collectively by the community of speakers. This means that language is not something that can be created arbitrarily or understood at will. Therefore, language must be examined in its entirety as a phenomenon that has form, meaning, function and value.

Much remains unknown about the nature, grammar, and use of human language. Linguistics discusses this problem. Research and analysis by linguists of the languages spoken in Mesopotamia date back to at least B.C. It dates from the 1600s. We've learned a lot since then. There are many facts that can be said about all languages. (Fromkin, Rodman and Hyams, 2011)

1. Where there are people, there is language.
2. There are no "primitive" languages; All languages are equally complex and equally capable of expressing any idea. The vocabulary of any language can be expanded to include new words for new concepts.
3. All languages change over time.
4. The relationship between the sounds and meanings of spoken language and the gestures and meanings of signed language is often arbitrary.
5. All human languages use a limited number of sounds or gestures that can be combined into meaningful items or words, which themselves can be combined into an infinite number of possible sentences.
6. All grammars contain similar rules in the formation of words and sentences.
7. Each spoken language contains different sound segments, such as p, n, or a, each of which can be described by a limited number of sound features or characteristics. Every spoken language has vowels and consonants.
8. Similar grammatical categories (e.g. noun, verb) are found in all languages.
9. There are universal semantic features such as implicature (one sentence assumes the truth of another sentence) that are found in all languages of the world.
10. Negation forms, question forms, commands, past or future tense references, etc. are found in every language.
11. All languages are goodness, globality, agility, etc. allows abstractions.
12. All languages have slang, nicknames, taboo words, and euphemisms like "john" meaning "toilet."
13. Hypothetical, counterfactual, conditional, unrealistic and imaginary expressions are found in every language; for example: "If I were you, I would buy a Ferrari".

We are all intimately familiar with at least one language, our own. Yet few of us ever stop to consider what we know when we know a language. No book contains, or could possibly contain, the English or Russian or Zulu

language. The words of a language can be listed in a dictionary, but not all the sentences can be; and a language consists of these sentences as well as words. Speakers use a finite set of rules to produce and understand an infinite set of possible sentences. These rules are part of the grammar of a language, which develops when you acquire the language and includes the sound system (the phonology), the structure and properties of words (the morphology and lexicon), how words may be combined into phrases and sentences (the syntax), and the ways in which sounds and meanings are related (the semantics). The sounds and meanings of individual words are related in an arbitrary fashion. If you had never heard the word syntax you would not know what it meant by its sounds. The gestures used by signers are also arbitrarily related to their meanings. Language, then, is a system that relates sounds (or hand and body gestures) with meanings. When you know a language, you know this system.

This knowledge (linguistic competence) is different from behavior (linguistic performance). If you woke up one morning and decided to stop talking (as the Trappist monks did after they took a vow of silence), you would still have knowledge of your language. This ability or competence underlies linguistic behavior. If you do not know the language, you cannot speak it; but if you know the language, you may choose not to speak.

There are different kinds of “grammars.” The descriptive grammar of a language represents the unconscious linguistic knowledge or capacity of its speakers. Such a grammar is a model of the mental grammar every speaker of the language knows. It does not teach the rules of the language; it describes the rules that are already known. A grammar that attempts to legislate what your grammar should be is called a prescriptive grammar. It prescribes. It does not describe, except incidentally. Teaching grammars are written to help people learn a foreign language or a dialect of their own language.

The more that linguists investigate the thousands of languages of the world and describe the ways in which they differ from each other, the more they discover that these differences are limited. There are linguistic universals that pertain to each of the parts of grammars, the ways in which these parts are related, and the forms of rules. These principles compose Universal Grammar, which provides a blueprint for the grammars of all possible human languages. Universal Grammar constitutes the innate component of the human language faculty that makes normal language development possible.

Strong evidence for Universal Grammar is found in the way children acquire language. Children learn language by exposure. They need not be deliberately taught, though parents may enjoy teaching their children to speak or sign. Children will learn any human language to which they are exposed, and they learn it in definable stages, beginning at a very early age. By four or five years of age, children have acquired nearly the entire adult grammar. This suggests that children are born with a genetically endowed faculty to learn and use human language, which is part of the Universal Grammar (Fromkin et al. 2011).

In many cases, language and grammar also show a relationship that can be observed based on the form, meaning and social order of the speaking community. As explained by Foley (1997), Artawa (2005) and Jufrizal (2013), humans live in social groups and as a result humans can be bound by structural pairs, pairs between the structure of language and the natural culture of the speaking community. The culture in question is the realm of human behavior between generations regarding communication systems. This communication behavior can be verbal or non-verbal, but they must feel part of the group socio-culturally, including their life history, which is the glue that holds the group together. In this case, the role of language becomes very important and determines the survival of the people who speak the language concerned. Therefore, language can be defined as a system of signs and rules for combining linguistic signs. All linguistic signs that are interconnected and arranged systematically form a means of verbal communication, namely language with which humans can develop beyond other creatures such as animals or plants.

Furthermore, it turns out that the principles of combination that bind the smallest language elements into a larger unity - sounds into syllables or words, words into phrases, clauses or sentences - are called the grammar of the language in question. In terms of grammar as a natural rule of the form and meaning of language, it also has contact with the order of language use and values. Thus, grammar, as a whole, is not only the system of words and sentences, but also the system of meaning and use as well as the system of values. This means that language has systems and rules that have very complicated and systematic links with the cultural details of the people who speak it (Foley, 1997; Jufrizal et al., 2008).

Linguistic studies are closely related to social studies as sociology and cultural studies such as anthropology and ethnography, which allow language to become a research point in relation to various features of humanity outside of language. The study of linguistics, which is related to other natural phenomena outside of language, has become an interesting and rapidly developing field of study since the mid-20th century. There are many other human and natural phenomena related to language that are interesting and challenging to observe and study carefully. Nevertheless, linguistics still bases every study on linguistic features, both separately and simultaneously.

3. LANGUAGE AND COMMUNICATION

Language is a social phenomenon and is an intertwined system of symbols that moves together with thought. It is cultivated and developed through the joint labor of generations. It is not influenced by a certain group. It takes words and phrases from them. Since it has a living structure, it is both affected by them and it affects them. At the same time, since humans are the most advanced living beings, the language they use is also the most advanced means of communication.

Thanks to this developed language, man communicates to other people everything he sees, hears, thinks, feels, knows, understands, intends, and their reasons, and what he has realized and continues to realize.

Those who make the most mistakes about language are the linguists who separate language from history, culture, society, that is, from people. All individuals who make up a nation speak from morning to evening without thinking about words and grammatical rules. When we listen to houses, coffeehouses and streets, we hear human voices like bird chirping. But this is not just a human voice, it is emotions, thoughts, love, hate and anger. A person speaks to express something. What is important for people is not the language itself, but what is expressed through the language. Language is nothing but a tool.

Being a medium does not diminish the language. Without language, there would be no history, culture, literature and civilization. Since language is a human phenomenon and human beings have unknown and unresolvable aspects, there are many aspects of language that cannot be revealed clearly. Despite everything, language explains and tries to reveal the universe, natural events, emotions and thoughts, and relationships between people in its own way and in a self-sufficient way. For this reason, linguists do not talk about the existence of a language that can be described as a primitive language. Of course, it is necessary to see the nuance between limited, underdeveloped languages and languages that have become cultural languages. The important difference between languages is not the difference of words and sounds, but the fact that they were created by man's ability and need to express his meaning with abstract symbols. Thus, reaching the level of abstract thought and having the power of statement. This situation shows the distinctive and superior feature of being human.

A person must think in a language and must connect his thoughts with a language. Since humans live in language, whether it is their own language or a foreign language, their entire life experience is inevitably reflected in the language. A person who talks from morning to evening and expresses all his feelings, thoughts and actions through language adapts the language to his own existence.

Accordingly, language is the expression of human existence. The vocabularies of individuals in the same period and in the same language area are very different from each other depending on their profession, culture and living conditions. It is different both in terms of richness and in terms of the words used. But no matter how important the changes in vocabulary are, they do not affect the structure of the language as much as changes in sound and grammar. Codes are also used in interpersonal communication. While language is a word used to describe the codes that make up communication, it is also communication itself. All living things communicate with their own species using signals and symbols within a specific coding system. Humans differ from animal communication in terms of communication due to the subtlety and complexity of the coding used and the arbitrariness of the coding.

Typologically, the language used in mass media varies depending on the variety of media. For example, the language of radio is very different from the language used in other mass media. In written media, there is the opportunity to appeal to the eye and read the written text once again. Since it is almost impossible to repeat an incomprehensible word on the radio, it would be better to give the language used here in simple and easy-to-understand sentences. Thus, it provides the opportunity to reach wider audiences. Radio language should be simple like spoken language. Television language, on the other hand, includes multiple languages with expression tools such as moving images, recorded sounds, noise, melody and written language. Signs can survive when they are used together with natural language.

As a communication tool, language has communicative capabilities that other communication tools do not have. Language can package various meanings and invisible values that can only be felt and understood by humans as intelligent and cultured creatures. The ability to package complex socio-cultural meanings and values is an added value that only language has. If language did not exist, it is impossible to imagine what would happen in the development of human life; humans may not be much different from other creatures, such as animals. Thus, language is a gift of great value to humans as a vehicle for empowerment and development of human living standards.

4. LINGUISTIC TYPOLOGY

Linguistic typology is one of the theories and models of linguistic studies that bases its study on natural data and natural language structure systems. Thus, the principles of descriptive linguistic studies and forms of study that accept data become the basic flow of linguistic typology studies. In this regard, the study of linguistic typology requires the

birth of descriptions of languages as they are and making scientific explanations and interpretations based on data and information that is common in one or several languages. Apart from that, linguistic typology studies also take the form of cross-linguistic comparative studies to arrive at typologies of language(s) based on large amounts of data from various grammatical systems and word structures of languages in the world.

The word typology, etymologically, means classification of domains, which is synonymous with the term taxonomy. The technical term typology which has entered linguistics refers to the grouping of languages based on the characteristics of their word order and sentence structure. When compared across languages, languages can be grouped based on the boundaries of their structural characteristics, outwardly. A well-known early typological study in linguistics was the determination of broad groups (groupings) of languages based on a number of interconnected features (Mallinson and Blake, 1981). An examination of the systems and patterns of connection between natural human languages broadly shows that there are systems and patterns of word order and sentence structure that are the same or, at least, similar so that they can be grouped.

The terms linguistic typology and language typology can be confusing and are used in the same sense, especially for beginners. This is caused by the existence of several reference books that do not clearly explain the differences. These two terms actually have different meanings even though they are very closely related. Linguistic typology, on the one hand, refers to the theories or theoretical frameworks of typological studies known in linguistics. Linguistic typology can be said to be a theory and study model that is used as a basis for studies to group languages, typology of languages. On the other hand, language typology means language groups that have more or less the same characteristics and grammatical behavior. This means that language typology is the result of studying linguistic data based on linguistic typology theory. Linguistic typology has the meaning of a theory or theoretical framework for a form of study in linguistics that makes typology its emphasis; study of grouping (typology) in the world of linguistics (Artawa, 2005; Jufriзал, 2012).

In addition, if it is called typological linguistics, the emphasis is on the linguistics, theories or models of linguistic study to discover language typologies. Linguistic typology talks about Greenberg's linguistic typology (word order), Mallinson and Blake's linguistic typology, Comrie's linguistic typology, Dixon's linguistic typology, and so on. Even though the theory of linguistic typology was put forward by many experts (for simplicity, the name is associated with the name of the expert who developed it), the main aim of linguistic typology is basically the same. Comrie (1988) states that the purpose of linguistic typology is to group languages based on the structural behavioral characteristics of the language. The main goal is to answer the question: what is language x like? There are two main assumptions of typological linguistics, namely (a) all languages can be compared based on their structure; and (b) there are differences between existing languages.

In fact, language grouping studies can be carried out based on three things, namely genetics, typology and areas. However, grouping languages based on genetics and areas of language distribution involves more other sciences such as biology, sociology or anthropology. Linguistic typology studies can be carried out at all layers and levels of language: phonology, morphology and syntax. At the phonological level, human languages can be grouped according to the range of vowels they have, or the size of the range of their segmental phoneme systems. At the morphological level, languages are grouped as isolating, inflectional, agglutinating, or polysynthetic languages.

5. CONCLUSION

Linguistic typologists seek to study cross-language variations to understand the nature of human language. The interaction of linguistic universality study models and linguistic typology studies can be the main point for formulating the characteristics and behavior of language universality on the basis of typological classification. The main aim of the study of linguistic typology is indeed at the stage of describing and explaining as carefully as possible the grammatical characteristics of the languages of the world. However, further studies that are more careful and on a large scale continue to lead to the discovery of universal grammar. This advanced and in-depth goal can be linked and interpreted as a goal to understand cognitive matters about language.

The results of linguistic typology studies are in accordance with the work steps that have become a common reference, leading to typological findings and conclusions to group one or several languages studied into certain groups called language typology. The work steps that have become standard references among linguistic typology scientists are:

- determining the linguistic phenomenon to be studied;
- grouping typologically the linguistic phenomena being studied; formulate general symptoms (generalizations) of these groupings; and
- make an explanation of the generalization formulated.

These work steps require as much natural-descriptive data as possible and as varied as possible across languages to arrive at comparisons and correspondence of the data studied. The adequacy and diversity of data is very important to assign one or several languages studied to a particular language typology, both morphologically and grammatically.

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Literature with a Small 'l': Fostering Creative Writing in EFL Pre-Service Teachers

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Abstract

Creativity is considered a crucial resource in the 21st century, particularly in the field of education. Literature, as a product of creativity, holds significant value in allowing learners to express their inner perspectives and reflections, moreover as a mediation of their poetic spirit. Therefore, it is important for pre-service teachers in English language classrooms to be trained in creative writing, as it serves as a means of written production in EFL classes. By focusing on literature with a small 'l', such as light verse forms like limericks, nonsense verse, and acrostics, teachers can provide an interesting and approachable way for students to engage with English language and literature. The outcome of incorporating creative writing in the classroom has shown that acrostics, where the initial letters of each line form a word or words when read downwards, are particularly popular among students. The paper showcases literary pieces authored by students, with some of them having been published in a student journal.

Keywords: creativity, creative writing, literature, written production, EFL

1. INTRODUCTION

An English as a Foreign Language (EFL) teacher must not only focus on honing the four essential language skills of reading, writing, speaking, and listening, but also on cultivating 21st-century skills like critical thinking, collaboration, communication, problem-solving, and self-regulation. Creativity is another vital skill that plays a significant role in their professional development, as it draws from their personal experiences and manifests in their teaching practices. Creativity is closely tied to mental stimulation and the ability to generate innovative solutions.

In the realm of EFL education, the incorporation of literature is paramount for aspiring teachers, as it exposes them to authentic materials that stimulate their minds and encourage creativity and self-expression. Within the course "Theory and History of Anglophone Literatures," students delve into classic literary works that represent the pinnacle of literary achievement. This distinguished literature, often referred to as Literature with a capital "L," stands in contrast to lesser-known works that were previously overlooked in academic settings.

The integration of literature into EFL programs is essential for pre-service teachers, as it provides them with authentic materials that inspire creativity and self-expression. Through the study of classic literary works in the course "Theory and History of Anglophone Literatures," students are exposed to the best of the best in literary canon. This exposure not only enhances their language skills but also fosters critical thinking and imagination. By engaging with

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literature that is relatable and engaging, students can bridge the gap between receptive and productive language skills, ultimately enhancing their overall language proficiency.

2. LITERATURE REVIEW

2.1. Literature versus Creative Writing

One of the many developments in the scientific study of language over the last two decades has been a growing emphasis on human creativity in language, with a focus on our capacity to use languages, to think beyond limited ranges, to exploit the vast range of human words to make an infinite number of sentences and courses (McRae, 2022).

The rise of Creative Writing courses in UK Higher Education has been remarkable, transitioning from niche programs to integral components of degree programs from undergraduate to PhD levels. This trend is not unique to the UK, as the USA and Australia have long embraced Creative Writing alongside courses in Rhetoric and Composition, as well as specialized professional writing courses. In the UK, Creative Writing courses often originate within English Departments or creative and performing arts contexts, rather than existing independently. This shift has created both productive and challenging dynamics with traditional English Literature courses, which focus on analyzing classic works, while Creative Writing emphasizes personal writing and peer feedback through poems, stories, and scripts (Pope, 2002).

At its core, there exists a potential conflict between the study of Literature and the practice of Creative Writing. However, it is equally evident that there is also a potential complementarity between the two. While the study of Literature focuses on analyzing past works, Creative Writing emphasizes the present process of creating new works. It is important to note that these approaches are primarily critical and creative, respectively, but not exclusively so. Ideally, there should be a natural synergy between these two approaches to writing. In some instances, this synergy does exist, particularly in the shared areas of re-writing, re-reading, adaptation, imitation, parody, and interpretation. However, in many departments in the USA and Australia, there is still a resistance to fostering fruitful interchange between analysis and practice, history, and performance, which is more commonly found in disciplines like music, theatre studies, and the visual arts. This resistance can be partly attributed to persistent myths and misperceptions surrounding courses in Creative Writing and English Literature. It is often assumed that students of Creative Writing merely express themselves and acquire a few technical skills, while students of Literature engage in superficial discussions about classic authors. Both areas of study require significant preparation and active participation (Pope, 2002).

In the Slovak republic, the drift from the UK and the USA predominates, even though the receptive mode in literary theory and the productive mode in creative writing perfectly complement each other. This trend is viewed as an encouraging indication that English students are now being recognized as not only readers, but also as creators and authors. It signifies that the acquisition of student writing skills is being acknowledged as a valid and potentially effective means of responding to the written work of others. Traditionally, writing in universities has predominantly been perceived as a tool for assessment and grading, rather than from the perspective of individual students actively engaging in their own learning and personal growth, thereby cultivating a broader range of abilities.

2.2. Writing in EFL

Kramsch argues that the literary text possesses inherent value due to its exceptional specificity, creativity, and linguistic distinctiveness. Literary texts exhibit a heightened sense of duality, as espoused by Bakhtin, making them optimal for facilitating both enjoyment and contemplation of linguistic structure and expression (1993, p. 131). Furthermore, literary texts tend to evoke a complex and ambivalent response, fostering an awareness of the intricate nature of moral dilemmas. In this regard, interventions, and creative approaches, as suggested by Pope (1995), are deemed suitable techniques for teachers to cultivate an appreciation for diverse perspectives. For instance, employing multiple translations can help demonstrate the various alternative viewpoints that can be adopted, while also highlighting the ultimate impossibility and desirability of literary translation (or any translation, for that matter). Thus, rather than shying away from the unfamiliarity of a poem, it is imperative to confront it directly.

Dan Disney in his volume of papers entitled *Exploring Second Language Creative Writing* (2014) introduces a subjective perspective on an instructional strategy within the context of teaching writing in a second language. This strategy places utmost importance on human self-expression, views the teaching of writing in a second language to enhance expressive abilities, utilizes the genre of poetry, and appreciates the aesthetic qualities of writing poetry in a second language. Moreover, it elucidates how poetry can be employed to foster both emotional expression and

linguistic growth. By portraying second language writing as linguistically sophisticated and open to multiple interpretations, rich in imagery and narrative content, autobiographical in nature, and capable of providing a pleasurable reading experience, this Disney presents an instructional approach that is rooted in a constructivist and humanistic effort to empower second language learners.

Hall gives some examples of more progressive forms of literature assessment:

- coursework, ongoing portfolio construction – a range of types of considered or more spontaneous response, produced under less stressful circumstances than exams;
- the use of journals, reading diaries to record and explore response;
- group projects to promote interaction with other readers, as well as with texts;
- textual transformations – turning a short story into a play or script for television, etc.;
- creative writing as a response. (Hall, 2015, p. 213-214)

Creative writing as a response can be viewed as a pathway to personal growth for learners. By engaging in the creative process, individuals can tap into their inner creativity and express their thoughts and emotions in a unique and imaginative way. This act of self-expression not only allows learners to develop their writing skills but also encourages introspection and self-reflection. Moreover, learners can explore their own identities, gain new insights, and foster personal growth and development: “I see learning a language as part of a process of widening and deepening the ways an individual can understand, interpret, feel and express her or his personally meaningful understandings to themselves and within social settings” (Hanauer, 2012, p. 108). Hanauer asserts that engaging in creative writing can lead to self-discovery, self-understanding, and self-expression. He advocates for language learners to participate in autobiographical writing, which involves drawing upon their memories, imagination, and personal experiences to gain a deeper understanding of themselves. Additionally, he encourages individuals to express their emotions and reflect on significant events in their lives, as this can provide personal insight and a greater comprehension of the human condition. These methods closely resemble the ones employed in creative writing courses for native speakers, where individuals often focus on pivotal moments in their lives, often triggered by an object or image. For instance, they may write about a childhood song and describe the context in which it was heard and the emotions it evoked, or they may vividly depict a pair of shoes they once owned and the circumstances surrounding their purchase or use. The experience of writing about such topics in a creative writing class remains memorable, as it allowed us to engage our creativity and emotions in ways that were unfamiliar to us. It is worth noting that the language used in this process does not necessarily need to be sophisticated; what matters is the exploration of one's thoughts and emotions through writing (Naji et al., 2019)

3. CREATIVE WRITING IN EFL PRE-SERVICE TEACHERS

Creative writing has played a crucial role in the EFL course Theory and History of Anglophone Literatures for pre-service teachers. While the main focus of the course is on studying works that represent a literary canon, we have made the decision to also include light verse, despite the fact that traditional academic literary textbooks would not typically include them in the curriculum: “We should point out that this is not an all-inclusive guide: we do not include terms such as 'limerick' which are not in any way central to the academic study of literature.” (Peck, Coyle, 1993, ix)

Light verse is “a vague and comprehensively flexible term used to describe poetry that lacks serious intent.” (Cuddon, 2013, p. 396) It encompasses a wide range of poetic works that employ a colloquial tone and a casual demeanor to approach their subjects in a cheerful, playful, witty, or good-naturedly satirical manner. The content of light verse is not necessarily trivial or insignificant in nature; rather, it is defined by the particular tone of voice employed and the attitude of the poetic speaker towards the subject matter (Abrams, 2012, p. 191). Under this classification, one could categorize different types of poetry such as society verse, occasional verse, nonsense verse, sick verse, satire, burlesque, parody, epitaph, epigram, limerick, and clerihew. Additionally, one should not overlook acrostic and emblematic poems, jingles, riddles, and punning verses (Cuddon, 2013, p. 396).

The subsequent paragraphs will provide dictionary definitions of the chosen types of light verse along with poems composed by the students. These poems have been compiled in the ENJOY - a biannual online publication for students of the Department of English Language and Culture, CPU Nitra. It should be emphasized that the journal editors corrected only grammatical mistakes, preserving the poems' expressive nature. It is worth noting that the acrostic poem emerged as the most popular form among students, prompting many to focus exclusively on their chosen topics. Each new poem is indicated by an asterisk.

3.1. Limerick

The term "limerick" is likely to have originated from a jovial song accompanied by the recurring refrain "Will you come up to Limerick?" (Limerick being a county in Ireland.) It comprises a sole stanza of five lines, adhering to anapestic meter, with a rhyming pattern of aabba. Notably, the third and fourth lines are condensed from three metrical feet to two. While certain limericks exhibit propriety, a significant number delve into risqué subject matter (Abrams, 2012, p. 192). Limerick was popularized by Edward Lear in his *Book of Nonsense* published in 1846.

*Sunday Afternoon
Some smalltown boys
playing outside with their toys.
Clock strikes three,
time for a nap, they all agree.
Once again, there was not a single noise.

*A Helping Hand
There is a story to be said,
he gave me a piece of bread.
I thanked him with all my heart,
for me it was a brand-new start.

*The Pill
There once was a man from hill
who one day took some pill.
But we can surely decide
that it was not a suicide,
for the next day he had an erection still.

*Teacher's Day
People are lying on the beach
but the sun is nowhere to reach.
Friendly cloud hides it well
but what about that horrible smell?
We need to leave, we have lesson to teach.

3.2. Aphorism

Aphorism refers to a concise and incisive declaration of a significant principle, viewpoint, or universal verity. Among the most renowned aphorisms is one that is incredibly brief: *ars longa, vita brevis est*—"art is long, life is short." This aphorism is initially found in a piece of work credited to the Greek physician Hippocrates called *Aphorisms*, which succinctly formulated precepts on the application of medicine. (Abrams, 2012, p. 111)

*Happiness is a triangle with three sides: faith, hope and love.

3.3. Epitaph

Epitaph refers to a written inscription found on a tomb or grave, serving as a form of farewell speech that can encompass various tones such as solemn, complimentary, witty, or even flippant. Some epitaphs were also elegies, focusing on the topics such as death, war, love and so on (Cuddon, 2013, p. 246-247).

*Don't mind me. I'm just lying under the ground.

3.4. Haiku

Haiku is a form of poetry originating from Japan that portrays the emotional or spiritual reaction of the poet towards a natural element, scene, or season of the year. This poetic form adheres to a strict structure of seventeen syllables, divided into three lines of five, seven, and five syllables respectively. The Japanese language, with its concise, uniform, and unstressed syllabic structure, poses a formidable challenge when attempting to faithfully replicate it in English. Consequently, many poets who endeavor to write haiku adjust the rules regarding the number and pattern of syllables. The haiku had a profound impact on Ezra Pound and other poets from the Imagist movement, who aimed to capture both the brevity and precision of the original Japanese image. One well-known example of a haiku in the modern English form is Ezra Pound's "In a Station of the Metro" (Abrams, 2012, p. 157). It's usually considered a lyric poem.

*Free cracking sound
Hot chocolate safe and warm
Outside heavy storm

*Sorrow, burning ties
From the darkness, she will rise
Tear drops from her eyes

*Sword in bloody hand
Dragon's tears burn red and bright
End of paradise

*Cold rain hits the leaves
Flowers bowing their heads
Sun! No more meekness

3.5. Nonsense verse

Nonsense verse is a type of comical verse that provides amusement through the deliberate employment of peculiar nonexistent terms and irrational concepts is known as humorous poetry. In English literature, the esteemed individuals who have mastered this form are Edward Lear and Lewis Carroll, with G. K. Chesterton and Ogden Nash. Noteworthy examples of this genre include Lear's renowned works such as 'The Owl and the Pussy-Cat' (1871) and his collection

of limericks, as well as the songs featured in Carroll's 'Through the Looking-Glass' (1871), which encompasses 'The Walrus and the Carpenter' and the celebrated 'Jabberwocky'. (Baldick, 2001, p. 172)

*The Fly

There was a fly
who could not fly
he may try
but would not fly.

He did pry
the birds of sky,
to help him fly
but they did lie.

Come little fly
in our beaks lie,
we'll take you high
teach you to fly.

And so the fly
in the beak lie,
his death was sigh
in the stomach he die.

*Birthday Party

Yesterday I met a cat.
She invited me to her wonderful flat.
It was all green.
Other cats called her: "My queen".
In the kitchen, there was a cake.
But it was made from a snake.
So I went to the nearest shop.
Because the cake was a flop.
The Birthday's song was 'The baby shark'.
But all the guests just barked.

3.6. Acrostic

An acrostic is a poetic composition wherein the initial letters of each line, when read downwards, form a word or words. Additionally, an acrostic may utilize the middle (mesostich) or final (telestich) letter of each line. In the realm of prose, the first letter of each paragraph or sentence can be employed to create a word. It is speculated that the acrostic may have originated as a mnemonic device intended to assist with the oral transmission of information. Within the Old Testament, most acrostics are of the alphabetical or abecedarian variety. Furthermore, the construction of words from the initials of other words can also be considered a type of acrostic (Cuddon, 2013, p. 7).

*Rampant darkness approaching

Abyss slowly enclosing
Idleness will keep you warm
Now shut the door and end the storm

*Half the battle won with it in your mind

Only reason making you cling to life
Promise of a better time
Elect to see the light in the dark

*Light in the dark

Over the moon

Varies in examples
Eternal curiosity

*Silent, heavy, part of nature
Try to be strong as a stone
Only you can handle one of them
Never let them hurt you wrong
Emotions are strong as a stone

*Shining light coming through
Universe is full of you
Never enough of you

*He is the one
I'll always love
My man with all I want

A day is getting shorter
U'r cheeks are red
The night is much colder
Umbrella above my head
My shoes are soaking wet
Now I just want to be in bed

Michaela is best friend of mine
Iconic golden hair is her sign
Cooking is what she likes to do
Heavenly good and no way blue
Alike sunflower she is greatly bright
Everytime, also during the starry night
Lucky me, she is my soul mate
Also thankful for quirk of fate

4. CONCLUSION

The rise of Creative Writing courses in UK Higher Education has been remarkable, transitioning from niche programs to integral components of degree programs from undergraduate to PhD levels. This trend is not unique to the UK, as the USA and Australia have also embraced Creative Writing. In the UK, Creative Writing courses often originate within English Departments or creative and performing arts contexts. This shift has created both productive and challenging dynamics with traditional English Literature courses. There should be a natural synergy between these two approaches to writing, but resistance to fostering interchange still exists in many departments.

In the Slovak republic, there is a growing recognition of English students as creators and authors, indicating a shift towards valuing student writing skills. Writing in English as a Foreign Language (EFL) can be enhanced with literary texts, interventions, and creative approaches. Literary texts provide a unique opportunity for enjoyment, contemplation, and linguistic analysis. In teaching EFL writing, the genre of poetry can be particularly effective in enhancing expressive abilities, fostering emotional expression, and linguistic growth. Writing poetry in a second language can empower learners and provide a pleasurable reading experience. Progressive forms of literature assessment, such as coursework, journals, and textual transformations, can promote interaction with texts and encourage creative responses. Creative writing can be a pathway to personal growth for learners, allowing for self-expression, introspection, self-reflection, and exploration of one's identity.

Furthermore, engaging in creative writing can lead to self-discovery, self-understanding, and self-expression. In the EFL pre-service teacher education, creative writing plays a crucial role in studying Anglophone literatures. Light verse, a type of poetry that lacks serious intent but employs a cheerful, playful, or satirical manner, is included in the curriculum along with traditional literary works. Different types of light verse, such as limerick, haiku, nonsense verse,

and acrostic, are explored. The use of light verse in teaching provides students with opportunities for creative expression and helps develop their writing skills.

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