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**Management, Economics and Marketing  
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# Assessment of Perception and Utilisation of Employee Wellness Programme at the Health Care Facility in Swaziland

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## Abstract

Employee Wellness Programmes (EWP) are an intervention strategy established by employers to promote and encourage the welfare and wellbeing of employees in the workplace. Any organisation needs to evaluate the effectiveness of these programmes by determining the employees' perceptions and the reasons for their non-participation. The objective of this study was to determine perceptions and the utilisation of EWP at a health care facility in Swaziland. A cross-sectional quantitative study was conducted among 60 employees who were working at the health facility. Results showed that the majority of the respondents received adequate information about EWP and that the majority of the respondents were aware of the existence of the programme. Nearly half of the respondents had attended wellness activities offered by the Ministry of Health. Diabetes was the leading clinical screening test that most respondents (85%) were aware of that was offered by the wellness clinic. It was found that fitness, exercise and physical activity were lifestyle management activities that most respondents were aware of. The most distinctive disincentive that prevented employees from participating in wellness activities was inconvenient time or location. More than a third of the respondents would have participated in the EWP without any incentive. It is recommended that for the EWP to be effective, there must be a commitment from the company's facilities management and employees should be involved in the programme. There should also be sufficient resources to run the programme and clear policies on wellness that are aligned with the Ministry's mission, vision and values.

**Keywords:** Company branding; employee incentives; needs analysis.

## 1. INTRODUCTION

The workplace is a significant setting to promote healthy behaviour as employees spend 8-10 hours per day at the workstation. Participating in programmes promoting health has indicated as having a relationship with the costs of health care, meaning that these costs decrease as the involvement of employees in health activities increases (Berry, Mirabito & Bau, 2010). Encouraging workers to participate in wellness activities may be beneficial for preventing illnesses and other desired outcomes such as reduced health care costs, risk avoidance, risk reduction and improved productivity measures (Nyman, Barleen, Abraham & Jeffery, 2010).

Employee Wellness Programmes (EWP) show great promise for increasing employee and organisational health and general effectiveness (James, 2012). These types of programmes in general try to improve the wellness of employees through interventions that target fitness, stress management, nutrition, and other lifestyle behaviours or activities. Employee Wellness Programmes have become a significant component of company branding and strategy, as a healthy workplace produces improved safety results, performance, and quality of life (Bryman & Belle, 2011).

According to Bryman and Belle (2011), the success and effectiveness of EWPs depend on several factors, such as the rationale, utilisation and evaluation of the programmes. Different researchers have highlighted the significance of conducting needs analyses to determine the challenges and problems that are experienced by employees. Companies should conduct a needs analysis before they design and introduce EWPs. This will enable companies to target matters that need to be addressed (Darling & Dannel, 2011). Therefore, the objective of this study was to determine the perception and utilisation of EWP by employees at a health care facility in Swaziland.



## 2. LITERATURE REVIEW

Mattke, Lio, Caloyeras and Huang (2013) alluded that recent evidence states that strategically organised, well-designed and cautiously assessed wellness programmes are well-advised for organisations or companies of any size and type. There are increasing moves amongst organisations that have led to increases in the interest and support of Employee Wellness Programmes (EWPs). This is because it costs less to have healthy and productive employees. Organisations with greatly effective and efficient wellness programmes and strategies for health management can significantly reduce their medical expenses (Nyman, *et al.*, 2010). Healthy workers have reduced rates of absence, disability and worker's compensation hence becoming more productive on the job. Studies have revealed that conditions that are not managed properly, such as depression, hypertension, asthma, and lower-back pain have high absenteeism rates. Also, organisations with wellness programmes have higher rates of employee morale and loyalty because through the wellness programmes employees feel that their employer cares about them as individuals (Harden, Peersman, Oliver, Thomas & Oakley, 2012).

Many large and successful multinational businesses with existing business ventures in Africa have for some years now implemented Employee Wellness Programmes. This is being done to reduce the negative outcomes on operational reputation as well as the viability of the business (Sackney, Noonan & Miller, 2012). Companies and organisations which have accomplished that such as ESKOM, Damien Chrysler, Anglo-American plc, and the giant mining company De-Beers in South Africa and Botswana to mention a few. Implementing such a programme can yield benefits that are either financial (for instance, monitoring employee costs of diseases), corporate image purposes (accomplishing corporate social responsibility [CSR] principles), or meeting legislative obligations. The literature review indicates that organisations like BHP Billiton and Anglo-America have established highly publicised programmes. However, operating the intervention wellness programmes in the workstation has created many challenges (Hochart & Lang, 2011).

### 2.1 Employee Wellness Programme in Swaziland

In Swaziland, the government has established an EWP known as the Public Sector HIV/AIDS Coordinating Committee (PSHACC). According to the Government of Swaziland (2015a), the programme was established to ensure a healthy and proactive labour force for the Government of Swaziland that is HIV/AIDS-free and effectively provides public services. At first, the programme only focused on HIV/AIDS issues but has extended to other chronic illnesses that affect employees at work. The government employs more than 33,000 public servants who are deployed in various ministries and offices that have mandates linking them to different sectors. PSHACC is there to ensure that all the ministries or departments of government fulfil the Public Sector's commitment in all national HIV/AIDS, TB response and wellness issues. Through PSHACC, selected government ministries and offices have advanced in addressing wellness, HIV and TB in their workplaces in line with the National Strategic Framework. PSHACC is also collaborating with the International Labour Organization (ILO) to develop and strengthen the policies and workplace programmes that address wellness, HIV and TB in the public service (Government of Swaziland, 2015a).

It is to this effect that the Ministry of Health (MOH) has participated in projects that are intended to create robust health promotion programmes at the workplace through increased access to preventive treatment, care and support services to ensure a healthy and productive workforce that effectively delivers health services. Workers' psychosocial, social educational, emotional, and other needs are being dealt with holistically through comprehensive EWPs that include the services of a fully functional wellness corner (Ministry of Health, 2012).

The Ministry of Health has established vibrant wellness committees in health centres, and regional and national referral hospitals in response to this situation. The wellness committees are tasked with providing treatment, care and support services that are easily accessible to all health workers in all regions. As a result, twelve wellness clinics were established in the ministry's health centres and hospital facilities (Ministry of Health, 2013). These wellness clinics provide services to health workers but some have opened to other public servants.

The Health Workers' Wellness Programme follows the EWP-type with the elements of psychosocial support, health promotion and education, capacity development, health screening, recreation (both social and physical), treatment and care, monitoring and evaluation (Ministry of Health, 2012). Coordination of the programme is done at the Ministry of Health Headquarters and implemented in all regions nationwide through Regional Health Management Teams (RHMTs) by the focal persons and multidisciplinary employee wellness committees (EWCs). The Ministry has adopted four models which have been implemented based on suitable human resources, physical infrastructure and other resources for a specific RHMT, a well-established wellness centre or staff clinic, a designated medical officer to consult staff, specified staff clinic days or times except for emergencies, and prioritising staff for access to services (Government of Swaziland, 2015a).

The EWP's success depends on management by recognising workers as pillars of the health system and has recently been strengthened by MOH management through endorsing the activities of workplace wellness in planning for the RHMT, as well as budgeting, and the focal persons and committee members developing individual plans. By

so doing, responsibility, accountability and integrating employee wellness as part of service delivery will be strategically supported (Ministry of Health, 2013).

### 2.2 *The Impact of Employee Wellness Programmes*

Employees view it as a challenge to maintain individual health amongst demands competing for the workday, the responsibility of the family, and other social responsibilities. According to Barnham (2010), adopting healthy behaviour reduces the risk of growing diseases that are life-threatening and their related expenses and improves their everyday quality of life. EWP that focus on the health of an individual and workplace safety risks also reduce disease and injuries. Participating in wellness activities enable employees to acquire knowledge, self-management and coping skills including being able to establish a network of social support with colleagues, supervisors and family. The EWP is perceived by employees as an investment made by their organisation for their welfare and an indication of how much the organisation cares about its workers which can affect job satisfaction and morale (CDC, 2012).

Goetzel and Shechter (2011) argue that EWP can benefit employees through improved productivity, reduced absenteeism, and lower costs of insurance and compensation. Organisations that carry out a complete set of strategies to tackle their employees' health and safety benefit by being able to reach all employees at the workplace at the same time. These strategies assist in creating a culture of health and encourage employees to make healthy choices and reduce the employer's dependence on individual participation employer-sponsored programmes (CDC, 2012).

The CDC (2013) stated that companies work with the public in promoting the health of employees by developing community capacity such as building recreational facilities in the community, or providing access to activities that promote health for employees and their families, for instance, local fitness facilities for physical activities or local academic institutions for education can enhance a company's image and boost their profile to prospective future employees who will perceive the organisation as a desirable workplace because of its commitment to employee health (MacKinnon, Elliot, Thoemmes, Kuehl & Moe, 2010).

As pointed out in Harden *et al.* (2012), both employers and individual employees can benefit economically through better-quality health. For workers, health improvements can lower cost-of-pocket expenditures for the treatment of acute or chronic diseases. It can also enhance job security because of the productivity of the employees, increased presenteeism and possibility of avoiding short or long-term disabilities. Employers, on the other hand, tend to use reduced medical costs, disability expenses, compensation of workers and outlays for recruiting and training new employees.

## 3. RESEARCH METHODOLOGY

This was a quantitative cross-sectional study conducted among employees in a health facility in Swaziland. The population consisted of the Ministry of Health employees in the health facilities where the Employee Wellness Programme exists. The researcher selected one Health Centre, one regional hospital and the national referral hospital namely: Dvokolwako Health Centre, Mankayane Government Hospital and Mbabane Government Hospital respectively. The population of the study in the three selected health facilities was approximately 1020 (Government of Swaziland, 2015b). The sampling frame for the study was on clinical, nursing and support staff.

A total of 100 participants was selected using stratified random sampling techniques. This was done according to the general scientific guideline for sample sizes and decisions. Sample sizes which are larger than 30 and less than 500 are suitable and acceptable for the majority of research studies (Sekaran & Bougie, 2013).

A structured, anonymous, self-administered questionnaire was used to collect data. All of the questionnaires were hand-delivered to the respondents. This method was used because it was ascertained that the respondents would be able to complete the questionnaire by themselves and also that it reduced the costs of the data collection exercise. When delivering the questionnaires, the study was explained and ascertained whether the respondents would be able to complete the questionnaires by themselves.

Ethical approval was obtained from the Research and Ethics Office at the University of KwaZulu-Natal. Approval was also sought from the Ministry of Health Ethics Committee. Authorisation to conduct the study was sought from the three health facilities. Approval was secured from participants using a written consent form which explained the terms of the consent. The respondents were then invited to sign the consent form to confirm their participation. This was done to ensure that care was exercised so that the rights of the participants were protected. The participants were provided with sufficient information before deciding to participate in the research. The purpose of the study was fully explained to them. Furthermore, participants were treated in such a way that harm was prevented or removed. Confidentiality and anonymity were ensured and participants protected by making it impossible to link data to participants.

The data were coded, captured and analysed using the SPSS programme. This study used descriptive statistics such as frequency distribution to describe the patterns of the answers. Data were presented using charts and tables.

**4. RESULTS AND DISCUSSION**

Table 1 shows the distribution of the demographic information of the participants. It was found that more than half (60%) of the respondents were between the ages of 31-45 years, whereas a few of them were between the ages of 20-25 years (3%). More than half of the respondents were females (58.3%). A large percentage of the respondents were married (60.3%). It was determined that 37.1% have been with the Ministry of Health for 1-5 years, whilst only a few have been with the Ministry for 31 years and above (1.6%).

**4.1 Demographic Information**

According to Powell (2014), organisations should understand how best the characteristics of employees, such as age, gender, and educational background, influence decisions concerning the uptake of the wellness services and the perceptions they have about the programme. Such information will assist in improving the uptake of the programme’s services and make it more inclusive for employees from different backgrounds (Herman *et al.*, 2012). The results revealed that most of the respondents were females (58.3%) and this may be attributed to the fact that in many organisations females form the majority of the workforce and therefore these females would be the majority of the respondents that utilise the programme.

According to Liu, Harris, Zakowski, Serxner, Mattke and Exum (2012), the effectiveness of the wellness programme depends on the target population’s characteristics and the percentage of the population that participates in the intervention. These factors include gender, age, marital status, level of education, level of income and many more. The findings meet this expectation, as most of the respondents that utilised the programme were female. Among the salary grades, the category C1-C6 had the majority of respondents (38.2%) which could be that the category consists of job levels that form the majority of the workers in hospital or health facility. All the respondents in this category have at least a tertiary qualification and form the majority of the workforce. Thus, it can be said that they understand the programme better than those at lower grades and utilise it to its fullest capacity. The findings from the study concur with Powell (2014) in that there is a need to understand how different employees respond to various modalities, content and intensity to develop audience-appropriate, effective interventions.

**Table 1: Frequency distribution of demographic information of the participants**

Variables		Frequency	Percent
Age group	20-25	2	3.3
	26-30	6	10.0
	31-35	13	21.7
	36-40	14	23.3
	41-45	9	15.0
	46-50	5	8.3
	51 and above	11	18.3
Gender	Male	25	41.7
	Female	35	58.3
Marital status	Single	22	36.2
	Married	36	60.3
	Living together	2	3.5
Term of Service	1 to 5 years	20	37.1
	6 to 10 years	13	22.6
	11 to 15 years	12	21.0
	16 to 20 years	5	8.1
	21 to 25 years	4	6.5
	26 to 30 years	2	3.2
	31 years and above	1	1.6

**4.2 Information regarding EWP**

Table 2 below shows that the majority of the respondents (66.7%) received adequate information about EWP. Similarly, 64.4% of the respondents were satisfied with how information relating to the EWP is communicated and 35.6% were not satisfied. More than half (53.3%) of the respondents said meetings were the method used for

communication in the programme. The preferred method of communication by the majority of the respondents was the use of memoranda (51.6%).

A prerequisite for the willingness to use EWP is having knowledge and awareness about the programme (Baicker, Cutler & Song, 2013). Employees who are aware or knowledgeable of the EWP are expected to be more aware of the benefits of utilising the programme and thus may be more willing to use it. The findings revealed that the majority of the respondents were aware of the existence of the programme. This means that the Ministry of Health did well to promote the programme amongst its employees. Most of them also felt that the information provided to them about the programme was adequate. This could suggest that information is well-communicated, even though there were minor shortfalls.

The findings concur with Naydeck and Ozminkowski (2010), that the EWP’s greater awareness should be related to the increased willingness to utilise the programme amongst the employees. The findings reveal that most of the respondents were satisfied with how the information is communicated but some were mainly concerned with communication being poor and inconsistent. According to Matke *et al.* (2013), it is important to clearly and transparently communicate the programme’s features. Many wellness programmes have failed because of having a poor communication strategy. The communication should encourage the value of better-quality health to the wellbeing of the employees. The findings in the study concur with this statement but there is a need for further improvements.

**Table 2: Information about the programme adequacy and methods of communication**

		Frequency	Percent
Information about the Programme was adequate	Yes	42	66.7
	No	16	33.3
Satisfaction with Programme Communication	Yes	37	64.4
	No	17	35.6
Methods of communication	Meetings	32	53.3%
	Memos	27	45%
	Face-to-face Communications	19	30%
	Phone Calls	7	11.7%
	Other	4	6.7%
Preferred Method of Communication	Memos	32	51.6%
	Meetings	30	50%
	Face-to-face Communications	24	40%
	Pamphlet or in-house magazine	21	35%
	Email	10	16.1%
	Phone calls	9	15%
	Other	7	11.7%

#### 4.3 Utilisation of the Programme

About half (48.3%) of the respondents had attended wellness activities offered by the Ministry of Health. Slightly less than half indicated that they have not attended any wellness activities and the reasons stated for non-attendance include lack of time, lack of interest, being occupied by work, lack of resources (as some of the activities are not funded by the Ministry), inconvenient time or location (some activities are conducted outside the official working hours), poor communication, and lack of interest.

The utilisation of the wellness clinic is also dependent on the type of clinical screening tests offered by the clinic. According to the Centers for Disease Control and Prevention (2013), there are three kinds of services that the employer can provide. This includes screening activities to detect health risks, lifestyle management and health promotion of healthy lifestyles. The findings of the study concur with the statement with diabetes and blood pressure screening tests being the leading reason that respondents were aware of. Lifestyle management activities offered that most respondents were aware of included fitness, exercise and physical activities, followed by health education, stress

management, and spiritual and social issues. The Ministry should balance the provision of all these services so that the programme can be fully utilised.

The majority of the respondents revealed that they are aware of the availability of the wellness clinic in their health facilities. This does not depict a good picture because all employees in these facilities are expected to know about the clinic since it currently exists and is established for them to utilise it. The utilisation of the programme, according to Sackney *et al.* (2012), can be determined by the reasons employees give for participating or not participating, as well as the types of services offered.

#### 4.4 Clinical Screening Tests Offered by Wellness Clinic

Table 3 shows that diabetes is the leading clinical screening test that most respondents (85%) were aware of that is offered by the wellness clinic, followed by blood pressure and allergy and asthma tests.

**Table 3: Clinical Screening Tests offered by the clinic**

Screening Tests	Frequency	Percentage
Diabetes	51	85
Blood Pressure	65	65
Allergy and Asthma	28	47
Cancer	28	47
Back Pain	24	40
Depression	21	35
Heart failure	19	32
Non-disease specific	18	30
Coronary artery disease	15	25
COPD/emphysema	12	20
HIV and TB	10	17
Other	6	10

#### 4.5 Lifestyle Management Activities Offered by EWP

Table 4 shows that fitness, exercise and physical activities are the lifestyle management activities that most respondents (65%) are aware of that is offered by the Wellness Programme.

**Table 4: Lifestyle Management Activities offered by the clinic**

Lifestyle Management Activities	Frequency	Percentage
Fitness, Exercise and Physical Activity	39	65%
Health Education	34	56.7%
Stress Management	32	53.3%
Social & spiritual issues	28	46.7%
Medical self-care	22	36.7%
Financial issues	21	35%
Nutrition and Diet	15	25%
Mental Health	13	21.7%
Alcohol/Drug Abuse	6	10%
Other	3	5%

#### 4.6 Barriers to Participating in Wellness Activities

Table 5 shows the most prohibitive barrier that prevents employees from participating in wellness activities is inconvenient time or location (41.7%). Table 4.15 shows that most of the respondents (40.7%) would participate in the Wellness Programme without any incentive. According to Darling and Dannel (2011), it is crucial for employees

to readily access the programme in a place and time that is convenient for them. From the findings of the study, the Ministry should consider conducting the wellness activities at convenient times or locations as this will increase the uptake of the services and thus make the programme more effective. Offering flexible hours for employees will enable health care workers to schedule their time to participate in wellness activities. Most of the respondents agreed that utilising the services provided by the wellness programme would improve employee health and increase worker productivity. Also, most of the respondents believed that the services provided by the wellness programme were of good quality.

Using incentives to encourage employees to participate in wellness programmes has become a common trend (Powell, 2014). Incentives can be utilised to increase participation rates and at the same time help employees to change or adhere to health behaviour (Volpp, Asch, Kevin, David & Galvin, 2011). From the findings, the majority of the respondents believed that the Ministry should use incentives to encourage employee participation. The Ministry also needs to devise a sustainable strategy that will ensure that employees continue to participate in the programme even when the incentives are no longer offered.

The findings revealed that less than half of the respondents felt that they would still participate even if the incentives were not offered. The incentives that they would appreciate the most include small gifts, money and promotional products. Osilla, Van Busum, Schnyer, Larkin, Eibner and Mattke (2012) stated that EWP aims to inspire employees to be healthier. Hence many employers utilise incentives to encourage employees to observe and enhance their health and lower worker turnover and absenteeism. The fundamental goal of incentives is to shift to a key desire for continuous good health. Once the employee has a direct experience with the rewards related to health improvement, they may not need an external reward. The study findings concur with the literature that incentives should be used to encourage participation.

**Table 5: Barriers and motivators to participate in wellness activities**

<b>Barriers</b>	<b>Frequency</b>	<b>Percentage</b>
Inconvenient time or location	25	41.7%
I have no time	16	28.3%
Lack of management support	12	18.6%
I'm concerned about other employees knowing about my health (Confidentiality)	11	18.3%
My job duties do not allow me to participate	8	13.3%
Just not interested	7	11.7%
My employer should not be involved in my personal health (Privacy)	6	10%
Lac of facilities at or near the worksite	5	8.3%
No barrier	2	3.3%
<b>Motivators</b>		
No Incentive	23	40.7
Money	7	11.9
Small gifts	9	18.6
Days/hours off	5	8.5
Free Food	2	3.4
Promotional products	7	11.9
Other	3	5.1

## 5. CONCLUSION AND RECOMMENDATIONS

Senior management and heads of departments or supervisors need to be fully aware of the programme and consistently support it. Without support from the top, the wellness programme will be a failure. The management may support the programme by formulating a vision of the programme from the employees' inputs by communicating ideas about the programme and many other ways.

Furthermore, the success of the programme can be achieved by developing mechanisms to regularly monitor and evaluate the programme. For instance, by tracking the number of participants for a certain activity, several employees have shown support for some or all the elements of the programme. This is done to identify areas of excellence, identify challenges, and address them to keep the program on track and identify factors that affect employee participation in the programme.

### 5.1 Conclusion

With regards to health care workers' awareness of the existence of the programme in their facilities, the participants raised concerns that they are not satisfied with how the information is communicated. The communication was said to be weak, haphazard and inconsistent. With regards to the perceptions about the programme, the majority of health care workers rate the programme as good and acknowledged that it was easy for them to access help and information from the programme.

The programme was utilised by slightly more than half of the workers. The reasons that most employees gave for not utilising the programme centres on the issues of time and location, communication and availability of resources to fund the activities. Employees did utilise the clinical screening tests and lifestyle management services that were offered by the programme.

With regards to the role of incentives, the majority of the respondents felt that the Ministry should use incentives to motivate people to participate in the programme. Management from the facilities should also support the programme so that it can obtain buy-in from the rest of the health care workers. The strategies that were also suggested by the respondents could make the programme effective and more cost-effective include strong communication strategy, ready access to the programme and many more.

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# Good Supply Chain Management, a Factor for Business Performance

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## Abstract

It is evident that exists a relationship between supply chain management and business performance. Surveys have showed that in many cases the manager's beliefs and expectations on supply chain management do not match the reality of the business. In this context, the study of supply chain issues is particular importance and interest considering specifically the current period. The economic problems of this period are present in Albania also. The complexity of the supply chain focuses on order fulfillment. Therefore, in this paper, attention will be paid to the impact of supply chain management on business performance. The objective of the paper: "Good supply chain management, a factor for business performance" is to highlight of good supply chain management impact and importance in business performance. Our study clearly evidenced the impact of the speed of meeting customer requirements on AMAZON performance. This was also confirmed mathematically through one of the decision criteria in conditions of uncertainty - Laplace criterion.

**Keywords:** AMAZON (AMZN), supply chain, supply chain management, Laplace criteria

## 1. INTRODUCTION

The business activity and its relevant performance is conditioned by the inevitable presence of the supply chain, which is the common element for all businesses, regardless of the size or field of activity. The supply chain and its management is a very important activity. Based on Berthold, (2019) the term "supply chain management", it was first used by Keith Oliver. So, since 1982 when this term was first used, has consistently attracted attention of researchers. Numerous studies have been done on both the concept of "supply chain" and "supply chain management". This, not only for the very degree of spread of the supply chain activity, but for the fact that good supply chain management affects the performance of the business.

Based on Chandra and Grabis (2007) supply chain represents a set of suppliers, manufacturers, warehouses, distributors and retailers who, through coordinated plans and activities, develop products by converting materials to finished goods. While, according to Sandraoui and Mchirgui (2014): "The supply channel concept has become a concern due to global competition and increasing customer demand for value". Heizer and Render (2014) accept that supply chains consist of many actors including suppliers, distributors, manufacturers and ultimate customers. The importance of the supply chain, also lies in reducing costs and stocks. Chen et al. (2007) refers to "CPFR (Collaborative Planning Forecasting and Replenishment) a collection of practices that aims to radically reduce stocks and expenses and also tried to increase customer services to stimulate four scenarios of collaboration between retailer and supplier".

The length of supply chain is the different one. Because when a manufacturer sells directly to the customers we have the shortest supply chain. Kotler (2009) came up with the definition of the distribution channel at zero level. For this, Kotler (2009) states: "Zero-channel level (direct-marketing channel) consists of a manufacturer selling directly to the final customer (i.e. door-to-door sales, mail order, Telemarketing, TV selling)". Krajewski, Malhotra and Ritzman (2019) have admitted that: "Creating an effective supply chain involves the recognition of external competitive pressures as well as internal organizational pressures from groups such as sales, marketing, and product development".

In general, the supply chain is a complex of activities. The treatment in its complexity, supply chain represents the entirety of activities that represent it as a system. In fact, the supply chain refers to a set of interacting entities that form a unified whole. This is the reason that supply chain need to manage, as management makes this activity more efficient. For Li. et. al. (2006) supply chain management practices are presented as the set of activities undertaken by an organizations to promote effective management of its supply chain and propose five dimensions of supply chain management practices: the strategic supplier partnership, the customer relationship, the level of information sharing, the quality of information sharing and the postponement. While for Bechtel and Jayaram (1997) supply chain management is neither a recent movement in a logistics research that has been defined in various ways. Scott and Westbrook (1991) and four years later New and Payne (1995) consider SCM as the chain linking each element of the manufacturing and supply process from raw materials through to the end user, encompassing several organizational boundaries.

Regarding the degree of spread of the supply chain management in the business world, Sandraoui and Mchirgui (2014) have determined that: "Supply chain management (SCM) is an integral part of our daily life". As a part of the everyday business activity, the supply chain increases the business competitiveness. Today, competition occurs amongst inter-organizational vertical networks or supply chains that operate mainly in the Western world in quite saturated market environments (Wilkinson and Young 2002). SCM is very important. For Setak, et, al. (2012): "Supply chain management mainly offers an effective use and harmonious interaction of the process from customer to supplier". Referred, to the importance of the supply chain and its management, nowadays these activities have entered an intensive phase.

While, the large numbers of researchers notice not only the interactive coordination between producers, providers and consumers, but accept the strategic importance of this integration. "Over the past decade there has been a growing consensus concerning the strategic importance of integrating suppliers, manufacturers and consumers" Burt and Doyle (1992), Clinton and Closs (1997). The supply chain refers to the satisfaction of the final customer. So, the supply chain has a strategic character. For Hines (2014): "Supply chain strategies require a total system's view of the links in the chain that work together efficiently to create customer satisfaction at the end point of delivery to the customer".

Supply chain management has evolved. According to Berthold (2019): "In Peter Drucker's (1998) new management paradigms this concept of business relationship extends beyond traditional enterprise boundaries and seeks to organize entire business processes throughout a value chain of multiple companies".

## 2. METHODOLOGY

SCM is an ubiquitous activity in business but it occurs with varying intensity in the different businesses which is conditioned, among other things, by the size of the business. In this context, SCM has a greater spread and more intense in large businesses. For this, some large businesses were analyzed in advance and AMAZON was singled out for the reasons:

- It is a potent business.
- Has a valuable SCM history
- Has a high level of SCM currently

The method used for this paper is the descriptive method and the mathematical method as well.

### 3. AMAZON Case study

AMAZON (AMZN) is a business that successfully develops effective supply chain. In its embryonic phase, AMZN supply chain started in 1995 under the direction of Jeff Bezos as CEO. In a timely period of 25 years, AMZN business became very powerful. From a business distributing books to individual customers to a business with a sales intensity of 400 orders / second which according to Ovenden (2019) which translates into revenue of \$ 90 billion per year.

In 2004, which coincides with the 10th anniversary of the founding of AMAZON, referring data to Statista (2020), AMZN annual net revenue was about \$ 7 billion. AMAZON's business has been growing over the years as shown in the chart below:

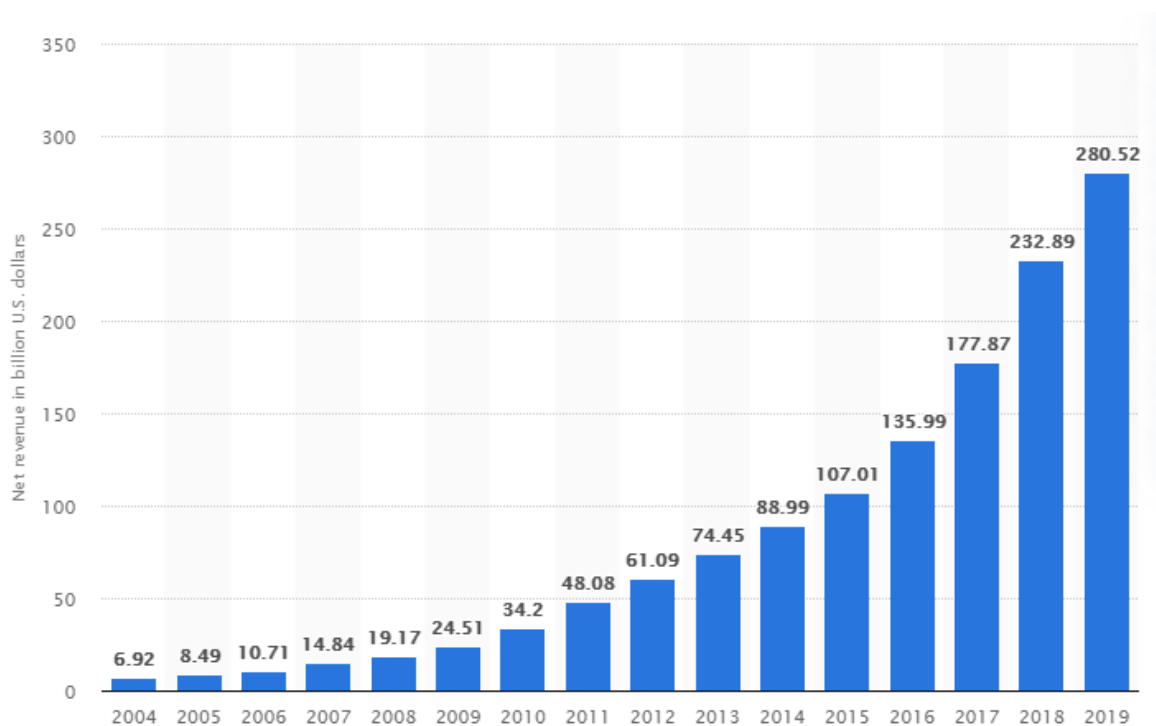


Fig. 1. Annual Net Revenue of AMAZON

Source: Statista 2020

As it can be seen, business revenues have increased on average by 18.3 billion U.S dollars per year. AMAZON has been known for a good performance for many years. By analyzing AMZN's activity, as a successful business, it is evident - the constant change of strategies which makes AMZN an increasingly competitive business in the market where this business operates. AMZN, manages the supply chain very well. Therefore, Kotzab, Teller, Grant, Friis (2014) state: "This then improves the overall competitiveness of the company". AMZN is distinguished not only for changing strategies, but for innovating strategies, thus complicating the activity of the competitors. AMZN constantly uses innovative methods to always be closer to the customer, whether this client or non-client. Our study has identified some of them:

- AMAZON mainly pursues customers differentiation policies through the division into separate segments and in this context the respective price differentiation is done.

- However, AMAZON, by constantly focusing on the customer, adapts the strategies according to the customer's specifications. Thus, starting in February 2005, Amazon applied the "Amazon Prime" service. This service according to Yurieff (2018) presupposes a very fast and guaranteed service for two days that resulted from membership in AMZN against an annual fee. This strategy enabled AMZN to dominate the online retail market.
- AMZN staff is focused on changing strategies by adapting to the external environment in which the business operates. Variability is inevitable and a condition for success. The necessity of change is dictated by the dynamics of development. Generally change brings growth and development. Therefore, the staff of AMZN is continuously engaged in development processes that consider strategic change. Strategic change is a universal aspect of business and offers unquestionable opportunities for growth. The success of strategic change refers to the relatively stable position of the employment relationship between employees with each other and between them on the one hand and the manager on the other. Relatively stable positions consider the structure of the business organization. The organizational structure is reflected in the way the strategy is drafted. The changing strategies that the staff of AMZN has made and continue to enable AMZN to be presented as a learning organization for which Senge (1990) in his book "The Fifth Discipline" states: "A learning organization is a group of people who work to together to increase their capacity to create results that interest them". In this context when AMZN staff found that retailers started offering two-day shipping for their products, which was a strategy used by AMZN, they changed this strategy. So since 1990 on Amazon Prime now the delivery is done in a very short time frame of one hour and is done for free.
- SCM performance is also conditioned by the type of strategy within the organization. One of these strategies is "Assemble to Order" or ATO. This strategy is also appreciated for the fact that it also considers the costs of maintaining inventory. For Ivanov, Tsipoulanidis and Schönberger (2019): "Using the ATO strategy, cycle times are reduced and inventory expenses are kept at a low level, as not all varieties of products need to be stored, but only standardized versions".

The result about the impact of the speed of meeting customer requirements can be confirmed mathematically through one of the decision-making criteria in conditions of uncertainty - the Laplace criterion. Referring to the treatments of Kedhi (2017) were considered three conditions of market demand (low, medium and high) while acknowledging that the probabilities of occurrence of conditions are equal:

$$P(\omega_1) = P(\omega_2) = \dots = P(\omega_n) = \frac{1}{n}$$

Under these conditions, situation of market demand are considered random variables.

Their mathematical tendencies are:

$$E[C_i] = \frac{1}{n} \sum_{j=1}^n c_{ij}, \quad i = 1, \dots, m$$

Considering the business claims for profit maximization according to the Laplace criterion will choose the alternative  $A_k$  which has random variable  $C_k$

$$E [C_k] = \max_{1 \leq i \leq n} E [C_i]$$

**A numerical application related to Laplace criterion**

Business has forecasted 3 ways to delivery that reflect 3 alternatives (A<sub>1</sub>, A<sub>2</sub>, A<sub>3</sub>). Manager has estimated 3 situations of market demand: low demand (ω<sub>1</sub>), medium demand (ω<sub>2</sub>) and high demand (ω<sub>3</sub>). Based on demands, manager has estimated the profits for each alternatives as follow:

000 U.S.dollars

alternatives	situation of market demand		
	ω <sub>1</sub>	ω <sub>2</sub>	ω <sub>3</sub>
2 days delivery (A <sub>1</sub> )	220	450	740
1 hours delivery (A <sub>2</sub> )	310	517	1060
robotics delivery (A <sub>3</sub> )	290	464	985

$$E [C_1] = \frac{1}{3} [220 + 450 + 740] = 470$$

$$E [C_2] = \frac{1}{3} [310 + 517 + 1060] = 629$$

$$E [C_3] = \frac{1}{3} [290 + 464 + 985] = 580$$

Based on Laplace criterion, chosen alternative A<sub>2</sub>.

In this context AMZN has modernized the supply chain. According to Rusli (2012) AMZN this year bought a business for the automated and robotic mode "Kiva Systems" worth \$ 775 billion for the storage mode called Amazon Robotics.

**4. CONCLUSIONS**

- AMZN operates flexibly manner on the strategies used.
- The SCM strategy that uses two-day delivery and after this one-hour delivery has enabled AMZN to dominate the online retail industry.
- The success of AMZN refers to the fact that this business focuses on client in every SCM hanger to the extent that we can be said that the staff of AMZN worships the consumer.
- AMZN is an innovative business. Business uses densely outsourcing. It would be better to use a concise (summary) IT system to be tracked in detail (trace) each supply chain hanger to record any problems encountered.

The AMZN supply chain is constantly being modernized. The innovations have been continuous considering the advancement of the last years of robotics.

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# The Green Economy and the Impact of the Coronavirus Pandemic on its Development

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## Abstract

One of the victims of the coronavirus pandemic is the green economy and everything related to it: green energy, green investments, etc. First, the pandemic led to a drop in prices for hydrocarbon fuels, which equates them with the price of environmental analogues, such as the price of electricity. Secondly, as in the crisis of 2008-2009, public investment aimed at saving the national economy will be directed at rebuilding industries without regard to their environmental friendliness.

Nevertheless, some economists believe that restoring the green sectors of the economy will be easier and will require lower costs than restoring non-ecological sectors.

**Keywords:** Green Economy, Sustainable Development, Coronavirus Pandemic, Green Investments, Green Banking.

## 1. INTRODUCTION

In the modern conditions of world economic globalization, more and more scientists-economists agree that the current economic model of development does not fit into the concept of sustainable development, which has gained widespread recognition around the world and formed the basis of the strategic development document of many countries. Subsequently, based on the basic postulates of sustainable development, a new concept was formed - "Green Economy Concept", which aims to improve the quality of life of the population of our planet, minimize the depletion of natural resources and preserve nature for future generations. That is why the concepts of sustainable development and green economy are emerging and developing.

The term green economy was first used in a 1989 report by a group of leading economists prepared for the British government. [1] It became widely used during the 2008-2009 crises. For example, in 2009 the United Nations Environment Program published a report on the Global Green Development Course, which addressed domestic policy goals, objectives, elements, incentives and directions for the development of a green economy. [2]

The coronavirus pandemic has introduced new realities to the green industry. Leading clean energy analyst Bloomberg NEF has already lowered its forecast for global solar energy demand for the current year as politicians and corporations focus more on short-term stimulus measures than long-term clean technologies. Manufacturers of solar panels around the world are pointing to production and design delays, while analysts warn that costs to green producers will increase significantly.

## 2. METHODOLOGY

The research was based on the method of comparative analysis of the statistical data. In the process of research were used the methods of systematic, comparative analysis and empirical analysis of external secondary data are applied in the paper.

### 3. MAIN TEXT

The Organization for Economic Co-operation and Development (OECD) countries adopted an environmentally oriented (green) growth strategy in 2009 as a tool to overcome the financial and economic crisis in the short (2030) and long-term (2050). A pioneer in the transition to a green economy has been South Korea, which has announced green growth as its national development strategy. China then followed the course of the green economy, followed by the European Union. [3]

Experts estimate that the expected growth of the world market for green technologies is 6.9% (which is twice the growth rate of the world economy). According to the forecast for the total volume of this region, by 2025 it may increase to 5.9 trillion euros. If we analyze the structural data of the green technology market, then we can point out that its two main segments are environmentally friendly clean energy production, storage and distribution and energy efficiency market. By 2025, growth in segments such as environmentally sustainable mobility (development of new transport technologies and biofuel production) is forecast and efficient use of materials and raw materials (see Figure 1).

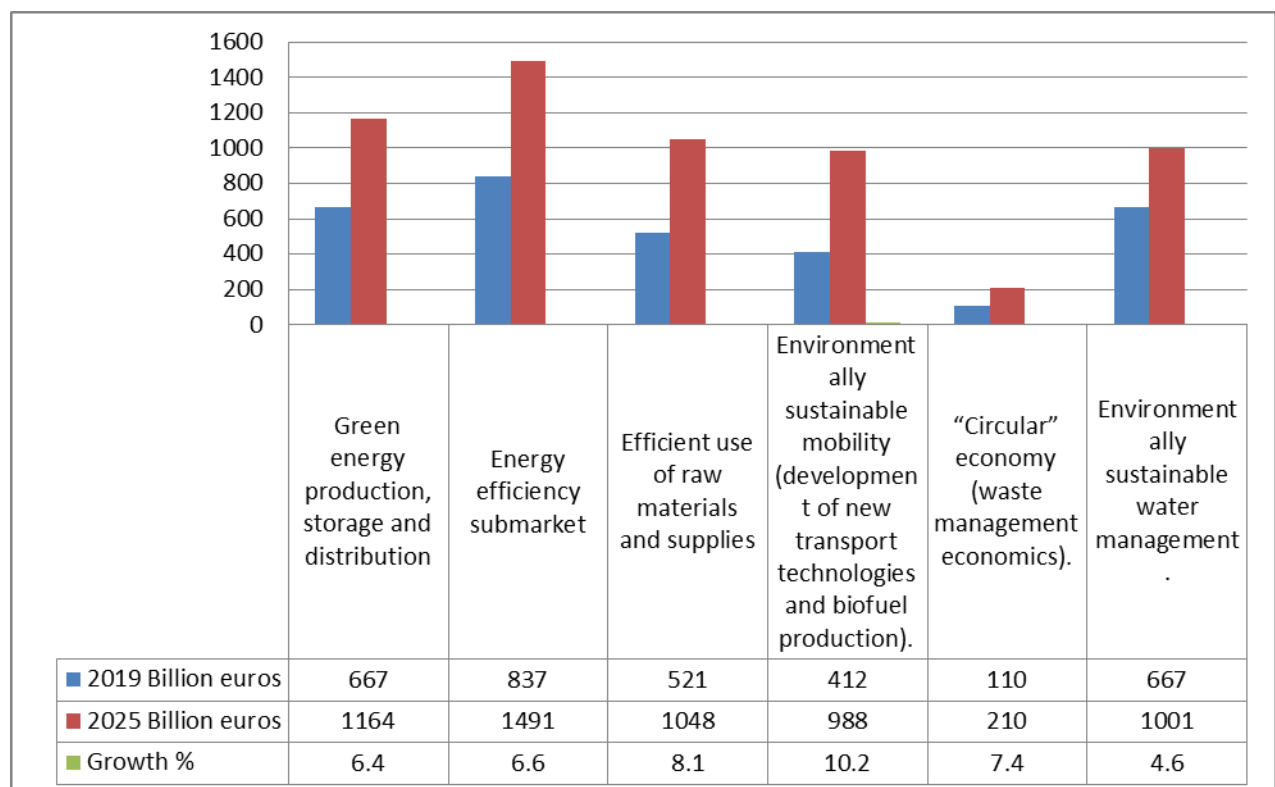


Figure 1. The volume of the six segments of the green technology market in 2019 and the forecast indicator for 2025. [4]

It should be noted that the global mission of the Green Economy Growth Strategy is the efficient use of existing resources and the establishment of environmentally friendly production systems. The goal of developed governments and international organizations in the process of transition to a green economy is to improve the productivity of industrial resources and the efficiency of work to improve the ecology of industrial companies, to promote sustainable industrial development and sustainable production and consumption in developed and developing countries. Therefore, in order to integrate business and environmental goals into long-term sustainable development, to create economic opportunities for businesses, as well as to implement innovative projects, there must be a further evolution of an ecologically oriented ecologically oriented agricultural system.

The green economy creates additional jobs. In Germany, for example, where significant progress has been made towards the green economy, the sector has created an additional 1.5 million jobs. Experts estimate that the green economy will create an additional 24 million jobs worldwide in the future. [5]

However, it should not be forgotten that commercially oriented economic entities are not focused on achieving the overall efficiency of the agricultural system, which also includes environmental and social efficiency.

The peculiarity of many international programs is that they are aimed at creating special zones in the economic space of countries, which is characterized by different production processes and cultures, such as: ecological techno parks and clusters, special economic zones, etc. At the same time, it is important to make the reservation that the transformation of the economic structure of a particular sector, region or country will have less



impact on the ecological situation worldwide. But if we take into account that the economic structures of the largest Eurasian countries, such as China and India, have taken a course in building a green economy, and the economies of Germany, Sweden and Scandinavia have long been developing in the direction of green economy, Georgia's accession to this camp will be a qualitatively new step.

The emergence of the coronavirus epidemic in the world has changed the attitude of governments and economic entities towards the green economy. Adjustments were made to its development forecasts. It is clear that the economic crisis associated with the COVID-19 pandemic has dealt a severe blow to the material well-being of the population. The decline in production, the closure and reorganization of enterprises have led to declining incomes, rising debts, problems with mortgages, rising unemployment, and so on. In such conditions, the population will think less about buying more expensive ecologically clean products and drinking water, buying housing in ecologically clean areas. There may be a peculiar "individualization" of users. An environmentally friendly event such as the growing popularity of eco-friendly public transport and electric vehicles may face controversy.

Rising poverty levels may lead to an increase in poaching, illegal fishing, and deforestation. States can no longer afford to implement environmental projects. Processes related to the creation and use of environmentally friendly and renewable energy sources may be slowed down around the world.

Sales of electric vehicles are also expected to decline. The situation here is exacerbated by the fact that China, which was first hit hard by the virus, is a producer of environmentally friendly and renewable energy technologies, such as solar panels, wind turbines and electric vehicle batteries.

Oil prices, on the other hand, have fallen sharply recently as the Coronavirus pandemic has led to declining demand for crude oil, while Saudi Arabia and Russia have increased extraction amid intensifying price wars. Cheap fuel gives governments less incentive to look for renewable energy sources.

It is possible to transfer green investments from Europe to other regions. At the present stage, European banks and regulators are world leaders in the field of green investments. The question now is whether more convenient contenders will be able to take advantage of the green banking downturn caused by the Corona virus pandemic in Europe.

The International Atomic Energy Agency (IAEA) has called on European countries and international financial institutions to make clean energy the central goal of stimulus packages as soon as the pandemic subsides. United Nations Secretary-General António Guterres compares the importance of the pandemic to financial organizations with the 2008 financial crisis. Nevertheless, the European Central Bank believes that the coronavirus will not be able to stop funding projects for the transition to a green economy. According to its chairman, the bank's portfolio will be filled with more and more green bonds. Ronan Palmer, head of the European Independent Environmental Analysis Center (E3G), said that while Europe needed immediate measures to stabilize its economy, these measures should be in line with the EU's goal of achieving zero emissions by 2050. [6]

The inevitable benefit of a pandemic in our view will be that the load on natural sights will be reduced as tourist flows around the world will be significantly weakened. Also is reduced airfare, service and catering facilities. As the online employment segment grows, some organizations will switch from home to work mode, leading to a reduction in air pollution in cities.

Georgia has faced significant challenges at the modern stage of its development. Among them, it is important for the country to introduce and develop the principles of sustainable development; one of the important directions in this regard is the development and implementation of green projects. The country signed a declaration of association with the European Union in 2014 and expressed its desire to become a full member of the European Union. At the same time, Georgia must address the problems facing Europe. In this regard, a project was implemented in 2016 - "Green Ideas for the Progressive Development of Georgia", which aimed to understand the basic principles of sustainable development in the country and the main ideas and directions of European green policy.

Under the auspices of the Ministry of Economy and Sustainable Development of Georgia, a green growth strategy was developed in 2017. The German International Cooperation Organization was involved in the works.

One of the priority directions of the country's economic development for the unification of Georgia into the European family is the rational use of natural resources and prevention of natural disasters. This will be an important step forward on the path of sustainable development of the country's economy. Georgia joined the Organization for Economic Co-operation and Development (OECD) Green Growth Declaration in 2016. According to this declaration, the signatory countries should cooperate in the development of the green economy. [7]

In 2019, Georgia took modest steps in the green bond market for the first time, in this regard, the country's leading holding company Georgia Global Utilities - placed international green bonds worth \$ 250 million on the stock exchange. [8]

The COVID-19 pandemic has made significant adjustments to Georgia's transition to a green economy. It has dealt a significant blow to Georgia's economy. According to the National Bank of Georgia: GDP growth will be negative and will amount to -5%. This is largely due to declining exports and investment, as well as significantly reduced remittances. [9] However, the Georgian government, in cooperation with international financial institutions,

has been able to raise significant funds to partially offset the effects of the severe shock and to help the country's economy recover in the post-pandemic period.

#### 4. CONCLUSION

Thus, the green economy is a strategic direction for the development of the world economy as a whole, as well as Georgia. One of the priority directions of our country in ecological relations is ecological legislation, including the development of green economy. The green economy strategy should become a model of Georgia's sustainable development in the long run.

Removing the constraints caused by the Coronavirus pandemic on the basis of a consistent and well-thought-out program will enable Georgia to overcome the pandemic by introducing an adaptive model of sustainable development and the principles of a green economy.

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# Studying the Impact of Work Capacity on the Work Engagement of Older Employees in Slovenian Enterprises

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## Abstract

Maintenance of work capacity of older employees is one of the relevant factors of their work engagement. This paper presents the results of the survey that was carried out among employers and older employees in Slovenian medium-sized and large enterprises with an aim to establish the impact of older employees' work capacity on their work engagement. For this purpose, factor analysis was used to reduce large number of variables to a smaller number of factors, and regression analysis was used to verify the above-mentioned impact. The performance of factor analysis resulted in a single factor for the maintenance of work capacity and in a single factor for the work engagement. Based on the regression analysis results we confirmed that maintenance of work capacity of older employees has a significant positive impact on their engagement in the workplace. The results also show that stimulating active aging, offering the same possibilities to all employees, encouraging societies of all ages with expansion of solidarity among generations, and several activities for building an adequate working environment are the most important components of maintenance of work capacity of older employees.

**Keywords:** ageing, human resource management, survey, work capacity

## 1. INTRODUCTION

Ageing and downsizing of the workforce in the European Union demands a new approach to the management of older people on the workplace level as well as on the level of economic and social policies of member states. As population growth is declining in European countries (van Nimwegen & van der Erf, 2010), measures for the realisation of the paradigm of active ageing need to be formed, with their combining and coordination, which we call management of older people. Active ageing creates a new ethical dilemma around the rights of the employee and the employer, as well as the growing needs in society for the support of the growing number of older people (Ilmarinen, 2009).

In enterprises, human resources management plays a key role in addressing the challenges of demographic change, including the ageing of employees. Ilmarinen (2009) claims that ageing of employees demands acknowledgement of age and ageing factors of the employees in everyday management. Enterprises are to a great extent not aware of the importance of the possibilities of older people in the context of knowledge transfer and rich experience and how to better use the human capital of the ageing workforce. On the contrary, older employees are often seen as an obstacle in organisations (Contini & Leombruni, 2006). It is therefore necessary to identify many possibilities for maintaining

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the employees' working capacity and engagement, which contributes to the positive functioning of employees of different age in all fields (Feinsod et al., 2005).

Remery et al. (2003) found that employers usually connect older employees mainly with low productivity, but productivity supposedly depends more on the combination of work and capital in the production process than on the personal characteristics of employees. Skirbekk (2008) claims that successfulness in the workplace can decrease with age, but not with all tasks and especially not with professions where competences, which do not decrease with age, are important. Therefore, it is important that tasks and workplace are adjusted to an older individual. One also has to consider that adaptability of older people in an organisation, including their work capacity, does not depend so much on the age but rather on their working environment and the possibilities to learn. Investing into the development of employees is essential for an organisation and its business results (Contini & Leombruni, 2006).

This paper aims to establish the impact of older employees' work capacity on their work engagement. Based on the stated, the research question is therefore as follows: RQ1: Does maintenance of work capacity of older employees have a significant impact on the work engagement of older employees? A survey in large and medium sized enterprises in Slovenia was made to examine the impact of older employees' work capacity on their work engagement. Quantitative data processing included a factor analysis and a simple regression analysis. We verified the following hypothesis: H1: Maintenance of work capacity of older employees has a significant positive impact on their work engagement in large and medium sized enterprises in Slovenia.

In the following sections, we present the review of the literature on a holistic approach to the management of older employees with an emphasis on work capacity and work engagement of older employees. Then we describe the methodology used in our empirical research, and the obtained results. We conclude the paper with the discussion of the main findings, limitations and opportunities for future research.

## **2. THEORETICAL FRAMEWORK**

### *2.1. A Holistic Approach to the Management of Older Employees*

An ageing workforce and management of older employees present a big challenge for organisations when it comes to forming an adequate working environment (Mahapatro et al., 2017; Contini & Leombruni, 2006). Drucker (2001) explains that organisations which see the older workforce as a problem and get started the management of their older employees only in case of emergency intervention, will probably lose the competition against those who act proactively in this field. They will find themselves in a situation where it will be hard for them to compete on the market and to attract and retain the right people, especially when there is a shortage of labour.

The strategy for the management of older employees has to be a part of holistic and permanent process in an enterprise. It covers the forming of an adequate working environment for older people and mainly the prevention of problems which apply to older employees. It focuses on the entire lifetime of all employees of different ages and is based on adopting measures for the benefit of older employees and changing opinions on older people in the entire organisation. Human resources management is essential for all approaches to management of older employees and presents an adequate confrontation of the challenges of an ageing workforce (Bal & Dorenbosch, 2015).

Employers have to be aware of the importance of management of older employees and new approaches in the field of human resources management which enable older employees a friendly working environment and well-being in the workplace (Mahapatro et al., 2017). Professional performance of older employees depends mostly on the characteristics of the workplace (Beck, 2013), which is why an individual approach of human resources management towards every employee is important (Bal & Dorenbosch, 2015) and with that a greater emphasis on the well-being of an individual in the workplace (Mahapatro et al., 2017; Hirsch, 2003). Age differentiation in the workplace is necessary since the needs of younger employees are different from the needs of older employees in the workplace. More attention should be given to the forming of a work team with employees of different ages because the employees could collaborate and form an intergenerational synergy (Gellert & Kuipers, 2008).

Fraccaroli et al. (2017) emphasise that organisations have to ensure age-appropriate forming of workplaces and a flexible workday, support for lifelong learning and an intergenerational transfer of knowledge for older employees. The objectives of management of older employees have to be in harmony with the strategic priorities in connection with human resources planning (Fraccaroli et al., 2017).

## *2.2. Maintenance of Work Capacity of Older Employees in an Enterprise*

Ilmarinen (2009) summarises the research on work capacity of employees and explains that work capacity is greater in those older employees who reported on improvements in organisation, better work measures and better relationship with the superior. Naegele and Walker (2006) as well as Fraccaroli et al. (2017) list some other examples which additionally increase flexibility and thereby retain the work capacity of employees: measures for reduction of working hours—weekly or monthly, special forms of workplace rotation, work in age diverse groups, introduction of mentoring—workplaces, which bring together older and younger employees, limitation of duration of employment in especially stressful workplaces, relief of shift work, night work, overtime work, heavy physical strains, breaks meant for health prevention.

Flexible working practices that suit both individuals and a whole enterprise are crucial for older employees (Cheung & Wu, 2013). How successful flexible work forms and retention of work capacity of older employees are in practice depends on the possibilities and willingness of the employer to even offer them and to what extent (Mahapatro et al., 2017; Loretto et al., 2005). Ilmarinen (2009), Cheung and Wu (2013) think that work in an organisation has to be more attractive and the working environment very good, because a good working environment stimulates work capacity of employees, increases their productivity and is an important competitor in comparison to other enterprises.

Work characteristics, such as working conditions and job demands, are key determinants of work capacity. In addition, individual resources, namely health and functional capacity, knowledge and skills, values, attitudes and motivation are related to work capacity (Airila et al., 2012). Authors Chaudhary (2014), Ilmarinen (2009) and Airila et al. (2012) emphasize that enterprises should take care of the employee's work capacity, because higher work capacity of older employees consequently leads to higher work engagement.

## *2.3. Importance of Engagement of Employees in the Workplace*

According to Macey and Schneider (2008), Harter and Adkins (2015), work-engaged employees feel an energetic and pleasant connection to their work and at the same time feel efficient and capable of carrying out their work successfully. The engagement of an employee refers to the level to which an individual can entirely exploit his/her cognitive, emotional and physical abilities for the performance of work demands and tasks in the workplace.

According to Robertson and Cooper's (2010) findings, employees' work engagement rises when they feel good at their work and declines when their well-being is low. This greater intentness on the employees' well-being is important and substantively rounds the thinking about the engagement of employees because on the one hand it includes the engagement of employees, which we can describe as a desired behaviour of the employees, and on the other hand the employee's psychological perception of work and relations in the workplace.

## **3. METHODOLOGY**

### *3.1. Preliminary Quantitative Research*

Within the preliminary quantitative research, we first gathered data with the method of written questioning in a sample of 60 postgraduate students at the University of Maribor's Faculty of Economics and Business and 20 employees from different enterprises, who were prepared to participate in the preliminary research.

Considering respondents' answers in the preliminary quantitative research we could draw conclusions on to what extent and with which statements can we measure an individual construct. We wanted to establish if the respondents had understood the individual construct and its components (statements). We eliminated some statements from the

questionnaire for the employers and older employees. The reasons for elimination of certain statements were the following: the statement was incomprehensible, the respondents pointed this out, duplication with other statements.

### 3.2. Main Quantitative Research

We gathered the data with quantitative research on the final sample. In the first step we first defined the population of enterprises, which presented the basis for acquisition of units in the final sample. We interviewed the employers and older employees of the enterprises which were included in the research. For older employees, the survey took into account employees aged 50 and over. Large and medium sized enterprises in Slovenia were included in our sample. The reason we limited our research based on enterprise size is the following: we have assumed that the majority of small enterprises have not developed systematic human resources management. We also used the theoretic basis of authors Hornsby and Kuratko (2003, 74-77), who on the basis of a research study explain that the majority of small companies do not have a human-resources professional and that the owner of a small company performs this function. On the basis of their research authors Hornsby and Kuratko (ibid.) also state that the percentage of companies with a human resources department grows with the size of the company. Based on random selection we included 1.000 enterprises in the final sample. Data collecting was performed with the method of electronic and written questioning. In the main survey, 472 enterprises responded, the response rate was 47.2 %. The majority of them operate in the Central Slovenia region (38.3%), Drava region (18.2%) and Mura region (10.4%). The smallest percentages are in the Central Sava region (0.2%), Lower Sava region (1.1%) and Littoral-Inner Carniola region (1.3%). The main survey thus involved 472 employers and 1086 older employees. 51.9% of employers were from large enterprises and 48.1 % of them from medium sized enterprises. On the other hand, 54.3 % of older employees that participated in our research were from large enterprises, and 45.7 % of them were from medium-sized enterprises.

As a research instrument we used a survey questionnaire with which we gained the width of insight in the field in question. The questionnaire includes questions of a closed type in the form of statements based on a 5-point Likert-type scale, where 1 = strongly disagree and 5 = completely agree. Participating employers expressed their agreement with the statements describing maintenance of work capacity, and participating employees expressed their agreement with the statements describing their work engagement. Statements in the questionnaire were formulated using the statements of different authors listed below.

Maintenance of work capacity of older employees is described with the statements regarding stimulating active ageing; offering the same possibilities to all employees, regardless of age; encouraging societies of all ages with expansion of solidarity among generations; recognizing the values and identities of older people and their contribution to society (Ilmarinen, 2009); intergenerational collaboration (Gellert & Kuipers, 2008); taking care of the security and health at work of older employees; taking care of appropriate workload of older employees; coordinating demands of the workplace with the competences and abilities of older employees; flexible working hours; adjusting the workplace according to the individual (Beck, 2013); offering older employees opportunities for education and training (Fraccaroli et al., 2017). Work engagement of older employees is described by the statements (Rožman et al., 2019) relating to the employees' performance of their work with passion, their engagement to the quality of their work, the feel of the connection with the enterprise in which they worked, their awareness of the importance of innovation for their enterprise, their help to develop the enterprise, the feel that their work and job are important, and proudness to be employed in their enterprise (Macey & Schneider, 2008); to the employees' engagement to achieving successful business results (Wagner & Harter, 2006); to the trust in their colleagues and the manager; to their belief in the successful development and operation of their enterprise (Xu & Thomas, 2011); and to staying with the enterprise, even if they were offered another job opportunity, to the well-being at their workplace and to the feel like a "part of the family" in the enterprise (Robertson & Cooper, 2010).

### 3.3. Analysis

Factor analysis was used to combine large number of variables describing a single factor into a smaller number of factors from a numerical point of view, too. When justifying the use of factor analysis, we verified whether the value of Kaiser-Meyer-Olkin statistics is greater than or equal to 0.5 ( $KMO \geq 0.5$ ) (Kaiser, 1974). The reasonableness of the use of factor analysis was additionally tested by the Bartlett's test of sphericity ( $p < 0.05$ ). We followed the instructions of Costello and Osborne (2005) and kept only those variables, whose communalities ( $h$ ) were equal to or

higher than 0.40 (Costello & Osborne, 2005). Hair and others (1998, 111) suggest the minimum level for factor loadings ( $\eta$ ) 0.30; factor loadings which are bigger than 0.40 are marked as important and factor loadings which are bigger than 0.50 are marked as statistically significant. We checked the reliability of measurement of research within the scope of inner consistency with Cronbach's alpha coefficient (Cronbach, 1951, 297–334). The authors state that the reliability of the measurement, which has a coefficient  $\alpha \geq 0.80$ , is marked as exemplary, if the coefficient is in the interval  $0.70 \leq \alpha < 0.80$ , as very good, in the interval  $0.60 \leq \alpha < 0.70$  as moderate and if the coefficient  $\alpha$  is smaller than 0.60, as barely acceptable.

Based on the gained new variables (factors) we performed a regression analysis. With the regression analysis we checked the impact of the factor, which was in the role of an independent variable (a factor of maintenance of work capacity of older employees), on the factor in the role of dependent variable (work engagement of older employees); we used a single regression analysis.

#### 4. RESULTS

The values of Kaiser-Meyer-Olkin measure of sampling adequacy (KMO = 0.909 for maintenance of work capacity, KMO = 0.961 for work engagement) and the results of Bartlett's test of sphericity ( $p < 0.01$  for each of the observed construct) justify the use of a factor analysis for each of the construct studied.

For maintenance of work capacity, the values of all communalities are higher than 0.50, therefore we have not eliminated any variable on this basis. The total variance explained is 62.4%. All factor loadings are higher than 0.60 and therefore statistically significant. The most important role in maintenance of work capacity of older employees have the variables with the highest factor loadings; they relate to stimulating active aging ( $\eta = 0.867$ ), offering the same possibilities to all employees, regardless of age ( $\eta = 0.864$ ), and encouraging societies of all ages with expansion of solidarity among generations ( $\eta = 0.859$ ). The value of Cronbach's alpha for the factor maintenance of work capacity of older employees is 0.936, therefore, the reliability of the measurement in the maintenance of work capacity of older employees is exemplary.

For the variables describing work engagement, the values of all communalities are higher than 0.80, therefore we have not eliminated any variable. Total variance explained for this construct is 84.9 %. All factor loadings are higher than 0.80. In our case, the most important role in work engagement of older employees plays passionate pursuit of work ( $\eta = 0.948$ ). The value of Cronbach's alpha for the factor work engagement of older employees is 0.982, therefore the reliability of the measurement in the work engagement of older employees is exemplary, too.

In the continuation we present the results of testing of the hypothesis H1. Table 1 shows the regression analysis results.

Table 1. Regression analysis results

Dependent variable	Independent variable	Unstandardized coefficients		Standardized coefficients		Significance
		B	Standard error	Beta	t	
Work engagement of older employees	Maintenance of work capacity of older employees	0.787	0.020	0.774	40.179	0.000

We first verified the quality of the obtained regression model. The value of correlation coefficient between dependent variable (work engagement of older employees) and independent variable (maintenance of work capacity of older employees) is  $r = 0.774$ , which indicates that there is a moderate connection between the variables. The value of determination coefficient is 0.599. Determination coefficient explains that 59.9% of the variance of the dependent variable (work engagement of older employees) is explained with the variance of the independent variable

(maintenance of work capacity of older employees). We have established the reliability of the derived regression function with the F-test:  $F = 1614.348$ ,  $p < 0.001$ . The results of the regression (Table 1) indicated that the regression coefficient of maintenance of work capacity of older employees was 0.787 ( $\beta = 0.774$ ) and was significantly different from 0 ( $p < 0.001$ ). Based on the conducted simple regression analysis we confirmed the hypothesis H1: Maintenance of work capacity of older employees has a significant positive impact on their work engagement in large and medium sized enterprises in Slovenia.

## 5. CONCLUSION

In the context of demographic changes, management of older people contributes to the forming of new views on the entire field of management and is an important part of a new management paradigm (van Nimwegen & van der Erf, 2010; Ilmarinen, 2009). Management of diversity demands a strategic approach to handling people at work and is an important part of human resources management, which includes a broad collection of activities with which the functioning of individuals and organizations is improving (Beaver & Hutchings, 2005; Fraccaroli et al., 2017).

Literature review let us draw the conclusion that for maintenance of work capacity of older employees, the following approaches play a big part: maintenance of active ageing in an enterprise; offering the same possibilities for all employees, regardless of age; encouragement of a society of all ages with growth of solidarity among generations; recognition of value and identity of older people and recognition of their contribution to society; the possibility of collaboration in different work groups (intergenerational collaboration); care for the safety and health at work of older people; care for an appropriate workload of older employees; coordination of the demands of the workplace with the abilities and capabilities of older employees; establishing pleasant working hours (flexible working hours); adjustment of the workplace according to the individual; the possibility of education and training. The results of the survey in Slovenian enterprises show that stimulating active aging, offering the same possibilities to all employees, encouraging societies of all ages with expansion of solidarity among generations, and several activities for building an adequate working environment are the most important components for the maintenance of work capacity of older employees.

Based on the regression analysis results in Table 1 we answered the research question and confirmed the hypothesis that maintenance of work capacity of older employees has a significant positive impact on their work engagement in large and medium sized enterprises in Slovenia.

Employers with adequate workplaces, who include adequate solutions and measures, affect the successful ageing of all employees. The employers have to ensure adequate flexibility at work and structuring of working environment for older employees. The emphasis has to be put on reduction of workload in the workplace. Older employees should also have the possibility to participate in decisions which affect their work. Training in the workplace has to be a part of every employee despite their age. Programs which refer to ageing should be introduced; they should be treated as part of the employee diversity. The objective of the stated programs is to raise awareness of ageing, and to encourage active ageing and age diversity in the workplace. Encouragement also has to be placed on the field of intergenerational collaboration and reaching common solutions and results (Ilmarinen, 2009).

Theoretical framework and our research are limited to the maintenance of work capacity and the work engagement of older employees. We identify future research possibilities in connecting the theoretical framework and our research with building adequate working environment for older employees. An opportunity for future research is also seen in the study of how an appropriate work environment for older employees affects their absenteeism and business results.

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# CIO Competences and Skills: Comparison of Empirical Findings with Alternative Frameworks

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## Abstract

Companies are constantly looking for new employees to fill open positions or for succession planning. In the recruitment process HR departments collect requirements for the - to be filled - position and compile a job advertisement which is, in most cases, published in electronic form on the company's web presence and on job portals. In some cases, this task is delegated to professional recruiters and headhunters, especially if a change of staff is still not announced and confidential (e.g., for management positions).

The Scope of this research are job openings published by the companies themselves in Germany.

Purpose: This research investigates which skills and competencies are requested by future employers for IT Top Management positions. Furthermore, this research compares the skills and competences derived from job advertisements with scientific concepts and governmental frameworks.

Methodology: Structured content analysis of Job advertisements collected on one single day has been used to determine which skills and competencies are needed for which Job title.

Results: For all candidates of job advertisements, the skill "communication" and "being a Team player" are requested most frequently and on the competence side employers ask most frequently about "technology" and "leadership competencies". A comparability of skills and competencies from job advertisements with other concepts and frameworks is not directly possible as the underlying concepts and definitions of the construct "skill" and "competence" is fundamentally different.

**Keywords**: Chief Information Officer, competence, skills, ESCO, job advertisements, recruitment

## 1. INTRODUCTION

Synnott defined 1981 the role of the chief information officer (CIO) as the "senior executive responsible for establishing corporate information policy, standards, and management control over all corporate information resources" [1]. [2]

This job title has been adapted also in other countries, among these Germany. Yet, this research indicates that this is mainly the case in larger enterprises while small and mid-sized enterprises (SME) call their IT executives "IT Leiter", "IT Manager" or "IT Abteilungsleiter". Yet also US based research show that other job titles like "IT director", "SVP/VP IT" and "IT manager" are widely used [2].

Many studies have shown that the role of a CIO is essential for an organization:

A CIO can positively influence the company performance not only by fostering the IT efficiency, which means lowering cost and by this increase the profit but increase the IT effectivity through improved IT use [3].

Measures to drive IT efficiency are introducing tailored internal IT management systems [4], efficient IT service management (ITSM) frameworks [5] and the right organizational setup [6]. An efficient budgeting and controlling

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process which ensures that investments in technology deliver the planned results [7] is essential. Measures to improve IT effectivity are underpinning business processes with appropriate information technology [2].

But ultimately a CIOs main task is to ensure Business-IT-Alignment (BITA). This results in strategic information technology initiatives driving business performance [8].

The tasks of a CIO are diverse and evolving in line with the development and transformation of companies. To have the right tools on hand to tackle all challenges the responsible IT top managers need knowledge, competencies and skills on hand to do their job well by improving the efficiency and performance on the job. The following part of the introduction describes the importance of job advertisements as source for empirical studies in different fields of science and the concept of the ESCO Framework supplied by the European Commission.

The second part of this paper explains the Methodology of empirical, structured content analysis of job advertisements.

The third part presents results and discusses these while the fourth section draws conclusions and gives recommendations for practitioners and researchers.

### *1.1. Job Advertisements as source for empirical studies*

In the past years, several scholars from different fields of science have used job advertisements for statistical analysis of tasks or competencies. Quantifying skill relevance to job titles with a very detailed metological description of automated analysis was published by Zhou [9]. Several researchers investigate job advertisements for library positions [10, 11]. Barbosa analysis competence requirements for corporate social responsibility professionals [12] while Pejic-Bach et al. looks also for competences in the area of Industry 4.0[13]. Roscher looks at different aspects (training, tasks and strategic orientation of jobs) of IT Top Management job ads [14–16] and impacts of COVID-19 on job advertisements and priorities of IT Managers [17].

Schulz looks at the historic side of using job ads in the last two centuries [18]. Kim does a methodological assessment of research using job advertisements [19].

### *1.2. ESCO - European Skills/Competences, qualifications and Occupations Framework*

According to the European Commission publications ESCO is

*“... the multilingual classification of European Skills, Competences, Qualifications and Occupations. The ESCO classification identifies and categorises skills, competences, qualifications and occupations relevant for the European labour market and education and training.” [20]*

Two of the aims stated by the authors are:

“

*to make data more transparent and easily available for use by various stakeholders, such as public employment services, statistical organisations and education organisations;  
-to facilitate the exchange of data between employers, education providers and job seekers irrespective of language or country;” [20]*

The core of the classification framework is a database model which links three pillars together:

- Occupation pillar
- Knowledge, skills and competencies pillar
- Qualification pillar.

The occupations are structured according to the International Standard Classification of Occupations (ISCO-08), developed by the International Labor Organisation (ILO).The occupation codes comprise of 4 digit ISCO code and additional ESCO codes separated by a “.”

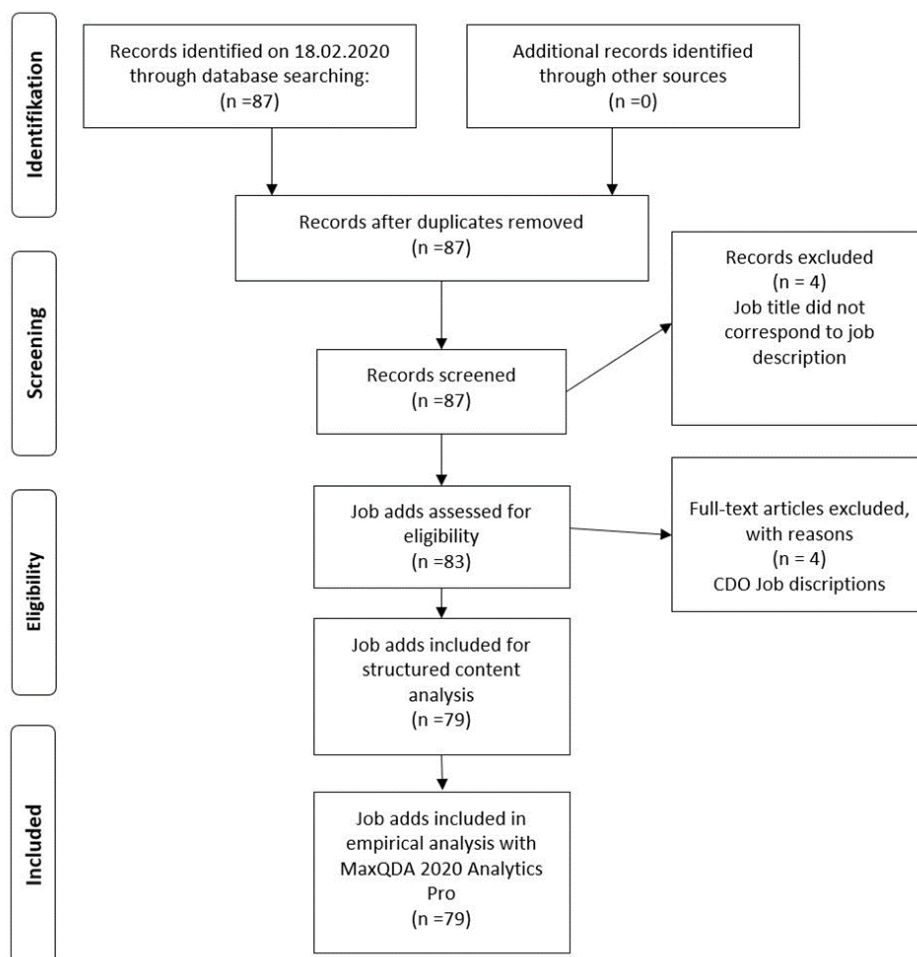
## 2. METHODOLOGY OF THE EMPIRICAL RESEARCH

### 2.1. Selection of Sources

The search of the job market regarding open positions of CIOs and IT managers has been carried out by searching HR online portals and social networks which offer job advertisements. After searching on different portals, it was found that most job openings are present in several places. This led to the decision to focus on the following portals for final information gathering: www.LinkedIn.com and wwwIndeed.com. A total of 87 job ads have been collected manually from 2 platforms (indeed.com and linkedin.com) on one single day (18.2.2020). All records have been copied and archived for further research. The ads represent all job openings in Germany on a single day from these two platforms. Scope has been the upper IT management and digitization management jobs. Job advertisements posted by professional recruiters have not been considered and collected.

### 2.2. Data cleansing

Process of data cleansing (see Figure 2): After manual proofreading, 4 records have been removed for the analysis as their job title did not correspond with the content or had been outdated or not complete. Additional four Datasets have been removed as the job title was Chief Digital Officer (CDO) and the tasks of these positions differed too much from those of IT managers and CIOs. The remaining N=79 records have been analyzed with a structured content analysis.



Source: author's construction

Fig. 2. Selection of job advertisements for the structured content analysis in line with the PRISMA Model [21]

### 2.3. Codes

These main Codes which have been used to cluster the information are:

- “Company” summarizes following Information: Company Name, Company info, Location, Benefits/Company Offers for employee, Number of employees in the company.
- “Job title” with 5 subcategories
- “Job information”: This information is only given sparsely in the job openings: Information about the number of clients have been disclosed by 4 companies, Information about the report structure to the or respectively the collaboration model with the management has been disclosed in 10 cases. An overview over the area of responsibility was mentioned in 12 cases.
- “Tasks”: According to Krmar [22] the tasks for organizations can be clustered into 4 main areas:
  1. IT Management function based on the resource employee.
  2. Management of information based on the resource information.
  3. Management of information systems based on the resource IT application.
  4. Management of information- and communication technology based on the resource infrastructure.
- Profile or Qualification section:
  1. Formal training
  2. Competencies
  3. Skills
  4. Knowledge
- Company offerings / benefits

For this research Job titles, Skills and Competencies have been used. These can normally be found in the sections “Your profile” or “Your qualification” of a job advertisements. The content of such sections is normally little structured and many requirements are described in one or more sentences. Therefore, manual reading and consequent decision for one of eight skill or one of eight competence categories has been done. Requirements could not end up in both skill and competence at the same time.

### 2.4. Coding rules

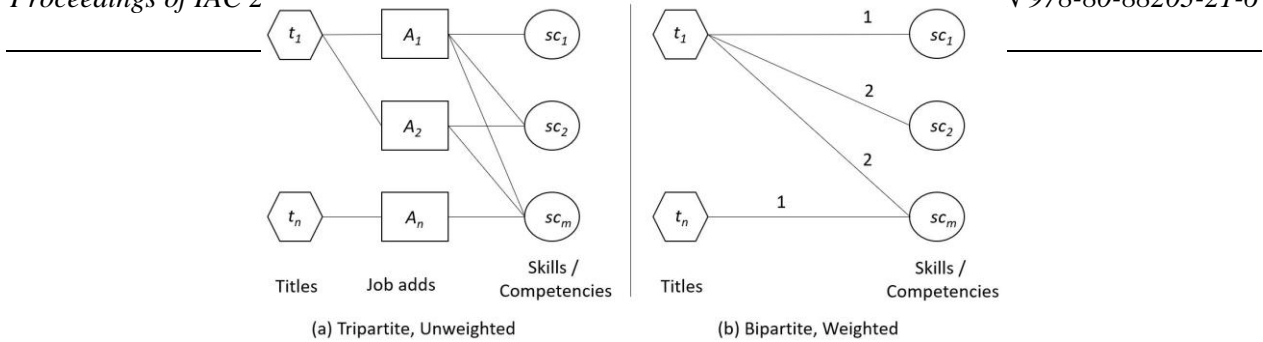
Some codes on the first level as Tasks, Company info, Job information and Benefits/Company offers have partly been used several times per Job advertisements. This was used to analyze the structure of the records.

Others like Job title, Company name and Location only once. The same is true for subcategories Task and Profile.

### 2.5. Data aggregation

Figure 3 shows the aggregation of data to achieve weighted relationships between Job titles ( $t$ ) and skills and competencies ( $sc$ ) for IT Executives. As every job ad contained one or more job titles firstly a decision to further use the job title which suggest the highest level in the company. The ranking was defined as followed: 1.) CIO, 2.) OIT, 3.) Leiter IT (Head/Director of IT), 4.) IT Manager. Then normalization has been executed and all job ads have been assigned to one of the job title ranks.

Every job ad now has only one title, yet there are many job ads using the same job title. The relationship is 1 to many. As many job ads have overlapping descriptions of skills/competencies the relationship is many to many. This results in the conclusion that the dataset as shown in Figure 3 (a), contains (among other information), titles, ads and skills/competencies. This forms an unweighted tripartite graph. Assuming that a skill/competency is either required or not in a job, a simplification can be done to focus on the relationship between titles and skills/competencies. This results in a weighted bipartite graph between titles and tasks as shown in Figure 3(b). The count on the connection line represents the number of ads with title  $t_n$  that require tasks  $sc_m$ . For further analysis, the weighted values have been converted to relative values. A similar process has been independently developed by Zhou et al. [9]



Source: modified from [9]  
 Fig. 3. Relationship concept

### 3. RESULTS AND DISCUSSION

#### 3.1. Research Question

Research object:

Job advertisements (also referred to job ads, job openings or ads in the paper)

The research questions are:

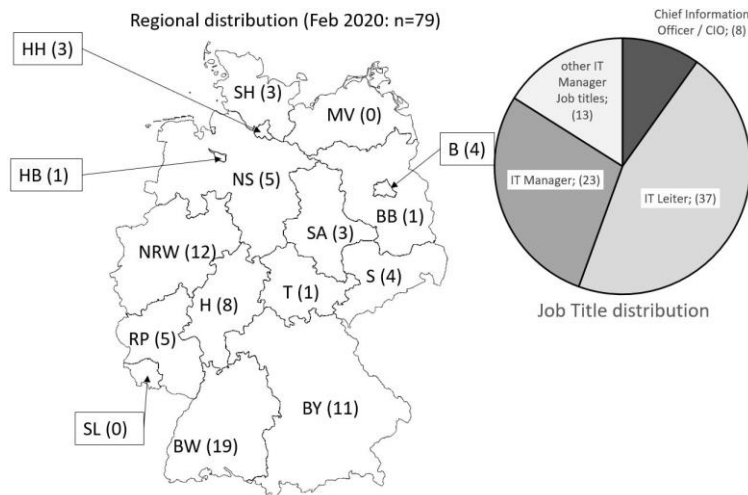
RQ 1:

Do different Top Information Management Jobs (differentiated by Job titles) require different skills and competencies?

RQ2:

Are results from structured content analysis based on job advertisements directly comparable with other scientific or governmental frameworks?

#### 3.2. General findings based on empirical research on job advertisements.



Source: author's construction  
 Fig. 4. Regional & Job title distribution of job advertisements

#### 3.3. Analysis of job advertisements regarding required competencies

The competencies have been both analyzed regarding the overall sample as well es for the sub-samples (based on job title groups). The results have been sorted regarding the descending appearance in the overall sample. This reveals different priorities in the sub-samples.

Regarding the RQ1: Most competencies are shared in the same by all job title groups. The most required “Technology” and “Leadership Competence” are equally important for all. Employers regard the “Business” Competence of CIOs as more important as for other groups - which might be an indication that the CIO is more seen as a C-Level top manager and a partner for the business leaders.

Table 1. Frequencies of competences for different job title groups.

Competencies	Job titles									
	total (n=79)		CIO (8)		IT Manager (22)		IT Leiter (37)		other IT Management Jobtitles (12)	
	Counts	%	Counts	%	Counts	%	Counts	%	Counts	%
Technology	66	84	7	88	19	86	28	76	12	100
Leadership competence	49	62	5	63	9	41	27	73	8	67
Project Management	30	38	3	38	5	23	20	54	2	17
Business	22	28	5	63	3	14	11	30	3	25
IT Process Competence	12	15	1	13	4	18	6	16	1	8
Leadership across locations and international	6	8	2	25	3	14	0	0	1	8
Problem solving and Consulting Competence	3	4	0	0	2	9	0	0	1	8
Contract Management	2	3	0	0	0	0	1	3	1	8

### 3.4. Analysis of job advertisements regarding required skills

The skills have also been both analyzed regarding the overall sample as well as for the sub-samples (based on job title groups). The results were sorted regarding the descending appearance in the overall sample. This reveals different priorities in the sub-samples.

Regarding the RQ1: Most skills are shared in the same ranking by all job title groups. The most required “Communication skills” is equally important for all. “being a Team player” is important for all except the IT Leiter job title. He is more requested to have skills of “analytic, strategic thinking and acting”. Being a “Team player and “Active change manager” rank right behind, other than with all other job titles. This might be an indicator that IT Leiter job titles are seen more as unitarian and executing and less strategic and leading.

Table 2. Frequencies of skills for different job title groups.

Skills	Job titles									
	total (n=79)		CIO (8)		IT Manager (22)		IT Leiter (37)		other IT Management Jobtitles (12)	
	Counts	%	Counts	%	Counts	%	Counts	%	Counts	%
Communication skills	44	56	5	63	14	64	21	57	4	33
Team player	22	28	4	50	7	32	8	22	3	25
Analytic, Strategic Thinking and acting	18	23	3	38	3	14	10	27	2	17
Hands on mentality	14	18	2	25	4	18	7	19	1	8
Organized	13	16	2	25	3	14	6	16	2	17
Active Change Manager	11	14	1	13	1	5	8	22	1	8
Innovation	4	5	0	0	2	9	2	5	0	0
Process Thinking	3	4	0	0	1	5	2	5	0	0

### 3.5. Mapping of empirical results to the “CIO concept of competence”

Previous work by Ravarini et. al. [23] identified competencies which have an impact on company performance. They defined a CIO profile by a set of competencies which are distinguished through three main dimensions:

“1. Know to Be: mental, physics and basic sense attitudes, value system, factors linked to personal identity; 2. Know What: knowledge of the work, tasks, methods, own role, the context, the company; 3. Know How: knowledge of the practices and solutions (the technical knowledge and skills required to perform IS management activities).” [24]

Through literature review on CIO competencies and activities they identified skills and grouped them into 12 classes as shown in Table 3.

Table 3. Competence dimensions and associated skills according to research from Ravarini et al.[23]

Competence Dimension	Nr.	Skills
Know how to be	1	Interpersonal skills
	2	Holistic vision
	3	Long term vision
	4	Effective leadership
	5	Propensity to innovation
Know what	6	Managerial Knowledge
	7	Business knowledge Internal
	8	Business knowledge External
	9	Theoretical Knowledge of ICT
Know how	10	Technical Expertise of ICT
	11	Planning capabilities
	12	Organizational impacts assessment capability

These classes are used to map the Skills and Competencies found in Job advertisements (Table 4).

Table 4. Skills and competences from job advertisements (with category letter) mapped to Ravarinis “concept of competence”.

Cat.	Skills	Know how to be	Know what	Know how
A	Active Change Manager	4, 5	6	11
B	Analytic, Strategic Thinking and acting	2	6, 7	11,12
C	Innovation	3, 5	9	
D	Organized			11
E	Communication skills	1,4		
F	Hands on mentality			10
G	Team player	1		
H	Process Thinking	2	6, 7	12
<b>Competences</b>				
I	Project Management		9	10, 11
J	Business	2	7, 8	12
K	Technology		9	10
L	Problem solving and Consulting Competence	3, 5	6, 7, 8, 9	12
M	IT Process Competence		7, 9	12
N	Leadership competence	4		
O	Contract Management		7, 8, 9	12
P	Leadership accross locations and international	2, 4	7, 8	

Regarding the Research Question 3 one can state that skills and competences identified from job adds link to one or more skills from the Ravarini “concept of competences”. The reason for this is the different definitions of the word “skill” in professional life - represented by job ads - and scientific concepts.



3.6. Mapping of empirical results to the ESCO Framework

The European Skills/Competences, qualifications and Occupations Framework ESCO Internet Portal [25] keeps the Top IT Management position (Chief Information Officer or short CIO) under the Code 1330.2 and lists the following alternative job titles: EDV-LeiterIn, , IT-ManagerIn, CIO, IT LeiterIn (German) and IT director (English).

The scope of the function is described as:

*“Chief information officers define and implement the ICT strategy and governance. They determine necessary resources for the ICT strategy implementation, anticipate ICT market evolutions and company business needs. They contribute to the development of the organisation's strategic plan and ensure that the ICT infrastructure supports the organisation's overall operations and priorities.” [25]*

According to the concept of ESCO every Occupation is assigned Essential skills and competences, Essential Knowledge, Optional skills and competences and Optional knowledge.

The following table 5 maps the “CIO concept of competence” from Ravarini [23, 24] to the content of the ESCO framework [20] and to the empirical data derived from the Job advertisements.

Table 5. Mapping of the “concept of competences” [23] and own skills and competences to ESCO knowledge skill and competence results for the occupation 1330.2 CIO. [25].

<b>ESCO 1330.2: Chief Information Officer Skills, competences and knowledge</b>	Know how to be	Know what	Know how	Mapping to skills and competences from Job adds (Cat.)
<b>Essential skills and competences</b>				
carry out strategic research	2, 3		11, 12	B, C, D, K
coordinate technological activities	4	9	11	F, K, M
define technology strategy	2, 3, 5	9	10, 11	B, C, K, M
ensure adherence to organisational ICT standards	2, 4	7, 8, 9	10, 12	H, M, N
forecast future ICT network needs	2, 3, 4	7, 8, 9	11, 12	B, K, M
implement ICT risk management	4	7, 9	12	D, H, I, N, P
implement corporate governance	4	7, 9	12	H, J, N, P
maintain plan for continuity of operations	2, 3	7, 8, 9	11, 12	A, B, D, H, J, K, L, N, O, P
manage software releases		9	10	D, E, H, I, J, K, L, M, N, P
monitor technology trends	2, 3, 5	7, 8, 9		B, C, K, M
optimise choice of ICT solution	3, 4, 5	9	10, 11, 12	A, C, H, I, K, L, M
review development process of an organisation	2, 3,	7	12	A, B, D, E, J, J, L, N, P
use different communication channels	1, 4			E, G, N, P
utilise decision support system	4	7		B, D, H, J
<b>Essential Knowledge</b>				
ICT project management methodologies		9		I
decision support systems		9		J, K
information architecture		9		J, K
information structure		9		J, K
market analysis		8, 9		B, D, J, K
software architecture models		9		K, M
software design methodologies		9		K, M
systems development life-cycle		9		K, M
<b>Optional skills and competences</b>				
administer ICT system			10	F
carry out statistical forecasts			11, 12	B
ensure information privacy	4	6, 7, 8, 9	10, 12	A, E, F, H, J, K, L, M, N, P
establish an ICT customer support process	4, 5	7, 9	10, 11, 12	A, M, N
lead technology development of an organisation	4, 5	9	12	A, C, E, H, I, J, K, L, N, P
manage ICT system deployment		9	10	A, D, I, K, M, N
manage budgets	2	6, 7, 9	10, 11, 12	B, D, F, J, M, O, P
manage staff	1, 4	6		E, G, N, P
monitor ICT research	2, 3, 5	9	12	B, C, K, M
oversee development of software	5	6, 9	10	I, K, M, N, P

As shown with the comparison of the practical skill and competence usage in job ads with the scientific “concept of competencies” from Ravarini also a direct comparison of the ESCO framework with both practical usage and

scientific concepts are not easily possible. Yet the analysis gives interested researchers and practitioners a tool for mapping and translation of the different concepts.

#### 4. CONCLUSION AND RECOMMENDATIONS

Regarding Research Question 1 the following conclusion can be drawn: Even if the different job titles are regarded as synonyms in publications and even in the ESCO framework the analysis has shown slight deviations in the priority of skills and competences for different job title groups. Therefore future research should investigate if the job title groups are linked to different employer characteristics like company size, industry or complexity of the companies which might have an impact on the scope of job and the strategic orientation of the IT department.

Regarding Research Question 2 the biggest issue seems to be the different interpretation of the meaning and ultimately the use of the words skill, competencies and knowledge.

Wikipedia defines skill as “*the learned ability to perform an action with determined results with good execution...*” [26] while ESCO defines it as “*The ability to apply knowledge and use know-how to complete tasks and solve problems. Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).*” [20]

Competence is described by Wikipedia as: “*the set of demonstrable characteristics and skills that enable, and improve the efficiency or performance of a job.*” [27] while ESCO describes it as: “*The proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations, and in professional and personal development.*” [20]

Exemplary ESCO “Essential skills and competences” extracted from the CIO Occupation are coordinate technological activities, manage software releases, implement corporate governance.

This lists of skills and competences which are more descriptions of tasks, duties or a role description and less skills and competencies. Editors of the ESCO database should therefore either change the heading from “skills and competence” to for example “tasks and duties” or change the content of the skills and competence section to more generic descriptions in line with research.

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# Cross-Border Litigation after Brexit - Jurisdiction for the Resolution of Disputes Arising from Insurance, with Special regard to the Protection of Weaker Parties

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## Abstract

The United Kingdom withdrew from the European Union on 1 February 2020. This step has significant effects on the regulation of cross-border legal relationships, involving the United Kingdom. The current paper focuses on jurisdiction for the resolution of disputes arising from insurance. It is an important financial service on the internal market entered into in large quantities and a typical example for legal relationships, in which there is a significant difference in the financial possibilities or legal knowledge of the parties. These two features of insurance result in the fact, that the relevant legal regulation should ensure the efficient functioning of financial markets and the protection of consumers at the same time. Brexit gives an opportunity to summarize the main characteristics of the EU regulation on jurisdiction for legal disputes arising from insurance with special regard to the protection of weaker parties. At the same time, the analysis of this topic in a changing legal environment makes an outlook to the future of jurisdiction possible in respect of cross-border legal proceedings, arising from insurance and involving the United Kingdom. As the paper offers a synthesis of the normative environment and the related jurisprudence, the analysis can contribute to a more comprehensive understanding of the specificities of jurisdiction rules in insurance.

**Keywords:** insurance, weaker party, jurisdiction, Brexit, consumer protection

## 1. INTRODUCTION

*“The Union and United Kingdom agree to establish structured regulatory cooperation on financial services, with the aim of establishing a durable and stable relationship between autonomous jurisdictions.”* This formulation from the Joint Declaration on Financial Services Regulatory Cooperation between the European Union and the United Kingdom [1] shows a firm commitment towards a clear and well-elaborated regulatory cooperation in the field of financial services even after Brexit.

When analysing the implementation of this commitment, insurance might be a suitable example. It is an important financial service on the internal market entered into in large quantities and a typical example for legal relationships, in which there is a significant difference in the financial possibilities or legal knowledge of the parties. [2] These two features of insurance result in the fact, that the relevant legal regulation should ensure the efficient functioning of financial markets and the protection of consumers at the same time. The need for a stable legal environment is especially significant in cross-border legal relationships.

Therefore, the current paper aims to summarize the main characteristics of the EU regulation on jurisdiction and the relevant case-law in case of legal disputes arising from insurance with special regard to the protection of weaker parties and the possible changes caused by Brexit.

## 2. BACKGROUND AND METHODOLOGY

Analysing the literature concerning insurance in EU law, the main focus is on the determination of applicable law in cross-border legal relationships [3], as well as on the relationship of insurance business and the freedom to provide services, being a basic element of the internal market in the European Union [4].

Nevertheless, it is also an important question, how the need for the protection of the weaker party (insured, policy-holder, beneficiary) – being also recognized by EU law [5] – and the interests of the insurance business can be reconciled in borderline cases. However, it cannot be said that the case-law of the Court of Justice of the European Union (hereinafter: CJEU) would be in focus of the analyses on EU insurance law.

As the paper offers a synthesis of the normative environment and the related jurisprudence, the analysis can contribute to a more comprehensive understanding of the specificities of jurisdiction rules in insurance. At the same time, the analysis of this topic in a changing legal environment makes an outlook to the future of jurisdiction possible in respect of cross-border legal proceedings, arising from insurance and involving the United Kingdom.

## 3. THE BRUSSELS I REGULATION (RECAST)

The Council Regulation (EC) No 44/2001 of 22nd December 2000 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters has been a very significant step towards a more harmonized civil procedural law within the European Union. The Recast of the Brussels I. Regime, Regulation (EU) No 1215/2012 of the European Parliament and of the Council of 12th December 2012 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters (hereinafter: Recast) came into force 9th January 2013 and shall be applied in court proceedings in the European Union from 10th January 2015.

Article 3 of Protocol No 21 on the position of the United Kingdom and Ireland in respect of the area of freedom, security and justice, annexed to the Treaty on the European Union and to the Treaty on the Functioning of the European Union contained special rights for the UK as regards the cooperation in the mentioned field. It provided that “[t]he United Kingdom or Ireland may notify the President of the Council in writing, within three months after a proposal or initiative has been presented to the Council pursuant to Title V of Part Three of the Treaty on the Functioning of the European Union, that it wishes to take part in the adoption and application of any such proposed measure, whereupon that State shall be entitled to do so.” [6] In accordance with this provision, the United Kingdom notified its wish to take part in the adoption and application of the Recast. Therefore, it became applicable for the UK as well.

According to Article 4 Recast the general provision of jurisdiction is the defendant’s domicile: “Subject to this Regulation, persons domiciled in a Member State shall, whatever their nationality, be sued in the courts of that Member State.” As the CJEU simply concluded “[t]hat jurisdictional rule is a general principle because it makes it easier, in principle, for a defendant to defend himself”. [7] Nevertheless, in cases with the participation of a weaker party, this rule could in certain circumstances adversely affect access to justice.

In cross-border cases the situation is even more problematic, as “actor sequitur forum rei” principle could lead to the transfer of the process to another country causing the litigation being prohibitively expensive. In lack of preferential rules of jurisdiction, the right to access to justice [8] and the right to be heard [9] could be hampered. [10] As the CJEU noted, there is an underlying concern “to protect the insured who is most frequently faced with a predetermined contract the clauses of which are no longer negotiable and who is in a weaker economic position.” [11] These considerations apply to the specific provisions on insurance as described in Chapter II Section 3, on consumer contracts as described in Chapter II Section 4 and on individual contracts of employment as regulated in Chapter II Section 5 of the Recast.

## 4. THE PROTECTION OF THE WEAKER PARTIES UNDER BRUSSELS I REGULATION (RECAST)

“The notion of the ‘weaker party’ has a wider acceptance in matters relating to insurance than those relating to consumer contracts or individual employment contracts.” [12] Therefore, the Recast ensures that the policyholder, the insured or the beneficiary can initiate a process against the insurer in the Member State in which he (as defendant) is domiciled [13] but also in the Member State where the policyholder, the insured or a beneficiary as claimant is domiciled. However, the insurer can start a process only at the court in the weaker party’s country of residence. [14]

When applying these rules to specific legal relationships, the basic principle is that a given interpretation shall not undermine the aim of protecting the economically weakest party. [15] The CJEU has elaborated a differentiated case-law, which shows efforts to limit the protective elements to those situations, where it serves the interest of weaker parties in a strict sense in order to establish a balance between the two aspects of the security of market transactions: the trust of consumers in the transactions and the liberties of market actors.

As the system of the Recast contains a regime, where the concept of the “weaker party” is determined on the basis of their position in the legal relationship giving rise to the legal dispute, the question arises whether this additional protection should be granted to each and every person in that special position, or is a differentiation necessary. If, namely the supported party (being an economically equally strong party as the other) does not choose the forum where the procedural costs are the lowest, than the grounds for this attitude is presumably “*forum shopping*”. So, the unnecessary multiplication of the heads of jurisdiction could have a negative effect on the foreseeability of the regulation, and so, on the principle of rule of law. “*The damage would be even more serious if the application of the criteria in question gave the defendant a wide choice, thereby encouraging the practice of forum shopping which the Convention seeks to avoid and which the Court (...) specifically sought to prevent.*” [16]

Although according to the grammatical interpretation of the Recast, a differentiation based on the alleged weaker party’s position does not exist [17], it seems to be contrary to the objectives of the Brussels I. Regime that the insured person could rely on the more beneficial rules of jurisdiction even if he has the financial resources and legal background to protect and enforce rights efficiently (e.g. in case of a legal person, company, institution).

This point of view has been confirmed by the CJEU as well in a specific case: “*The protective role fulfilled by those provisions implies that the application of the rules of special jurisdiction laid down to that end by Regulation No 44/2001 should not be extended to persons for whom that protection is not justified.*” [18] {Similarly: “*Moreover, Article 12 (5) of the Convention [19] excludes from that protective body of rules insurance contracts in which the insured enjoys considerable economic power.*” [20]} This argument is not only applicable in case of legal persons, but might also exclude the beneficiary rules of jurisdiction in case of natural persons on the basis of their professional activities, if these activities are carried out on the same scale as insurers. [21]

According to the case-law of CJEU, in case of certain types of contracts, the application of the beneficial heads of jurisdiction can be excluded as well. Comparing the legal position of the parties in general (in lack of a solid ground for the protection of a party) the EU court excluded from the application of this special head of jurisdiction in case of insurance contracts the relations between insurers in the context of third-party proceedings [22] and reinsurance. [23]

Based on these examples, it can be concluded that the case-law of the CJEU has given considerable guidance for the interpretation of the rules on jurisdiction in legal disputes arising from insurance. This interpretation ensures that the beneficial rules apply for the parties who are indeed in a weaker position and offer them efficient protection also in ambiguous situations.

## 5. THE LEGAL SITUATION AFTER BREXIT

The United Kingdom withdrew from the European Union on 1 February 2020 and has become a “third country”. The question arises, how this change influences the jurisdiction in cross-border legal disputes related to insurance.

The general consequences of Brexit as regards jurisdiction can be summarized on the basis of an information material provided by the European Commission in 2019: “*For proceedings involving a United Kingdom domiciled defendant initiated on or after the withdrawal date in the EU-27 Member States, the rules on international jurisdiction in EU instruments in the area of civil and commercial law as well as family law no longer apply, unless the EU instruments set the rules of jurisdiction with regard to third countries. International jurisdiction will thus be governed by the national rules of the Member State in which a court has been seized. In some instances, international conventions, such as the conventions developed by the Hague Conference on Private International Law apply, provided that both the EU/EU Member States and the United Kingdom are parties to the convention.*” [24]

The transitional arrangements contained in the 2019 EU-UK Withdrawal Agreement [25] also referred to the jurisdiction in legal proceedings related to insurance. Article 67 Paragraph (1) stipulated that “*In the United Kingdom, as well as in the Member States in situations involving the United Kingdom, in respect of legal proceedings instituted before the end of the transition period and in respect of proceedings or actions that are related to such legal proceedings pursuant to Articles 29, 30 and 31 of Regulation (EU) No 1215/2012 of the European Parliament and of the Council (...) the following acts or provisions shall apply: (a) the provisions regarding jurisdiction of Regulation (EU) No 1215/2012; (...).*” These rules were applicable until the end of the transition period, namely 31 December 2020. The EU-UK Trade and Cooperation Agreement [26], however, does

not make any longer-term provision in these areas. [27] Nevertheless, it is unambiguous that the Recast does not apply.

Under these circumstances a possible solution would be to revert to the 1968 Brussels Convention [28], as the UK became party to this Convention 1978 [29] and after Brexit, it could become applicable again. This interpretation can be supported by the fact according to Article 66 the Convention is concluded for an unlimited period and it has not been overruled by the Brussels Regulation and the Recast. A similar conclusion would follow from an argumentation by CJEU. “While Regulation No 44/2001 is intended to update the Brussels Convention, it seeks at the same time to retain its structure and basic principles and to ensure its continuity. In the absence of any reason for interpreting the two provisions differently, consistency requires that Article 5(1)(a) of Regulation No 44/2001 be given a scope identical to that of the corresponding provision of the Brussels Convention, so as to ensure a uniform interpretation of the Brussels Convention and Regulation No 44/2001”. [30] This formulation suggests that the Convention and the Regulation could theoretically be applied in a parallel manner. Recital (34) of the Recast confirms that “continuity between the 1968 Brussels Convention, Regulation (EC) No 44/2001 and this Regulation should be ensured, and transitional provisions should be laid down to that end. The same need for continuity applies as regards the interpretation by the Court of Justice of the European Union of the 1968 Brussels Convention and of the Regulations replacing it.” The fact that according to Recital (9) of the Recast “[t]he 1968 Brussels Convention continues to apply to the territories of the Member States which fall within the territorial scope of that Convention and which are excluded from this Regulation pursuant to Article 355 of the TFEU” (although in a very different context) shows that the parallel application of the two instruments is theoretically not excluded.

This argumentation is, however, problematic, because the 1968 Convention was concluded by “the High Contracting Parties to the Treaty establishing the European Economic Community”, thus after Brexit, it could not be applicable to a State, which is not Member State to the Community/EU. This argumentation is in line with the fact that according to Article 68 of the Recast “[t]his Regulation shall, as between the Member States, supersede the 1968 Brussels Convention.”

In this case, the only definite point of reference as regards legal regulation of jurisdiction is the applicability of the 2005 Hague Convention. “Hague applies only if: (i) there is an exclusive jurisdiction clause (not a non-exclusive or unilateral clause) entered into after it came into force for the country whose courts are chosen; and (ii) proceedings are commenced after it came into force for the country whose courts are seised.” [31]

A possible option for a clearer and more predictable legal environment would be the accession of the UK to the Lugano Convention. [32] This Convention contains similar provisions to those of the Brussels Convention, and would therefore offer a certain continuity as regards the heads of jurisdiction in case of insurance. However, according to Article 72 of the Lugano Convention, the Depositary shall invite the State concerned to accede only if it has obtained the unanimous agreement of the Contracting Parties (currently, the EU, Denmark, Switzerland, Iceland and Norway). On 8 April 2020, the UK-Government applied for the UK to re-join the Lugano Convention as an independent contracting state. It is now waiting for the other contracting parties to decide whether to agree to the UK joining the Convention. [33]

In lack of a positive reaction, national laws shall apply, which would most probably result in more costly and time-consuming procedures, difficulties in the enforcement of judgements and to the loss of certain achievements in the protection of weaker parties.

## 6. CONCLUSIONS

As seen in case of the Brussels I. Regime, the EU law offers a complex system of rules governing jurisdiction in legal disputes related to insurance. The case-law of the CJEU shows that the special regime of jurisdiction for insurance contracts should not be interpreted broadly: the Court has denied the applicability of these rules in every case where it would not have been justified on grounds of significant difference between the legal experience and the economic possibilities of the parties. This way the normative environment and the jurisprudence strive for – and usually achieve – a balance between the necessity of harmonisation, the protection of the weaker parties as well as the need for foreseeable rules of jurisdiction. These achievements should be safeguarded in EU-UK relation even after Brexit. The possible ‘revival’ of the Brussels Convention (as a predecessor of the current Brussels regulation regime) would be a simple solution, but the interpretation of the relevant legal texts does not support this. The fact that the UK has applied for accession to the Lugano Convention also shows that there is a need for another solution. The similarities of the Lugano and the Brussels systems would considerably simplify the parties’ situation in cross-border legal relationships. Otherwise, currently the applicability of the Hague Convention seems to be the only reference point, if the conditions are given.

In order to safeguard the achievements as regards more balance in insurance relationships and to ensure a high level of trust in cross-border transactions, such a solution should be strived for which enables a high level of protection for the weaker parties similar to the rules of jurisdiction applied until Brexit.

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# A Decision Aid for Assessing the Efficiency of Organized Industrial Zones Located in the Aegean Region of Turkey

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## Abstract

With the planned development era began in the early 1960s in Turkey, organized industrial zones began to be established in each province. Organized industrial zones with low occupancy rates lead the question of if the organized industrial zones perform efficiently. In this work, rank-order according to the efficiency scores of OIZs located in the Aegean Region of Turkey is obtained by employing minimax efficiency model, and the ranking results are compared.

**Keywords:** Data Envelopment Analysis, decision support systems, organized industrial zones, performance evaluation

## 1. INTRODUCTION

The need to increase the level of international competition in order to switch to sustainable development momentum in Turkey is obvious [1]. Efficiency and technological development are the basic rules of competing on a global scale. The main elements of technological development are research and development and innovation. The notion of establishing OIZs in Turkey dates back to 1960s, and they have major roles to boost economic parameters [2].

Data envelopment analysis (DEA) is a mathematical programming-based technique which utilizes common inputs and outputs as factors in order to identify the relative efficiencies of decision-making units (DMUs). In this paper, the efficiency scores of OIZs in the Aegean Region of Turkey are evaluated and compared using DEA based decision models.

The remaining parts of the paper are planned as follows. In Section 2 the explanation of DEA and employed model are provided. Section 3 introduces the illustration of the methodology through OIZs ranking problem with regard to their efficiency scores. Finally, concluding remarks and future research are delineated in Section 4.

## 2. BACKGROUND

The initial data envelopment analysis (DEA) model, called as the CCR model, developed by Charnes et al. [3], calculates the efficiency value of DMUs. It maximizes the ratio of its total weighted outputs to its total weighted inputs. There is a condition that ensures that the output to input ratio of every DMU should be less than or equal to unity. The conventional DEA formulation can be given as

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$$\max E_{j_0} = \frac{\sum_{r=1}^s u_r y_{rj_0}}{\sum_{i=1}^m v_i x_{ij_0}}$$

subject to (1)

$$\frac{\sum_{r=1}^s u_r y_{rj}}{\sum_{i=1}^m v_i x_{ij}} \leq 1, \quad \forall j,$$

$$u_r, v_i \geq \epsilon, \quad \forall r, i.$$

where  $E_{j_0}$  is the efficiency value of the DMU that is under evaluation,  $u_r$  is the weight of output  $r$ ,  $v_i$  is the weight of input  $i$ ,  $y_{rj}$  is the amount of output  $r$  formed and  $x_{ij}$  is the quantity of input  $i$  utilized by DMU  $j$ , respectively, and  $\epsilon$  is a small positive number.

Formulation (1) has nonlinear and nonconvex properties but it can be converted into a linear programming model through a transformation. The linear programming model to compute the efficiency of a DMU is represented in the following formulation.

$$\max E_{j_0} = \sum_{r=1}^s u_r y_{rj_0}$$

subject to (2)

$$\sum_{i=1}^m v_i x_{ij_0} = 1$$

$$\sum_{r=1}^s u_r y_{rj} - \sum_{i=1}^m v_i x_{ij} \leq 0, \quad \forall j,$$

$$u_r, v_i \geq \epsilon, \quad \forall r, i.$$

Besides, minimax and minsum efficiency formulations do not give favourable consider to the evaluated performing unlike the DEA-CCR model. Minimizing the maximum deviation from efficiency is provided by minimax efficiency formulation, while minimizing the total deviation from efficiency is ensured by minsum efficiency formulation [4]. The minimax efficiency formulation can be given as

$$\min M$$

subject to (3)

$$\sum_{i=1}^m v_i x_{ij_0} = 1,$$

$$\sum_{r=1}^s u_r y_{rj} - \sum_{i=1}^m v_i x_{ij} + d_j = 0, \quad \forall j,$$

$$M - d_j \geq 0, \quad \forall j,$$

$$u_r, v_i, d_j \geq 0, \quad \forall r, i, j.$$

### 3. CASE STUDY

This section introduces a case study related to the evaluation of OIZs located in the Aegean Region by employing minimax efficiency model.

The numerical illustration involves evaluating 11 OIZ with “total industrial parcel area (Ha)”, and “total number of parcels” as inputs, “total number of parcels in production”, “employment”, “net sales (TL)”, “R&D expenditures (\$)”, and “export volume (\$)”. Data with regard to OIZs for 2015 are provided Table 1.

Table 1. Input and output variables for OIZs

DMU(j)	OIZ	Input1	Input2	Output1	Output2	Output3	Output4	Output5
1	Afyonkarahisar	292.20	314	303	7.630	5.403.622.542	6.764	215.786.617
2	Afyonkarahisar-Emirdağ	52.40	31	9	492	33.845.838	8.859	1.401.413
3	Aydın- Astim	330.00	256	87	3.299	3.501.349.452	1.382.248	64.830.900
4	Aydın-Ortaklar	72.72	35	8	547	143.405.554	0	8.326.388
5	Denizli	297.00	179	129	25.000	5.028.617.905	3.235.471	225.309.589
6	Kütahya	152.30	84	76	5.517	4.011.179.047	24.989.366	192.644.829
7	Kütahya-Gediz	66.03	33	20	710	342.197.388	0	10.375.827
8	Kütahya-Tavşanlı	67.76	25	11	2.630	417.283.785	0	21.390.572
9	Manisa-Salihli	159.00	159	40	2.534	646.579.912	567.050	38.097.162
10	Manisa-Akhisar	196.00	76	41	2.674	1.913.154.931	125.254	24.912.335
11	Uşak-Karahallı	47.00	86	303	7.630	5.403.622.542	6.764	215.786.617

Minimax efficiency model yields two efficient DMUs that are DMU1 and DMU6. Ranking results are reported in Table 2.

Table 2. Results of the evaluation

DMU(j)	OIZ	Ranking of minimax efficiency model
1	Afyonkarahisar	1
2	Afyonkarahisar-Emirdağ	10
3	Aydın- Astim	4
4	Aydın-Ortaklar	9
5	Denizli	3
6	Kütahya	1
7	Kütahya-Gediz	6
8	Kütahya-Tavşanlı	8
9	Manisa-Salihli	7
10	Manisa-Akhisar	5
11	Uşak-Karahallı	11

#### 4. CONCLUSION

In this study, minimax efficiency model is employed in order to assess efficiencies of OIZs, which perform in the cities in Aegean Region of Turkey. The employed model results in two efficient DMUs, which are Afyonkarahisar and Kütahya. Research in future will concentrate on the evaluation of the OIZs in other regions of Turkey.

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# Job Evaluation Study in the Energy Sector

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## Abstract

Job evaluation can be defined as the process of finding the value of a job by comparing it systematically with other jobs. In order for the wages paid to be fair, the value of the work should be provided by using scientific methods, adhering to the principle of paying equal wages for equal work. The criteria that determine the importance of the business are the business areas that affect the success and profitability rate of the company. Based on these reasons, in this study, job evaluation criteria in the energy sector are determined.

**Keywords:** Energy sector, Human resource management, Job evaluation

## 1. INTRODUCTION

Human resource management (HRM) 4.0, which is the transition phase from technical cost reduction to human-based cost reduction, gained more importance in the future, and a new field of study has emerged and gained importance by breaking the prediction that mismanagement, employee dissatisfaction costs are more than technical expenses, but this situation cannot be concretely concreted.

The best way to manage the right hiring process is to create the right job description. It should be learned whether the job candidate will meet his expectations by explaining all the work with accuracy. All the requirements of the task should be determined with the feedback from the business development unit, which should be followed when creating the job description. Salary and compensation strategies become very important once the job definition is clear. The low turnover rate minimizes personnel costs. 6 months trial period is given for newly hired personnel. In other words, there is a 6-month loss of workforce when a person leaves the job and is replaced by a new person at the same wage. Although it cannot be shown concretely, such situations cause great losses. This is a high loss in cost. Besides the cost, it causes people with high potential not to prefer the company. At this point, the importance of job valuation becomes clear.

Job evaluation is a scientific study that needs to be carried out in all companies managed with the concept of human resources management. If job valuation is to be summarized, it is the process of finding the value by comparing it systematically with other jobs to determine the value of a job. In order for the wages to be paid to the employees to be fair, the value of the work is provided by using scientific methods, while adhering to the principle of paying equal wages for equal work. The criteria that determine the degree of importance of the business are the business areas that affect the success and profitability rate of the company the most.

Salary Valuation is not a one-way study. While performing the studies, it is necessary to adhere to certain principles and perform Wage valuation activities fairly in the light of studies, as required by the understanding of Human

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Resources Management and Performance Appraisal and market wage research. In this way, it will be possible to increase the company's market value and employee profile.

In a contemporary and fair management approach, a team of Business Valuation and remuneration specialists and employees participate in Business Valuation studies, and this type of approach ensures that the employees have knowledge about the value of their work and prevent possible conflicts. The prerequisite for this study is to define job descriptions and employees must master these job descriptions.

Contemporary management approach has started to gain more importance recently. The concept of HRM 4.0 has emerged after Industry 4.0 takes place in our lives and has become the most important point of cost saving. In order to manage the changing industry with Industry 4.0, HRM continues to evolve with different methods. The main ones are human resources analytics, digital transformation integration, digital talent and performance management.

The understanding of companies when choosing employees has changed. Care has been taken to ensure that the employee profile and position profile are exactly the same or very similar. Because situations such as loss of motivation of the employee and decreased organizational commitment cause significant material and prestige loss for companies. In order to eliminate these problems, increase employee loyalty and motivation, as well as to ensure the company's eligibility by the employees, business valuation, salary and benefits have become an imperative.

## 2. LITERATURE REVIEW

Studies on the subject have been realized with an increasing momentum after HR 4.0. This chapter will focus primarily on HR 4.0 and later Job evaluation. For human resources to be included in business processes, business units must be strategic partners [1]. The way to achieve this is that HR experts who can understand and interpret financial data need to follow and know the company's dynamics and current developments and trends. It should be expected to contribute to important projects carried out in the company and to produce innovations and / or alternatives to these projects.

According to the studies conducted, employment is expected to increase by 6% in 2020s [1]. However, as a result of digitalization and the use of robots, technological unemployment will be exposed, and customer expectations will also change. Although there is unemployment in the term, it is anticipated to increase the quality, decrease the labor force and increase the living standards in the long term. Mind the place of muscle strength now used in the past and replace it with science. One of the results of the fact that muscle strength will be replaced by reason and science may appear as an increase in the quality and level of education. Robots and humans will act together and will be managed together.

Due to changing systems and strategies, job descriptions and the skills sought will also change, so finding these skills will become more difficult. Another benefit of changing the beach structure, system and strategies will be in the field of performance management. Although studies related to this are not available in the literature, these studies will gain importance in the future. The system, which looks at the potential and technology predisposition, has started to be brought out from the point of view that values the seniority with classical performance. The systems in which young and hardworking employees will be rewarded stand out [1].

The need to build a complex structure that includes career goals, performance tracking and review of staff has awakened. In order to address these needs, first of all, it is necessary to find skills that will provide this performance in the recruitment part. Human resources management will try to find people in the capabilities of digital transformation and industry 4.0, which will make their jobs more difficult. Human resources specialists, who have an attitude towards closing open positions, will now have a talent-oriented proactive approach. As stated in the previous sentences, it is expected that the person who will meet the position of the company or to meet the needs of the company is not only hired but also to be happy in that position.

In the study [2], a PVC production factory based in India was discussed. The workforce in the production department is about 850 people. It was examined under 14 different factors. The main ones are education, intelligence, experience and monotony. Weights of all these factors have been determined and a scoring system has been established according to these weights. By determining the scores and the ranks of the working groups, the job descriptions and the salary scale were evaluated.

In another study [3] Yayasan Pendidikan Telkom (YPT) and Yayasan Sandhykara Putra Telkom (YSPT) addressed the merger of two telecommunication companies as a problem. In such cases, excessive personnel may be employed or the compensation policy of the two companies may differ from each other. Employee problems have arisen due to the merger of the companies. Organizational culture was created as the first priority. The basic three criteria are;

- a) Integrity: Keeping the moral values and codes of behavior consistently
- b) Harmony: The concord and solidity of units, and personal in the pass and worked as an attempt to attain its mission, imaginative and prescient and dreams of the organization.

c) Excellent: Paradigm and orientation to be the nice and obtain the best outcomes to the reason of the organization.

The problems are the complexity of division of labor between departments, ideal internal payment system and lack of job description. It was made in steps within the working methodology. Primary care is about meeting with employees and collecting data. Then the stages were determined, and basic competencies were revealed. These competencies are; Core competence, Functional Competence, Administrative Competence, Technical Competence.

These four competencies are detailed with sub-factors from Spencer Dictionary. In the second stage, business analyzes were made. Job descriptions and the work done by the staff working in this position were compared and asked to be concluded. In the 3rd stage, the positions were scored in the breakdowns determined in the 1st stage. At the end of the process, the job descriptions were cleared and the personnel were valued.

### 3. JOB EVALUATION CRITERIA

In this study, job evaluation criteria are determined according to the dynamics of the energy sector. Criteria are specified in 11 main titles with subtitles. The evaluation criteria in the energy sector is as follows.

1) Knowledge: Knowledge is important in business life as in every field of life. Technical knowledge is particularly important in the energy sector. Because, uninterrupted energy production is guaranteed in the agreements made with the Energy Market Supervisory Board (EDPK). In order to ensure uninterrupted energy production, personnel with high technical competencies should be employed in the field. For these reasons, knowledge has been determined as the first criterion.

1.a.) Vocational education level: The first sub criterion of the knowledge criterion for determining the competencies of the people was determined as the education level. The education level of the people is an important criterion for the company in terms of their level of cognition.

1.b) Foreign Language: It is important for the staff to know a foreign language for the company brand. In addition, since the equipment and production engines used in the energy production sector are foreign production machines, the language of important things such as user manual, part names, control room interfaces is English, and foreign language knowledge becomes important.

1.c) Computer Knowledge: It is important to follow computer technology closely. Because there are issues that may disrupt production such as power plant efficiency rates, in- house communication and purchasing demands in production processes, computer knowledge of white-collar personnel is important.

2) Experience: Experience time is important for the entire industry. Operational use of information to be learned in schools such as conducting business processes, learning corporate cultures, and having know-how knowledge is important in the energy sector as in every sector.

2.a) Total work experience: It is an indicator of how long the person has been working professionally. The prolongation of this period indicates that the person's knowledge skills have increased.

2.b) Managerial experience period: Managerial experience period in managerial positions gains importance. Because there is a big difference between managing and performing an operation. During his managerial experience, his knowledge about how to manage operations and how to report to his managers gains importance in managerial positions. While this experience is not sought in beginner level managers (executive manager), this experience is sought in manager and higher positions.

2.c) Type of experience: The type of experience gains importance in technical positions. In addition to having technical experience, additional managerial experience gains importance in positions such as power plant manager, power plant maintenance and operation manager.

2.d) Sectoral Experience: Sectoral experience is important in technical positions. However, while sectoral experience is not sought for positions such as organizational development experts, payroll and personnel specialists within the Human Resources unit, it becomes an important criterion for appropriate recruitment processes and recruitment. The main reason why sectoral experience is important is that each sector has its own dynamics.

3) Difficulty to Find the Position: Difficulty to find the position reveals the value of the position. Although difficult to find positions are generally considered to be managerial and technical positions, the difficulty of finding technicians and some process engineers is high.

3.a) Difficulty to be found: In case the person in the position leaves the job, the difficulty of finding someone instead of again is an important criterion for the level of the position.

3.b) the effect of absence on the company: Each position has a negative effect on the company in case of leaving the job. However, the absence of some positions may hinder the management of processes within the company. The high level of such positions causes high wages and benefits, increases the level of employee satisfaction and company loyalty, and prevents the loss of the person in the position.



4) Task difficulty: The high level of the employee according to the difficulty level of the task is important in terms of increasing wages and benefits.

4.a) Type: The type of task difficulty indicates the mental difficulty of the employee. It includes the values between managing certain tasks and daily operations and solving unforeseen problems in various situations.

4.b) Frequency: It shows how often these situations are encountered.

4.c) Approach: It is the criterion that shows how the person in the position will approach when encountering the problem. It is an indicator of how to progress regarding the problem as required by the position.

4.d) Pressure / Stress: How much pressure and stress it will be exposed to in business processes determines the difficulty level of the task.

5) Mission Risk: It will be used to determine how open the task is to risks. Since the risk of the task will affect all processes of the employees in the position, the level of initiative of the person will increase as the risk level increases. For this reason, it should be placed higher than other personnel with low task risk.

5.a) Openness to error: Positions managing daily operations have a lower risk of making mistakes. However, the higher the probability of making mistakes, the higher the risk of the task.

5.b) Cost of error: The weight of the error cost directly affects the task risk. The heavier the consequences of the error, the more risky the task. Especially in public companies, while the price of the error of financial managers (such as financial directors, CFOs) will create fluctuations in the stock market, people in this position are sentenced to prison sentences.

5.c) Compensation: The difficulty of compensating the mistake is another factor that directly affects the task risk. The more difficult it is to compensate, the higher the risk of the task.

6) Supervision responsibility: The fact that the person in the position has an administrative team brings the responsibility of supervision. For this reason, oversight responsibility is an important factor in determining the level of the position.

6.a) Direct Oversight: Direct oversight is the criterion for the number of people directly attached to the position. It shows how many people are the first rulers. For example, the plant manager is attached to the assistant plant manager, power plant operation manager, power plant maintenance manager, administrative affairs manager.

6.b) Indirect Surveillance: It shows the number of people who are indirectly connected to the position. For example, all plant personnel are indirectly linked to the plant manager.

6.c) Functional Authority / Specialist Authority: It is the breakdown that indicates how many functions a position requires in terms of expertise. It explains how many different fields of expertise should be available.

7) Business Relationship Responsibility: It is the unit that shows what the position does in business relations, with which units and at what level it will cooperate and how often.

7.a) Scope: Indicates how many different departments or external relations will be in business relations. Collaboration with different units is a criterion that will raise the level of the position. Managers in the energy sector need to cooperate with different sectors and public institutions.

7.b) Quality: It is a breakdown that describes what kind of information exchange should be made in the process of business relations. As the information exchange increases, the quality of the position should be higher.

7.c) frequency: Indicates how often it will be encountered.

8) Foreign relations: It is necessary to be in constant communication with foreign sectors and public institutions in the energy sector. For example, planned power plant maintenance periods are notified to the Ministry of Energy 1 year in advance and approval is requested.

8.a) Quality: It is the breakdown describing the nature of foreign relations. It describes what role individuals should assume in the process of foreign relations. It is an indication of whether the role to be assumed will only be the exchange of information or the elimination of the conflict in an offensive manner.

8.b) Scope: It indicates at what level a relationship should be established.

8.c) Frequency: The frequency with which these business processes should be carried out.

9) Intellectual effort: It is an indicator of how much intellectual effort the position should make to manage business processes.

9.a) Thinking Type / Power: It is an indicator of what kind of thinking the position should use.

9.b) Scope: It shows in which field one should use the power of thought. For example, the plant operation manager has to manage the maintenance and breakdown activities and their permit processes while considering the continuous generation of the plant.

9.c) Frequency: Indicates how often you will encounter these processes.

10) Initiative / Decision making: It is an indicator of the extent to which the position takes initiative. Positions using the initiative have higher levels. Because the decisions to be made and the initiatives to be taken require a high level of knowledge and skill.

10.a) Level: Indicates the level of taking initiative. It is the ranking between performing daily operations with specific commands and making decisions with full control in an uncertain environment.

10.b) Area: It is the indication in which fields he / she needs to take initiative. The knowledge is graded according to the skill requirement.

10.c) Frequency: It is an indicator of how often it should take initiative.

11) Working Conditions: It is the indicator of the conditions under which the position will work in which location.

11.a) Physical environment: Indicates whether the position will work in the normal office or in the field. The danger situation in the field is also included in this break.

#### **4. CONCLUSIONS**

Job evaluation is a scientific study that needs to be carried out in all companies managed with the concept of human resources management. In this study, job evaluation criteria are determined according to the dynamics of the energy sector. Criteria are specified in 11 main titles with subtitles.

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# Performance Evaluation of Solid Waste Facility Location Alternatives

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## Abstract

Due to the increase in human population day by day, the amount of waste generated from the foods that consumed increases in the same direction. Today, with the increasing population and developing technology, the waste that is generated has become an important issue for countries. For this reason, countries have aimed to apply appropriate recycling techniques, taking into account the characteristics of their location and multiple criteria. As a conclusion, meticulous work is required for the decision of where the waste facilities in the specified recycling technique will be located. In this study, the evaluation criteria for solid waste facility location problem are determined.

**Keywords:** Location selection, MBT, Performance evaluation, Waste management

## 1. INTRODUCTION

Municipal solid waste (MSW) is one of the major concern for development countries since the major human activities. The increasing in the quantity of waste with each passing day increases the importance of waste management. Successful waste management is not only the issue of prosperity but approach and choice of suitable concepts [1]. Waste management strategies are categorized into four areas; production of materials, collection and transport, treatment or reprocessing, final disposition.

Mechanical Biological Treatment (MBT) is a generic term for a combinations of several mechanical processes contained in municipal solid waste with the biological stabilization of organic matter via processes such as anaerobic digestion or composting. The aim of these plants is to separate the quickly biodegradable fraction of waste, as well as to recover recyclables from mixed waste streams [2]. The major goal of MBT plants is to minimize the environmental burdens of waste disposal by way of extensive stabilization. MBT can also help to recover valuable materials [3].

In site selection process, the countries primary aim is to determine alternatives that ensure a suitable locate in terms of the appropriate criteria. Accomplishing these objectives depends pickily on considering the relationships between more than one criteria and alternative locates, and also depends on methods that determined.

## 2. LITERATURE REVIEW

Geographical Information System (GIS) based integrated techniques are commonly used for MBT site selection due to the collection, storage and visualization advantages. Delgado and Tarantola [5] explored the joint use of global

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sensitivity analysis, GIS and multi-criteria evaluation to find the best place a hazardous waste landfill. Sumathi et al. [6] addressed the siting of a new landfill using AHP and overlay analysis through GIS. Guiqin et al. [7] used AHP and GIS to manipulate and present spatial data for landfill site selection problem in Beijing, China. Dimopoulou et al. [8] applied combining AHP and GIS method for the site location of waste disposal facilities. Jamshidi et al. [9] applied GIS program for landfill site selection using AHP for relative weight to each particular criterion.

Kaveh et al [10] develop MCDA process, which combines GIS analysis with a FAHP, to determine suitable sites for landfill construction in Iran. Bosompem et al. [11] used of the WLC method in a GIS environment for siting of transfer station for municipal solid waste. Maguiri et al. [12] performed the choice of the landfill site using GIS and remote sensing methods. Ansari et al. [13] used GIS and AHP for select the best sites for landfill. Yousefi et al. [14] carried out a study of landfill site selection combining GIS and AHP method. Rahimi et al. [15] obtained criteria weights by applying the group fuzzy Best-Worst Method (BWM) and then generated suitability maps based on GIS analysis for landfill sites. Khorsandi et al. [16] applied the AHP for weigh the layers and TOPSIS for prioritize the identified regions in landfill site selection in Iran. Then, each region were weighed in GIS. Ansari et al. [17] determined criteria in order to use in GIS. Abdulhasan et al. [18] applied AHP and fuzzy logic methods in GIS environment, remote sensing, for landfill site selection in Iraq.

Asefi et al. [19] used by integrating AHP and DEMATEL methods in a GIS enviroment for evaluating the suitability for landfill siting in Australia. Islam et al. [20] used integrated methods in the GIS environment using an AHP and WLC, to generate a comprehensive suitability map for landfill site selection in Bangladesh. Egtesadifard et al. [21] used fuzzy logic in GIS environment in order to identify the important sites for MSW landfill. Mora and Pelaez [22] applied AHP method integrated with a GIS for sanitary landfill site selection in Ecuador. Kazuva et al. [23] used to AHP for assign relative weight and evaluate each criterion in landfill site selection in Tanzania. In addition, it was used multivariate data in GIS environment. Sadhasivam et al. [24] used pair-wise comparison matrix through AHP and fuzzy linear membership gave rating of each class for landfill site selection criteria.

### 3. SITE SELECTION CRITERIA IN WASTE MANAGEMENT

**Table 1** Landfill site selection criteria

Criteria	Authors
Soil Conditions (texture, depth, permeability etc.) and Topography	Kazuva et al. [23], Sadhasivam et al. [24]
Surface Waters (water supply resources, lake, river, streams etc.)	Kazuva et al. [23], Sadhasivam et al. [24]
Wetlands	Chabok et al. [25], Egtesadifard et al. [21]
Groundwater Quality	Islam et al. [20], Kazuva et al. [23]
Slope	Mora and Pelaez [22], Sadhasivam et al. [24]
Elevation/Altitude	Islam et al. [20], Kazuva et al. [23]
Land Values	Egtesadifard et al. [21], Kazuva et al. [23]
Land use / Land cover	Kazuva et al. [23], Sadhasivam et al. [24]
Geology/Lithology	Kazuva et al. [23], Sadhasivam et al. [24]
Climatologic Conditions (wind direction, precipitation, temperature etc.)	Mora and Pelaez [22],Kazuva et al. [23]
Sensitive Sites (protected/historical areas, natural parks, archeological sites etc.)	Chabok et al. [25], Mora and Pelaez [22]
Settlements (urban and village) and Residential Areas	Mora and Pelaez [22], Sadhasivam et al. [24]
Population	Egtesadifard et al. [21], Sadhasivam et al. [24]

Roads/ Railways	Kazuva et al. [23],Sadhasivam et al. [24]
Airport	Soroudi et al (2018), Mora and Pelaez [22]
Industrial Sites	Chabok et al. [25],Sadhasivam et al. [24]
Faults	Khorsandi et al. [16], Chabok et al. [25]
Infrastructure (power lines, pipelines etc.)	Chabok et al. [25]
Accessibility From Waste Production Centres	Hanine et al. [26], Abdulhasan et al. [18]
Risk (geo-technical, etc.)	Delgado and Tarantola [5]
Air Quality	Sumathi et al. [6]
Aquifers	Yesilnacar et al. [27]
Culture	Riznic and Pucar [28], Soroudi et al. [29]
Potential Sites for Future	Maguiri et al. [12], Riznic and Pucar [28]

#### 4. CONCLUSIONS

Site selection is one of the most important issue of all modern engineering projects and structures in many countries. Recently, numerous studies were applied for site selection process in waste management. In this study, we examined the literature and determined the site selection criteria. The selection of the appropriate MBT site will be the concern of the future researches.

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# A Mathematical Modelling Framework for Performance Evaluation of Organized Industrial Zones Located in the Aegean Region of Turkey

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## Abstract

The main objective in the establishment of organized industrial zones is to achieve a balanced industrial development in the country in order to eliminate the differences between regions, to increase employment and qualified labor force in the regions. Organized industrial zones with low occupancy rates lead the question of if the organized industrial zones perform efficiently. In this work, rank-order according to the efficiency scores of organized industrial zones located in the Aegean Region of Turkey is obtained by employing a data envelopment analysis model, and the ranking results are compared.

**Keywords:** Data Envelopment Analysis, decision support systems, organized industrial zones, performance evaluation

## 1. INTRODUCTION

Organized industrial zones (OIZs) has been the zones of production for the goods and services, which are formed by allocating the land parcels. According to the Law on Organized Industrial Zones (Law No:4562) [1]. The objective of the OIZs are preventing industrialization and environmental problems that are not planned, guiding urbanization, using resources rationally, benefitting from information and informatics technologies, and ensuring that the types of industries are placed and developed within the framework of a certain plan [2].

Data envelopment analysis (DEA) is a mathematical programming-based technique which utilizes common inputs and outputs as factors in order to identify the relative efficiencies of decision-making units (DMUs). In this paper, the efficiency scores of OIZs in the Aegean Region of Turkey are evaluated and compared using DEA based decision models.

The remaining parts of the paper are planned as follows. In Section 2 the explanation of DEA and employed models are provided. Section 3 introduces the illustration of the methodology through OIZs ranking problem with regard to their efficiency scores. Finally, concluding remarks and future research are delineated in Section 4.

## 2. BACKGROUND

The initial data envelopment analysis (DEA) model, called as the CCR model, developed by Charnes et al. [3], calculates the efficiency value of DMUs. It maximizes the ratio of its total weighted outputs to its total weighted inputs. There is a condition that ensures that the output to input ratio of every DMU should be less than or equal to unity. The conventional DEA formulation can be given as

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$$\max E_{j_0} = \frac{\sum_{r=1}^s u_r y_{rj_0}}{\sum_{i=1}^m v_i x_{ij_0}}$$

subject to (1)

$$\frac{\sum_{r=1}^s u_r y_{rj}}{\sum_{i=1}^m v_i x_{ij}} \leq 1, \quad \forall j,$$

$$u_r, v_i \geq \epsilon, \quad \forall r, i.$$

where  $E_{j_0}$  is the efficiency value of the DMU that is under evaluation,  $u_r$  is the weight of output  $r$ ,  $v_i$  is the weight of input  $i$ ,  $y_{rj}$  is the amount of output  $r$  formed and  $x_{ij}$  is the quantity of input  $i$  utilized by DMU  $j$ , respectively, and  $\epsilon$  is a small positive number.

Formulation (1) has nonlinear and nonconvex properties but it can be converted into a linear programming model through a transformation. The linear programming model to compute the efficiency of a DMU is represented in the following formulation.

$$\max E_{j_0} = \sum_{r=1}^s u_r y_{rj_0}$$

subject to (2)

$$\sum_{i=1}^m v_i x_{ij_0} = 1$$

$$\sum_{r=1}^s u_r y_{rj} - \sum_{i=1}^m v_i x_{ij} \leq 0, \quad \forall j,$$

$$u_r, v_i \geq \epsilon, \quad \forall r, i.$$

### 3. CASE STUDY

This section introduces a case study related to the evaluation of OIZs located in the Aegean Region by employing DEA-CCR model.

The numerical illustration involves evaluating 11 OIZ with “total industrial parcel area (Ha)”, and “total number of parcels” as inputs, “total number of parcels in production”, “employment”, “net sales (TL)”, “R&D expenditures (\$)”, and “expert volume (\$)”. Data with regard to OIZs for 2015 are provided Table 1.



Table 1. Input and output variables for OIZs

DMU( <i>j</i> )	OIZ	Input1	Input2	Output1	Output2	Output3	Output4	Output5
1	Afyonkarahisar	292.20	314	303	7.630	5.403.622.542	6.764	215.786.617
2	Afyonkarahisar-Emirdağ	52.40	31	9	492	33.845.838	8.859	1.401.413
3	Aydın- Astim	330.00	256	87	3.299	3.501.349.452	1.382.248	64.830.900
4	Aydın-Ortaklar	72.72	35	8	547	143.405.554	0	8.326.388
5	Denizli	297.00	179	129	25.000	5.028.617.905	3.235.471	225.309.589
6	Kütahya	152.30	84	76	5.517	4.011.179.047	24.989.366	192.644.829
7	Kütahya-Gediz	66.03	33	20	710	342.197.388	0	10.375.827
8	Kütahya-Tavşanlı	67.76	25	11	2.630	417.283.785	0	21.390.572
9	Manisa-Salihli	159.00	159	40	2.534	646.579.912	567.050	38.097.162
10	Manisa-Akhisar	196.00	76	41	2.674	1.913.154.931	125.254	24.912.335
11	Uşak-Karahallı	47.00	86	303	7.630	5.403.622.542	6.764	215.786.617

DEA-CCR formulation presented by Charnes et al. [3] results in three efficient DMUs which are DMU1 (Afyonkarahisar OIZ), DMU5 (Denizli OIZ) and DMU6 (Kütahya OIZ). Ranking results are reported in Table 2.

Table 2. Results of the evaluation

DMU( <i>j</i> )	OIZ	Ranking of DEA-CCR model
1	Afyonkarahisar	1
2	Afyonkarahisar-Emirdağ	9
3	Aydın- Astim	7
4	Aydın-Ortaklar	10
5	Denizli	1
6	Kütahya	1
7	Kütahya-Gediz	5
8	Kütahya-Tavşanlı	4
9	Manisa-Salihli	8
10	Manisa-Akhisar	6
11	Uşak-Karahallı	11

#### 4. CONCLUSION

In this study, DEA-CCR model is employed in order to assess efficiencies of OIZs, which perform in the cities in Aegean Region of Turkey. The CCR model results in three efficient DMUs. Research in future will concentrate on the evaluation of the OIZs in other regions of Turkey.

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# Students' Abilities in Search, Systematization and Application of new Information for Independent Study Assignments

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## Abstract

Our time requires to plan and organize the study process in a way that provides a person with the possibilities during the study time to acquire skills enabling to not only adapt to the constantly changing labour market conditions, but also to be confident in initiating change, fostering innovations, promoting creativity, actively participating in lifelong learning processes and contributing to the Lithuanian entrepreneurship. Such challenges require the young person to be able to learn independently. The article analyses the development of such students' abilities as the search for new information and systematization as well as application of it when solving practical problems. The aim of the research is to perform the analysis of the scientific literature and to compare the abilities of the first- and third-year students to systematize the information found in order to apply it for the problem solution in a real situation.

**Keywords:** self-directed learning; independent studying; information seeking behaviour; Generation Z; study process

## 1. INTRODUCTION

Tertiary education must guarantee that a young person, after graduation, is able not only to find, understand, select the right information in a huge flow of it, but also to apply it in practice. This is a challenge for both the higher education institution and the young person. Punytė and Simonaitytė [1] note that it is necessary to find ways in which continuous learning, knowledge creation, creativity, cooperation and responsibility for oneself could contribute to the consolidation of society and the strengthening of democracy. Such requirements encourage the constant deepening of knowledge, the ability to apply it in various situations, and at the same time to find various information individually. According to Janiūnienė [2], successful preconditions for the implementation of these requirements are independent studies of various information sources looking for the answers to problematic questions, which adds meaning and usefulness to the learning process. Because self-directed learning is based on the search of information, the analysis and application of it for practical tasks, such behaviour becomes an essential part of the learning process, as the information found broadens a person's field of knowledge.

The aim of the research is to perform the analysis of the scientific literature and to discuss students' abilities to find and apply new information for solving practical tasks.

### Objectives:

- By analysis of the scientific literature, to highlight the importance of students' ability to search for and select new information.
- Explain how students search, analyse, systematize, and apply new information when completing practical assignments.

### *1.1. Self-directed learning*

Independent or self-directed studying, as defined by Rutkienė and Tanzegolskienė [3], is a self-directed activity in which a student, using critical thinking, is able to make creative decisions at the same time taking into consideration the norms and boundaries of the students' community. De Vore et al. [4] note that teachers, when developing the tools and instruments for independent learning, need to assess students' readiness level to enable and engage all learners in self-directed studies, as students often face with the lack of motivation, self-regulation and insufficient time management skills.

Self-directed learning was found to be related to previous experience; the ability to gather information, share it with others, time planning, the ability to collaborate also determines the choice of an effective study strategy [5]. It is a process, during which the skills needed to adapt to new situations and purposefully plan one's time are formed. Thus, a significant ability for future professional activity is developed, which is also the premise of lifelong learning, striving for improvement [6].

It is worth noting that self-directed learning encourages reflection on the purposefulness of one's activities, supports development of time planning skills, and at the same time strengthens the readiness for lifelong learning.

### *1.2. Generation Z information seeking behaviour*

Information seeking behaviour is a dynamic process in which the cognitive and emotional conduct of an individual is significant, as information search provides possibilities for better perception of the problems of an independent written task, identification of information needs, distinguishing relevance criteria and understanding of the space for information use [2]. Appropriate cognitive strategies help students decide on the adequacy, reliability and relative quality of the acquired information, as well as the search and access of information on the Internet that they use as a primary source of information for their homework, projects and presentations [7]. A group of authors point out [8] that the demands on knowledge enhancement and growth within a learning environment require acquisition of specific skills related to information seeking needs and the development of specific patterns in information seeking behaviour as a means of overcoming this overwhelming challenge.

It should be noted that when students and teachers cooperate in the search process, the teacher's information behaviour (information needs, use of information sources, knowledge of information technologies and the ability to use them when searching for information) is reflected in a sense in the students' information search practices.

It is worth mentioning that the majority of students currently studying are representatives of Generation Z, that includes persons born in 2004–2023 [9], [10], [11]. Scholars describe generation Z as the evolving one and argue that the members of it were born in a period of material goods surplus, characterized by the dominance of technology in all fields, and the disappearance of ethnic identity due to the global communication networks. It should be noted that for the Generation Z, technology is a matter of course, as they use it in various areas of life from birth: at home, for communication, for entertainment and learning. Representatives of this generation prefer watching video materials against reading literature, as images and symbols, logos, coloured pictures, trademarks have a greater influence on them and convey information more effectively compared to the verbal language tools [9]. Targamadzė et al. [12] note that the new generation has more difficulty in learning, loses the ability to concentrate, reflect and critically evaluate, as online habits, especially rapid shifts of attention, are reflected in mental activities even not being online.

The most characteristic features describing Generation Z are individualism, activity, the use of technology, the need for visual information in learning and its effective perception in accepting and assimilating knowledge. Representatives of this generation widely use technological media and can reach the kind of natural fluency that comes with having grown up with new digital technologies [13]. These features are especially important to be considered when organizing the study process and preparing methodologies, tasks and tools for independent work to guarantee high-quality and fruitful studies.

It is also very important to consider the fact that even though young people do not have any difficulty switching to online teaching and learning, they want to have the possibility to learn new skills and make new experiences for which they especially prefer communication with fellow students in-person over any other method and expect to learn from their peers and teachers. The help and the flexibility of teachers (academic staff) is especially appreciated during the pandemic crisis, and the lack of communication is seen as one of the main negative consequences of the pandemic and the lockdown [13].

### *1.3. Research methodology and methods*

The research was based on the attitude of social constructivism [14]. The informants were asked wide-ranging questions and attention was paid to how and what independent learning experiences are formed in search of information, and what information behaviour manifests itself on the basis of them.

Qualitative research was carried out by applying:

- self-observation (introspection) method, which was used to monitor students' time spent for searching, reading and analysing information; when writing reflections, students indicated the amount of time they devoted to these actions by performing one independent assignment; MS Excel was used to process data;
- qualitative content analysis was applied to examine reflections provided by the students, i.e., collected findings that describe students' ability to find relevant information, form information retrieval criteria, methods of analysis, systematization, and application of it in performing a practical assignment.

A qualitative study was conducted in April – October 2020. The informants of this research were the first- and third-year students of Kaunas kolegija, studying in the modular study programs in the field of social sciences. The study module is a part of the study program consisting of several interrelated (in terms of content) study subjects and having a defined goal as well as being focused on certain student abilities. Each semester, the study module is completed with an exam or an evaluation of the student's work (project/integrated project). It is recommended to allocate at least 50 percent of the cumulative score to the exam or project/integrated project [15]. As this final integrated assignment takes a big part in the final module evaluation, it is important to conduct a study of how students are doing in searching for, finding, analyzing and systematizing information.

The research sample is 165 students. Students provided written reflections describing the difficulties they encountered in performing independent assignments as well as where and how they sought the information needed to complete these tasks. It is important to note that the reflection provided by each student is an individual experience and a different case, so the field of research is the analysis of individual samples. The data were depersonalized and analysed using a content analysis method based on findings selected from respondent reflections illustrating students' experiences in searching for, analysing, and applying information to solve practical tasks. The findings selected according to common meanings are grouped into certain semantic units (subcategories), thus forming categories [14].

### *1.4. Results and discussion*

#### *1.4.1. Time devoted for information search, reading, and analysis*

When assigning students with the independent tasks, it is important that the time required to complete them corresponds to the time planned for the module activities in the study program. Therefore, when preparing independent written assignments, it is important to know how long it takes the average student to complete certain actions. Typically, each independent work consists of searching for, reading, analysing, summarizing, and applying information to solve a practical problem. This study is focused on activities related to information retrieval, reading, and analysis. Therefore, the self-assessment method was applied to estimate the amount of time required for these actions when performing independent written assignments. The results illustrating information seeking behaviour of the first- and third-year students, obtained by self-examination method, were compared.

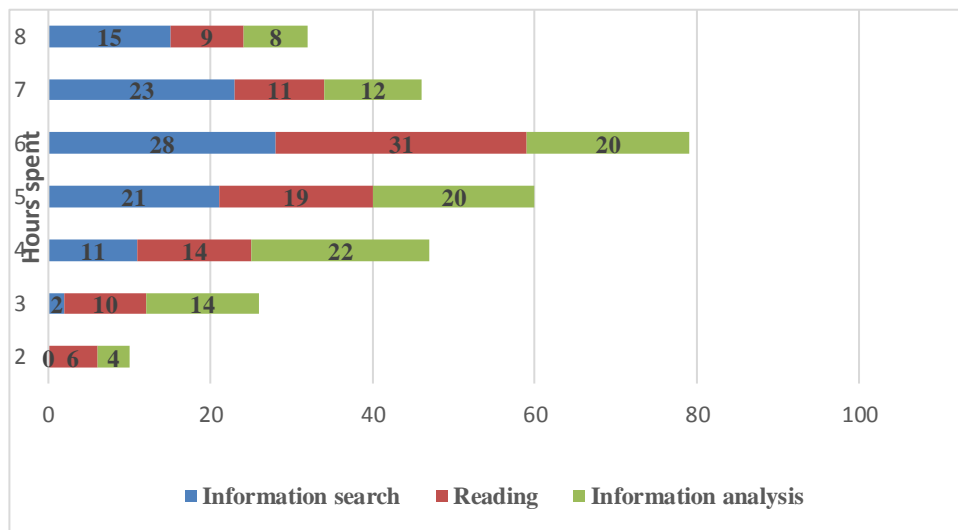


Fig. 1. Percentage distribution of time spent for searching, reading, and analysing information among the first-year students

The results of the study revealed that the first-year students take an unequal number of hours, ranging from 2 to 8, to search for, read, and analyse information. The biggest proportion of time is spent for information search; about 72 percent of the first-year students need for it on average 5 to 7 hours. About 31 percent of the students devote 6 hours for reading, and approximately half of them 4 to 6 hours for text analysis.

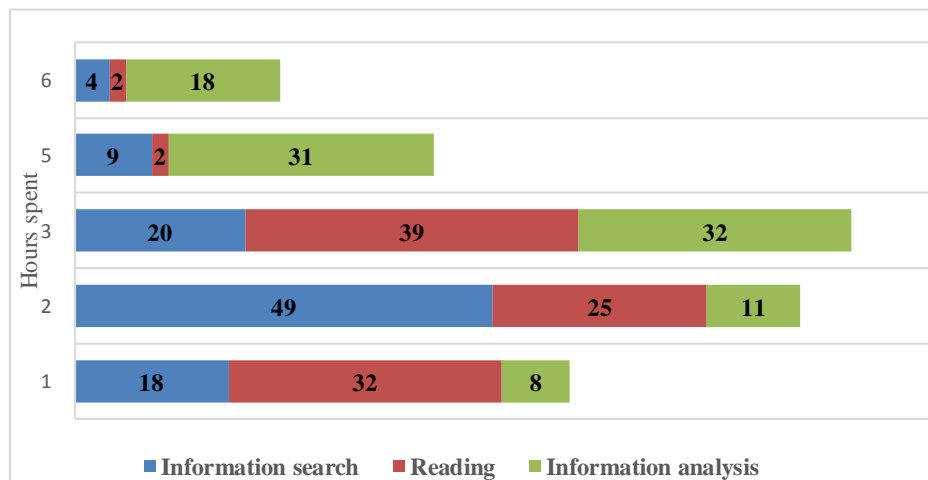


Fig. 2. Percentage distribution of time spent for searching, reading, and analysing information among the third-year students

The third-year students spend significantly less time searching for information than the first-year students; on average, it takes 2 hours. Based on the research data, it can be stated that the third-year students usually spend 1 to 3 hours for reading and 3 to 5 hours for analysing information.

1.4.2. Students' experiences in information search, analysis and application

Findings, that are based on the analysis of accumulated data, describe the peculiarities of the first- and third-year students' search for targeted information, i.e., what criteria are followed, where information is sought and what obstacles are encountered as well as the semantic components of self-learning reflections.

Table 1. Peculiarities of information seeking behaviour among the first-year students

Category	Subcategory	Illustrations
Information retrieval	Criteria for information retrieval	<...> according to the topic <...>; <...> after identification of the assignment tasks... started to look for the meaning of concepts and scientific literature <...>.
	Ways for information search	<...> Google search with the help of key words <...>.
	Time allocated for information search	<...> the best joy has been after a long search for information to find exactly those things that I have been searching for half a day <...>.
	Information search experiences	<...> I have learned to understand that not all public information is correct <...>; <...> I understood what a scientific article is <...>.
	Challenges in finding information	<...> looking for the right information because you don't know if it's really suitable <...>; <...> a lot of information and which is the best <...>; <...> lots of unknown words <...>; <...> many questions arose as to whether information was correct and useful <...>; <...> it took a lot of time <...>.

The analysis of the first-year students' reflections revealed (see Table 1) that no important criteria were identified for both the information search place and selection of it. Most of the students searched for information randomly based on a keyword appearing in the text title. However, it is possible to observe the signs of the information search criteria, because the search is 'according to the topic' or the aim is that the information found has to correspond to the 'the task foreseen' by the students' independent assignment. Information has been often looked for by entering the keywords and thinking it was the right way to go, but it was disappointing because of understanding that not all information was correct and suitable for independent study assignment. It can be stated that the obvious lack of the first-year students' ability to search for information to perform various study assignments requires a lot of effort, which becomes a challenge in the self-study process. This is illustrated by the examples of experiences such as 'it takes a long time'; 'a lot of information, but is it really appropriate'; 'is that source of information usable or official'. However, there were also positive experiences that illustrate, promote and encourage development of information selection skills, that is, 'I understood what a scientific article is'; 'we were pleased when the teacher agreed with our choice of information'. These findings demonstrate the importance of teacher support, and at the same time show the significance of his/her role in the study process.

Table 2. Peculiarities of information analysis of the first-year students

Category	Subcategory	Illustrations
Information analysis	Text reading	<...> the first texts are read in full and, if it seems appropriate, translated <...>; <...> I searched for concepts and translated them <...>; <...> I read the introduction <...>; <...> a few of us read and discussed whether we understood that and whether it was appropriate for our work <...>.
	Text analysis	<...> a lot of information, and what is most important in that paragraph, because everything seems needed and important <...>; <...> convey information in own words <...>; <...> to choose a way to compare the concepts of several authors <...>; <...> summarize information from multiple sources <...>.
	Challenges	<...> a lot of time to understand the text <...>; <...> it took a long time to search for and figure out the concepts <...>.



The reflection findings revealed that the first-year students have difficulties in analysing academic texts written in English (see Table 2), which indicates insufficient language knowledge. Illustrative passages for that are ‘had to translate unknown concepts’; ‘it was necessary to translate the article and then read it’ and so on. The first-year students were found to lack the skills and experience to select the suitable information that would be the most relevant for their independent assignment, and the analysis and systematization of information was difficult for most of them because ‘a lot of information but which is the best’; ‘full page but how to shorten it’. The first-year students emphasize the importance of teacher’s consultations both in finding information (‘I ask the teacher for advice on whether a book or an article is suitable’) and in fulfilling the requirements of the task (‘is it the right summary’; ‘have we chosen the right indicators’ and so on).

Table 3. Peculiarities of information seeking behaviour of the third-year students

Category	Subcategory	Illustrations
Information retrieval	Criteria for information retrieval	<...> according to the topic <...>; <...> the article must be simple <...>; <...> short article <...>; <...> few complicated words <...>; <...> relevant to the topic <...>; <...> scientific in nature <...>; <...> author’s name, year of publication <...>; <...> source has to come from an official journal or book <...>.
	Ways for information search	<...> I set the required filters (year, type, language) in the database <...>; <...> I open the most interesting articles with the clearest titles, read their description and if I am interested, I open the full article <...>
	Places for finding information	<...> EBSCO database <...>; <...> in databases such as ebscohost.com, www.semanticscholar.org, https://www.researchgate.net/ <...>; <...> entering keywords in Google search <...>; <...> Google Scholar <...>; <...> usually Google <...>; <...> I usually enter the topic of the self-study assignment and write a pdf to get information in that format <...>.
	Challenges in finding information	<...> paid sources <...>; <...> not suitable for a particular topic <...>; <...> inappropriate, outdated <...>.

Based on the data analysis, it is observed that the third-year students (see Table 3) search for information for independent written assignments according to the defined criteria, that are:

- compliance with the topic of the independent written task (‘relevant to the topic’);
- the scientific nature of the source (‘scientific article’);
- author (‘known author’; ‘heard the author’s name during lectures’);
- publication year;
- proper journal or book.

The third-year students usually search for information in databases, but there have been rare cases of searching ‘usually through Google’. An important note from students is that some articles are paid, which makes it difficult to access information. It should be noted that when analysing the texts in Lithuanian, students encountered difficulties in ‘providing information in own words’; ‘how to identify the main idea’ and so on.

The peculiarities of the Generation Z have emerged, as learning by reading for this generation is not one of the most appropriate ways. Short and simple texts are more attractive for them. This generation is characterized by a

desire to achieve a result quickly, so filtering and systematization tools are used when searching for information. The precondition for this is a high level of mastery in using various digital tools.

Table 4. Peculiarities of information analysis of the third-year students

Category	Subcategory	Illustrations
Information analysis	Text reading	<...> I read in English first, then translate and read again <...>; <...> I read in parts <...>; <...> I read and do not translate individual words that I don't know <...>; <...> I read the full text first <...>; <...> I try to understand incomprehensible words out of context <...>; <...> I read difficult-to-understand places again; if I still can't understand, then I translate the unknown words <...>; <...> I read many times ...sometimes five <...>.
	Text analysis	<...> I read the whole text, take notes of the most important thoughts and analyse the individual segments the next time I read <...>; <...> I select the essential paragraphs ... read them several times <...>; <...> I read the whole text and when I read it a second time, I select the most important information <...>; <...> select useful information <...>.
	Challenges	<...> understand the text <...>; <...> complicated because this is not the spoken language <...>; <...> it takes a lot of effort to see into the text <...>; <...> examination of research results <...>; <...> perception of academic (English) language <...> <...> select the necessary information, analyse and explain it briefly in independent assignment <...>.

Based on analysis of the third-year students' responses (see Table 4), three groups of informants were distinguished according to the peculiarities of reading the text:

- bilingual reading of the whole text;
- reading and translating parts of a text;
- repeated reading of a text.

These findings demonstrate both the different levels of students' language skills as well as their ability to analyse scientific texts. When analysing the texts, the informants behaved similarly: they selected the appropriate paragraphs and some translated them in full, while others translated only the essential words. Most students found it difficult to read scientific texts because they contained many 'concepts and words that are not used in spoken language'; 'it takes a lot of effort to delve into this type of text'. It is often mentioned in student' reflections that 'written assignments, which require searching for information, require a lot of time'.

Based on comparison of the first and third-year students' peculiarities observed in information seeking behaviour, it was found that the first-year students search for information spontaneously without having any clear criteria. The third-year students are skilful in the technical capabilities of digital search systems, therefore, when looking for information, they use filtering and systematization tools, which strengthens the developed ability to refine the criteria of usefulness of the information found. Analysis of the findings highlighted the special importance of the teacher consultations for the first-year students, as in this way they receive approval, which motivates independent learning in the preparation of written assignments covering the components of the module. The third-year students are characterized by autonomy, which is revealed in consultation with teachers when discussing or refining such module assignment related characteristics as scientific and practical relevance as well as applicability for the future research, benefits for continuing studies, preparing articles or otherwise making learning more meaningful.

## 2. CONCLUSIONS

1. The demands on knowledge enhancement and growth within a learning environment require acquisition of specific skills and appropriate cognitive strategies related to information seeking needs and the development of specific patterns in information seeking behaviour. Students widely use technological media and can reach the kind of natural fluency that comes with having grown up with new digital technologies but the help and flexibility of teachers is still very important and especially appreciated during the pandemic crisis.

2. The research results revealed the difference between the first- and third-year students in searching, analysing, systematizing, and applying information when performing independent written assignments of the modules. It was found that the first-year students spend the most time searching for information as well as reading it. The research data of the third-year students revealed a focus on information analysis, which allows to note that higher-year students have more developed skills to operate the material, systematize it, and go deep into the target data needed to perform independent written assignments.

The analysis of findings revealed the following differences in the students' information seeking behaviour: the first-year students search for information spontaneously and seek the support of the teacher; the third-year students follow the distinguished criteria, use mastered information technology tools, and look for the teacher's consultations on the in-depth aspects of independent assignments. Examination of the findings highlighted the limited knowledge of English among the first-year students; in case of the third-year students, a different ability to accept and assimilate an academic text in English was revealed. The research described in the article is significant for revealing such Generation Z features as the pursuit of a quick outcome in self-learning process, the aforementioned technological literacy, mastery of digital tools and information processing as well as the specific for this generation reading techniques that characterize its information seeking behaviour.

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# The Use of Expressive Therapeutic Methods in the Work of School Special Educator with Adolescents with Behavioural Disorders

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## Abstract

The work of a school special educator with students with behavioural disorders is a very actual topic. Recently, the positions of special educators have also arisen in high schools. There are many students who need individual help and support. The article outlines options and recommendations for working with young people with behavioural disorders by using expressive therapeutic methods.

**Keywords:** expressive therapy, expressive therapeutic methods, school special educator, behavioural disorders

## 1. INTRODUCTION

School special educators working in high school environments have a difficult position, especially when working with students with behavioural disorders. These students usually do not follow the usual intervention procedures and also tend to be very negative oriented. The general purpose of special pedagogical intervention is to guide adolescents towards desirable behaviour and manifestations that will satisfy themselves and their immediate surroundings. Adolescents are very sensitive and often relational and therefore adult professionals must communicate with them tactfully, diplomatically and non-confrontationally (Fábry Lucká, Lištiaková, 2015). Expressive therapeutic methods are excellent for such communication. In the activities described by us are elements inspired by expressive therapies, namely art therapy and bibliotherapy.

In compiling the strategies, we relied mainly on special pedagogical methods and on the theoretical foundations of the art therapies. The main aim of the interventions is to find forms and uncover opportunities to support the strengths of young people's character, to develop their skills and interests and to strengthen positive patterns of behaviour. The use of creative activities and relaxation techniques also proves to be effective. The development of emotional skills in adolescence leads to successful confrontation in stressful situations and to the avoidance of negative behaviour in adulthood. It is necessary to focus on the development of healthy self-confidence, self-acceptance, internalization and confirmation of certain values, on the development of tolerance for stress, the expansion of the repertoire of roles aimed at resolving conflict situations and improving communication. At the same time, all these activities must be accompanied by a sense of success and self-worth.

## 2. ADOLESCENTS WITH CONDUCT DISORDER

A young person with a behavioural disorder is indicated for a special pedagogical approach and procedures of an individual character. It often happens that our society, and unfortunately also the professional public, tends to simplify and disrespect this otherness. Problems with compliance with the rules, conflicts in social relations, aggression, impulsivity and other manifestations lead to frequent problems in teaching. Students with behavioural disorders are more likely to perform worse than their classmates. At the same time, their evaluation and marks often do not correspond to their cognitive abilities (Hutyrová, 2019). However, during adolescence, students also begin to learn about their strengths and develop their creativity. Focusing on these strengths is more effective as they build on individuality and comprehensively support the adolescent in this difficult period of life (Fábry Lucká, Lištiaková, 2016).

However, it should be noted that negative behaviour is often used by students as a counterattack to anxiety. Therefore, it is important to weaken this defence system, teach a young person to gain from feelings and emotions and teach him to express them in an acceptable way. For neurotic and depressed students, acceptance, kind procedures, encouragement and support are appropriate. Rather, aggressive individuals require clear, solid, and structured rules and procedures. It is recommended not to support the strengthening of unconscious defences and thus not to increase the inner chaos and immaturity of the internal structures of the personality. At the same time, we must focus on alternative solutions to conflicts and problems and on behavioural training, which replaces negative behaviour.

### **3. CREATING A RELATIONSHIP BETWEEN A SCHOOL SPECIAL PEDAGOGUE AND AN ADOLESCENT WITH A BEHAVIOURAL DISORDER**

Every adolescent with a behavioural disorder is different and therefore it is necessary to approach each one individually. Regular supportive contact with the school special educator and an effort to identify the student with positive patterns is effective.

Overcoming the adolescent's initial distrust of the adult, and thus of the special educator, is the most important condition for the intervention process. Patience is needed because a young person needs enough time to open up. The relationship between the student and the school special educator is the mainstay of any work with him. It is necessary to realize that young people with behavioural disorders already have a lot of experience with adult authorities who appealed to their morals or behaviour. They consider any conversation to be a show of remorse and instruction. Non-verbal communication is very important in mutual contact. Adolescents react and notice any uncertainty and the way a special educator copes with the problem. Therefore, the most important thing is not to always insist on your truth, but to take a respectful attitude.

A good relationship means that a special educator becomes a support and guarantor of safety. This allows the student to make positive changes on his own. However, for the school special educator, it is also essential to manage one's own feelings and to know one's weaknesses and possibilities. The special educator must try not to lose patience, try to prove his power and at the same time do not use bad "parental" means, such as advocacy and punishment, in his work. He should respond calmly and appropriately alleviate any aggravated situations, maximize the positive satisfaction of the desired behaviour, directly and indirectly support the young person's self-esteem by using emotional means. At the same time, he should help him eliminate any feelings of guilt, fear of failure, and constantly reassure him that he trusts him. In individual special pedagogical interventions, it is necessary to communicate openly, objectively, calmly and patiently. A necessary condition is the creation of an accepting and accepting atmosphere (Labáth, 2001).

It is appropriate to involve humour and creativity in the whole process. Instead of succumbing to self-pity, nowadays it is preferred to try to rise above experienced trauma and see the world from the so-called higher perspective and foresight. Křivohlavý (2010) describes important studies that confirmed the positive effect of humour even in very difficult situations. It is about achieving a balanced attitude to the negative emotion, a deeper knowledge of one's emotional state and its appropriate expression, whether by drawing or words. Equally important is the use of artistic elements such as music, artistic expression, literature, but also education in matters of lifestyle.

### **4. USE OF EXPRESSIVE ELEMENTS IN SPECIAL PEDAGOGICAL INTERVENTION WITH ADOLESCENTS WITH BEHAVIOURAL DISORDERS**

When working with adolescents with behavioural disorders, it should be borne in mind that all activities aimed at solving problem situations must be properly planned in advance in order to achieve a positive effect. Through creative activities, it is possible to work on adolescents' positive self-image and thus create conditions for the expression of their own emotions (Majzlanová, 2017). However, these meetings require a stronger structure and arrangement of space, as well as the establishment of certain rules and greater activity of a special educator. It is always appropriate to adapt the work to the current needs of students and work on them through experience. The special educator creates a pleasant environment, aids for students with behavioural disorders and, above all, provides them with his presence and involvement. He does not focus on the result, but on the process itself, especially in terms of the student's enthusiasm for work, his perception and the possibility of sharing this process with a special educator. The goal of individual interventions is to develop symbolic language that allows access to deeply hidden feelings or memories. Elements taken from expressive therapies can be very helpful when working with adolescents with behavioural disorders, due to their ability to calm and regulate the nervous system. They provide the school special educator with a range of options and techniques that he can use with regard to the individual characteristics of a particular student. If the student focuses on creation, his attention will shift from negative feelings to a more positive

experience. Any creative process allows a person to process even complex mental processes, gives rest to thoughts, helps to detach from feelings and see the form of the experienced situation from a different perspective (Žulák, Krčmáriková, 2017). For young people with behavioural problems, in addition to authenticity, it is important to promote self-esteem, which affects their relationship with themselves and other people. Drawing or writing are the most commonly used tools we offer a teenager to express his own worldview, feelings and relationships around him.

#### *4.1 Use of art therapeutic elements*

Art therapy (Müller, 2014) is actually an application of the means of fine arts used in an effort to change behaviour, thinking and emotions in a socially acceptable direction. Kučerová (2013) also speaks about the importance of art therapy in changing in the field of more positive behaviour towards oneself and the environment, empathy, cooperation and even the support of expressive abilities. Artistic expression is perceived here as a means of self-expression and a way of communication (Lhotová, 2010). Kožnár (1999) sees the potential of artistic expression especially where words are not enough. In addition to drawing, such a role is also played by painting, modelling, or working with various plastic materials and the collage technique. It is necessary to develop a discussion about individual creations, clarifying intrapsychic connections, relationships and interactions, even if the young person does not want to talk about them very much. It is also possible to react negative emotions, fine-tune the emotional state, develop creativity, streamline communication and ventilate various problems through artistic activity.

The use of these methods is universal and does not depend on artistic talent. Kožnár (1999) even admits that the less artistically gifted a student is, the more authentic and spontaneous he manifests himself. Later, there is space for a conversation about what happened in the creative process, as well as for a conversation about the outcome of this work. The topic is also related to the specific goal we want to achieve with the student. The assumption is that the special educator knows the basic problem with which the young person enters the intervention. It is not the way to fulfil the topic that matters, but the truth of the content. However, having a theme is important for those who are unsure at the beginning and need a "kick". The theme must not be an order but a way of finding answers to questions, connecting with one's self, discovering oneself and one's experience. However, students often have trouble starting to create anything at all. It is a remnant of negative experiences from art education classes at primary school. Most of them were evaluated through the subjective perception of the teacher about what is nice and tasteful. Then it is appropriate to use certain templates or lines, which students can draw on paper and draw and colour them themselves. Later they can work with their own theme. This often arises from a gradual understanding of one's own symbols. The special educator notices the way in which the young person approaches the processing of the topic. What he chose the process of creation, presentation and reflection. Free expression brings the opportunity to understand your inner self. The charm of individual meetings with a special educator lies in the fact that it is not important how the work looks from an aesthetic point of view. The authenticity and potential of free and true expression is important.

#### *4.2 Diary writing and elements of bibliotherapy*

Writing a diary is also a very effective method. This method is used to record experiences from the whole day, which the student can later sort and process. According to Křivohlavý (2010), diaries are an excellent form of working with emotions. For the reception of negative emotions helps their verbal, resp. written statement. For a special educator, the diary has an irreplaceable place in finding out what is going on in the student soul. At the same time, it can serve as a form of private communication between a special educator and a teenager. It is advisable to comment on the entries regularly and give feedback. However, complete intimacy must be ensured. This is the most confidential dialogue between the student and the special educator, it deepens the intimate contact and ensures greater openness and sincerity. Diaries are a suitable form of contact, especially for shy and timid students. In this way, they communicate without direct contact, which suits many teenagers. At the same time, they can use diaries for drawing (elements of art therapy) and notes about books or stories they have read (elements of bibliotherapy). They have all the activities carried out in the diaries and can return to them at any time.

In addition to the lessons of style and literature compulsorily included in secondary school curricula, a school special educator can develop a positive attitude towards reading and writing through the use of certain elements of bibliotherapy (Majzlanová, 2017). Abroad, bibliotherapy is also commonly used in teaching and its positive effects have also been seen in the field of education. Reading fiction and writing diaries provides the student with emotional support. At the same time, it offers different perspectives in perceiving a certain situation, and the hero in the story can be an example worth following. It shows the student the starting point and indicates the perspective of successfully overcoming the problem situation. He can also deal with forbidden feelings, such as anger or helplessness, in a

relatively safe environment, and thus gain insight into his own aggressive or otherwise problematic behaviour. The most common manifestations of behavioural disorders in adolescents and the possibility of their intervention.

In the following section, we briefly describe the most common disorders in adolescence. At the same time, we offer activities using expressive methods, which are suitable for use when working with young people with behavioural disorders. These activities can be varied and alternated, according to the individual characteristics of a particular student and at the discretion of the school special educator:

- 1) **AGGRESSION:** it is usually caused by an innate personality structure or created by an incorrect educational style (Turček, 2003).
  - i) *Feeling pie:* It is advisable to use this activity at the first meetings, so that the student can relax and open more when describing his emotions. The student draws a large circle on paper and divides it into (at least) eight parts. He names the individual parts according to emotions: anger, anxiety, sadness, joy, love, gratitude, fear, pain, excitement, confusion, fear, etc. He draws in the individual parts what or who causes such emotions and uses appropriate colours. A discussion with a special educator follows.
  - ii) *Body and mind connected:* In this activity, the student realizes how close the mind and body are and how they interact. The student first pays attention for a while to the feelings in his body and wonders if he does not feel tension, pain or discomfort in some places. He then draws the outline of his body on paper. At the same time, the special educator leads a discussion with the student on how the given feelings are manifested and in which places we feel them. The student assigns a colour to this feeling and draws them in the outline.
- 2) **ATTENTION AND ACTIVITY DISORDER:** is a developmental disorder with inadequate attention, diffuse attention, hyperactivity and impulsivity.
  - i) *Colouring and modelling:* Colouring and modelling help to calm and relax. We can use various drawing supplies and anti-stress colouring books for adults for colouring, classic or intelligent plasticine will be used for modelling, or plasticine made at home (Safran. 2012).
  - ii) *Mind map of myself:* This technique is for self-analysis. It is simple, but it can lead to a better understanding of one's self and helps to align with the vision of the future self.
- 3) **ASPERGER'S SYNDROME:** one of the disorders of the autism spectrum. Manifestations are very individual, e.g., detailed dealing with a single thing or activity, problems in everyday communication, rich vocabulary, the need for stereotypes, etc.
  - i) *Postcard creation:* This technique combines fine art and stylistic expression. We will prepare prototypes of postcards for the student. It is interesting if the student has to create and write a postcard to his future, respectively past self.
  - ii) *Custom comics:* This technique is great for observing a situation from a different perspective. The student can depict experiences (interviews) from previous days in the comic. At the same time, he imagines how he could react and what he could say or do in a similar situation.
- 4) **EMOTIONAL DISORDERS:** are actually psychiatric disorders that disrupt the normal functioning of the adolescent and trigger negative feelings in him, e.g., anxiety, depression, obsessive-compulsive disorder, schizophrenia and psychotic disorders
  - i) *Circle of trust:* The student draws a large circle of trust on the drawing. In this circle, he then draws or glues (collage technique) pictures that represent people, activities, places, things he trusts, or that help him feel confident and at peace. He then places this circle in a clearly visible place at home and always looks at it when feeling anxious.
  - ii) *Intuitive drawing:* The student puts a clean sheet of paper in front of him. He closes his eyes and concentrates on his feelings, which take place inside him. He tries to understand how these feelings manifest on a physical basis and to identify what specific feelings they are. Then he opens his eyes and chooses one crayon. He closes his eyes again and draws a continuous doodle. He stops only when he feels that his feeling is already completely represented.
- 5) **EATING DISORDERS:** occur most often when adolescents face changes or demands that they are unable to adapt to. They believe the myth that he who is slim is happy. The period of adolescence is the most critical for the development of these disorders (Roľková, 2017).
  - i) *Bridge:* The student draws a bridge on paper that goes from one side of the paper to the other and divides the paper into two parts. On one side of the paper, the picture draws a scenery that represents life with anorexia / bulimia. On the other side of the paper, he draws a scenery that represents his life without failure (Hays, Lyons, In: Brooke, 2008).



- ii) *Defensive shield and cloud of worries*: The student draws a large defensive shield on paper, behind which he can hide at any time. He can write (draw) people, things or activities that help him in difficult moments in the shield. Another option is the "cloud of worries". The student draws a large cloud where he writes (or draws) all his worries and things he is afraid of. Then, with the help of visualization, he imagines that the cloud is flying far away.
- 6) **SELF-HARM AND SUICIDAL SYMPTOMS**: these symptoms are often a call for help. The reason is that adolescents feel the pressure of society, higher demands on education, appearance, etc. (Roľková, 2017).
  - i) *My hands*: The student draws both of his hands on paper. He writes above my left hand "my past hands hold ..." and above my right hand "my future hands hold ...". In the picture of the left hand, he draws what illustrates his past and in the right his future. The special pedagogue helps the student with the questions: What have you managed to overcome in the past? What colour is your past / future? What kind of people are there with you? etc. (Malchiodi, 2012).
  - ii) *Strong tree*: A student draws a tree and a crown with many leaves. He will write some of his strengths in each letter.

## 5. CONCLUSION

We tried to approach the complexity of special pedagogical work with high school youth with behavioural disorders. At the same time, we offered selected expressive methods that serve to alleviate these disorders and also to stabilize the mental and emotional state of students. Artistic and creative activity offers great potential for relaxation, relaxation and strengthening of self-esteem and inner experience, therefore we believe that these methods should be included by school special educators in their repertoire of activities provided within individual interventions.

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# Topics in Periodicals of the Teaching Profession in 2000s in Turkey: Contemporary Education Journal Sample

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## Abstract

The teaching profession is one of the most important elements of a country's education system. Problems about the teaching profession should be solved in order for the profession to fulfill its expected role. Scientific research has an important place in the development of the teaching profession and in identifying and solving problems. In this regard, educational journals play an important role. One of the most important benefits of periodicals is to convey the present moment. In this study, it is aimed to evaluate the topics about the teaching profession in periodicals and the Contemporary Education Journal is taken as a sample. To this end, articles on the teaching profession in the journal were identified by using "teacher" and "teaching profession". The articles identified were examined by the content analysis method. As a result of the study, it is seen that topics such as teacher training, improvement of teacher qualifications, institutionalization of the teaching profession and problems of the teaching profession are handled.

**Keywords:** Turkey, teacher, teaching profession, periodicals, Contemporary Education Journal

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## 1. INTRODUCTION

Today, education has an important role in taking a place among the developed societies and having the qualifications of the information society. For this reason, our education system needs to respond to changing and developing conditions. Yet to do this, it is necessary to analyze our past very well and to learn something about today from these analysis. Because the ability to make meaningful decisions about the future is closely related to the analyzing the past in the best way.

Experience and thought accumulation have an important place in the history of education. However, it is observed in the evaluations made on the field of education history that this rich accumulation has not been used efficiently. Indeed, those who have a role in the formation of education policies or teachers and intellectuals who are in charge of important duties in practice should benefit from this kind of knowledge and learn their lessons about the future. According to Akyüz (2004), in order for our education system to reach the desired level and to obtain the appropriate qualifications for the information society; the history of education should be evaluated well, lessons should be taken from the previous period and it should be put into practice with determination.

In historical researches, journals are among the primary resources in addition to original archive documents. Magazines have three distinct important functions; recording the political and social views that had the most impact in its time, providing records on events and presenting research results on non-journalistic issues (Şimşek, 2002). Contemporary Education Journal is one of the most important journals in Turkish education history. In this study,

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issues related to the teaching profession between the years 2000-2013 will be discussed in the context of the Journal of Contemporary Education.

#### TOPICS IN THE JOURNAL WITH REGARD TO THE TEACHING PROFESSION

The journal contains thirty six articles on the teaching profession. When we check out the issues discussed in this article, it is observed that issues such as perception of the teaching profession in Turkey, teacher training, problems of the teaching profession, teaching profession in the change process and qualifications required for effective teaching take place in the journal.

Teacher training process is among the topics discussed. Göçer (2008), who states that knowledge and skills acquired by the education faculty students before starting their professional practices create the infrastructure for the teaching of the course, the acquisition of goals and the use of equipment, asserts that realizing the education and training process in a planned way will provide significant benefits in classroom management. Tezel Özbek and Aytekin (2003) also emphasize the importance of vocational education in training candidates needed by the teaching profession. Ekici (2005) states that teacher candidates attend eleven vocational classes during their education and necessary precautions should be taken since they have difficulties especially in Development and Learning lessons.

The courses in the program are very important for prospective teachers to have experience in schools in the teacher training process. According to the journal, although this application is very important, it does not provide the desired efficiency due to coordination and control problems (Çiçek Sağlam & Sağlam, 2004; Demircioğlu, 2005; Uslu, 2001). Türnüklü and others (2004) think that the teaching practice course given at universities facilitates teacher candidates to have knowledge about the profession, to have an idea about the advantages and disadvantages of the profession, to create a teacher model and adapt to the classroom environment. According to the journal, mentor teachers in schools are the most appropriate role models for prospective teachers and the encouragement of pre-service teachers by mentor teachers to make self-evaluation is very important (Gündüz & Sunay, 2007; Ünver (2005). Işıklıoğlu (2007) mentions in his article in which he points out the importance of constructivist approach in teaching that it is especially important for mentor teachers to set an example to prospective teachers in schools with their practical work on these issues.

Perception of teaching profession is among the topics discussed in the journal. According to Özalp (2000), efforts were made to change the perception of the teaching profession in the early period of the Republic and to help it take its place among the important professions. For his purpose legal arrangements were made, and a connection was tried to be established between the teachers needed and the teacher training process. In the journal (Çakmak, 2001), it is remarked that the most important element of the education system is teachers, and it is emphasized that not only professional knowledge but also personality traits are important for the efficiency of a teacher. Yavuz (2005) expresses that the teaching profession should have respectable status, a perception of professional identity that requires high spirituality and high esteem, and a sense of institutional belonging, and states that teachers' lodges contribute significantly to this issue. Yavuz (2006) also states that the sale of teachers' lodges and social facilities will harm the perception of the teaching profession.

In the journal, it is mentioned that in-service training is essential for the teaching profession to keep up with change. According to the journal (Baykara Pehlivan, 2010; Tekişik, 2000; Ünal, 2001), teachers' educational activities and efficiencies should be improved through in-service trainings, and necessary precautions should be taken to implement the knowledge obtained. In in-service-trainings subjects such as motivation, knowledge, skills and technological developments required by the age, recognition of students and time management should be prioritised. According to Ekici (2001), in-service trainings are also a requirement for teachers to increase the number of methods they use in their lessons. Gökçe (2000) states that teachers should be able to appeal to the twenty-first century society with their professional competence and personality traits while emphasizing the need for democratic, contemporary and egalitarian teachers who follow innovations and can guide their students as role models. Çetingöz (2008), on the other hand, remarks that teachers should adopt modern methods and techniques, be master at classroom management and improve themselves in communication. Kanlı and Yağbasan (2002) state that in-service training courses should appeal to teachers' needs. Bilir (2004) points out that in-service training for primary school teachers should be able to ensure integrity in practice according to the purpose of the school and lessons, to facilitate teachers' adaptation to the system, to increase their motivation, and to update their knowledge and practices. Another issue that needs to be discussed about the adaption of teachers to changing conditions is learning a foreign language. Aydoğan and Köken (2006) indicate that it is important for foreign language teachers to learn not only the language they use in their lessons, but also the culture related to the language. Kavak (2007), who states that handing over the teacher training process to universities is a critical decision for our education history, explains that accreditation of higher education institutions increases the quality of education. Yılmaz (2009) on the other hand expresses that it is significant for the teacher training system to be open to change and improvement. However, the success that has been expected can't be achieved due to the lack of salutary planning.

According to the journal, there are some professional and personality traits that teachers should have. According to Onural (2006), the first of the two types of characteristics that should be in the teaching profession is personal skills which are being respectful, tolerant, loving, fair, advocating for equality, being a good model, being willing to learn, and having a strong communication skill. The second is professional qualifications that include general culture and the ability to transfer knowledge and skills in their own field to their students, program development, education and training psychology, measurement, evaluation and guidance. Koç (2010) who mentions that the teaching profession has a moral aspect besides being a cognitive act states that teachers' attitudes and behaviors, their communication with students, their educational programs and even the rules they apply in the classroom have moral and ethical dimensions and these have a great impact on students. Gömleksiz and Kan (2010) who have emphasized that the professional and social competencies of teachers are among the most important factors in the upbringing of students that make up the future of a society state that the aim of contemporary education is to educate students who can think analytically, approach analytically, solve problems and participate effectively in the learning process. For this purpose, they declare that teachers with these skills should be trained first. Deveci (2011) who thinks that teachers' professional satisfaction and saturation will positively affect student success and interest in the lesson emphasizes that it is very critical for teachers to work in a more sincere, more friendly and positive school environment with the need for love.

The journal also includes the problems of the teaching profession. Gürsoy (2003) has stated that the pending problems of the teaching profession are not only related to the Ministry of National Education and the society should cooperate on this issue. In the journal, the communication gap between universities and the Ministry of National Education is seen as one of the substantial problems (Tuzcu, 2002). One of the issues discussed is the problems of teachers who are working abroad. Şanal (2000), in the article he published, has pointed out that teachers working abroad have basic problems such as the inability to adapt to the culture, not being able to fully benefit from the personal rights granted to teachers in our country, some diplomatic problems, visa, salary, health and safety problems, and failure to provide the necessary educational support. Üstün (2007), on the other hand, notes that some of the problems affect the development of the teaching profession in Turkey such as the problems in appointment, inadequate selection of students to education faculties, the transformation of teaching into a profession that, in some cases, can only be done with a certificate instead of a proper education, the society's positive and negative perspectives on the teaching profession and the teachers' belief in competency in their field and professional knowledge. Baştürk (2007) criticizes the appointment method of teachers and mentions that this method does not measure teachers' content knowledge, does not contribute to their personal development and does not increase their professional knowledge. Akyüz (2012), who has emphasized that the expression of the teacher in the modern sense is the person who not only transfers memorized knowledge to students but also guides the learning structure, notes that the attempt to prevent previous out of the field assignments was an important step for the investment made in the dignity that the teaching profession needs.

The journal also includes evaluations towards increasing the effectiveness of teachers in the education and training process. Türnüklü and Yıldız (2002) state that, in order to prevent students' misbehavior; teachers defining the course rules clearly at the beginning of the semester, explaining what the course objectives are, struggling to understand what students' problems are and indicating to develop desired behaviors are significant strategies in preventing undesirable behaviors. Gökçe (2003), on the other hand, states that primary education which is the institution where the personality traits of students are settled and the foundation of their behaviors is laid; points out the importance of teachers' getting to know children during this period, acting in accordance with their developmental characteristics, and improving their communication skills. According to Sacaloğlu and others (2004), it is stated that the affective side should also be taken into account in teaching, qualifications which teachers should have such as self-sacrifice, patience, respect, tolerance, love of the profession and students increase professional success. Demirci (2007) has stated that teachers' differentiation of classroom activities and events will attract students' interest and ensure active participation in the lesson. Çelik (2007) has stated that teachers' job satisfaction will positively affect their work. According to Şahin and Fidan (2007), the respect, trust, tolerance, understanding and democratic based behaviors displayed towards students will have a significant effect on the formation of a positive and effective understanding of democracy. Kan (2008) has pointed out the importance of teachers' self-efficacy belief in her article in the journal and has stated that professional belief affects teachers' self-efficacy beliefs and self-esteem. According to Şahin and others (2011) the academic success of the teacher candidates contribute positively to their self-efficacy. In the journal it is also discussed that a teaching perspective, which reveals existing notions by using students' prior knowledge, based on the principle of correlating old knowledge with newly learned information by correcting possible inaccuracies in students' cognition would be more beneficial rather than the rote learning method, (Çaycı, 2007; Aydoğdu and others, 2007).

One of the issues discussed in the journal regarding the teaching profession is related to the inspection process. In her article in the journal, Yolcu (2004) states that teachers are not only supervised during inspection process, but they

also get help to determine their needs, they are provided with the opportunity of guidance and giving feedback and also an opportunity to improve their performance and complete their missing points.

## 2. CONCLUSION

Contemporary Education Journal has made significant contributions to Turkish education by continuing its publication life for a long time. In the journal, articles and writings on many educational issues have been published; educational problems along with the information to offer solutions to these problems have been included. One of these subjects is related to the teaching profession.

In addition to the problems and solution suggestions related to the teaching profession, the journal has also made an important contribution to the process of creating an education policy with the research results. In the journal, it is seen that there are subjects in regard to the teaching profession such as the teacher training process, the problems of the teaching profession, change and the teaching profession, and what teachers should do in order to perform teaching effectively.

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# An Evaluation of the Process of the Training of Candidate Teachers in Turkey

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## Abstract

Teacher education in Turkey is handled at three stages: pre-service teacher education, candidate teacher education and in-service teacher education (professional development). In this case, candidacy training for teachers can be regarded as a period of transition to in-service education beginning with pre-service education. In this study, it is aimed to conduct an overall evaluation of the process of candidacy training for teachers in Turkey. To this end, review of relevant literature was conducted and articles, dissertations and books which fit the purpose of the study were examined by the content analysis method. As a result of the study, it was concluded that the candidate teacher education focuses on practice and that candidacy training helps new teachers to adapt to both the institution they will work in and the teaching profession. Also, candidate teacher education aims to enable prospective teachers to cope with difficulties they encounter.

**Keywords:** Turkey, teacher training, candidate teacher training

## 1. INTRODUCTION

One of the most important elements of the education system is teachers. Teaching is expressed as follows in the National Education Fundamental Law No. 1739 of 1973: "Teaching is a specialized profession that takes on the education, training and related teaching duties of the state." Again in the same law, it is tried to determine the training criteria of teacher candidates with the provision "It is essential for teacher candidates to pass higher education regardless of their level and preparation for the teaching profession is provided with general culture, special field education and pedagogical formation" (Şahin, 2011). When the above definitions are examined, teachers' beginning their profession after a strong process of preparation is very important for the process of teacher training in Turkey and quality in education.

In this context, it is important to train qualified teachers who keep up with the times, have critical thinking skills, are aware of themselves and their environment, and constantly renew themselves. The success of education and training in a society is not only related to many factors but also to the success of the teacher. In order to have a successful education and training system, it is important to have highly qualified and well-trained teachers. Training qualified teachers is not instantaneous, it consists of a process. At this point, it is important for teachers to be well educated in their first years in the profession and to work in their own branches in accordance with the education they receive.

Teacher training can be handled in three stages: pre-service teacher training, candidate training and in-service training (professional development) (Thompson & Power, 2015 in Kozikoğlu & Soyalp, 2013). In this case, we can consider candidate training as a transition period starting from pre-service training to in-service training.

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In line with all this information, teachers should primarily be qualified in order for education to reach its goals and be effective. In this case, the candidate education that teachers received when they first started their profession is very important. In this study, based on the aforementioned thoughts, the process of training candidate education for teachers was tried to be discussed.

## 2. PROSPECTIVE TEACHER TRAINING PROCESS FOR TEACHERS

The nomination period is the period of one or two years, starting with the candidate teacher completing her pre-service training and being appointed to the profession until she is appointed as a principal teacher by the Ministry of Education. This period is a continuation of pre-service education and prospective teachers who successfully complete this period are later appointed as principal teachers (Özonay, 2004). As in other professions, difficulties may be experienced in the first years of the profession of teacher candidates. In order to overcome these difficulties and make it easier for teachers to adapt to the profession, candidacy training is given to every teacher who has just started the profession. Although a teacher who has just started the profession has received a qualified education at the university, he / she needs a comprehensive guidance since he / she may experience differences in practice and adaptation problems since he / she has just started the profession (Yalçinkaya, 2002 in Akyıldız et al., 2020).

The Ministry of National Education [MEB] established a candidate teacher training program on March 2, 2016 for the first time in order to increase teacher qualifications by taking all these processes into consideration (MEB, 2015). With this directive, it was decided that prospective teachers receive start-up training in the first month of their candidacy, under the responsibility of the school principal and advisor teacher. This training consists of classroom and in-school activities, out-of-school activities and in-service training seminars.

It is planned to provide a total of 654 hours of training to prospective teachers, including 384 hours of classroom and in-school activities, 90 hours of out-of-school activities and 180 hours of in-service training. Within the scope of the training, prospective teachers will continue their education according to a program consisting of sub-titles such as Lesson Planning / Preparation / Evaluation, Lesson Watching / Lesson Implementation, In-School Observation and Application, Out-of-School Activities and Book Reading / Watching Movies (MEB, 2016b). Considering the process of training candidate teachers on a weekly basis, it consists of a 26-week program of 16 weeks in-class, in-school and out-of-school activities, 10 weeks of seminars and course-type studies. In this process, the prospective teacher participates in pre-lesson preparation, lesson monitoring and after-lesson activities in the company of the advisor three days a week, one day observes the work and functioning of the school, administrative activities, daily school life, and one day gets to know the culture of the city and visits different education centers (MEB, 2016b). If we examine these activities, we can examine them under three headings.

### 2.1 In-Class, In-School and Out-of-School Educational Activities

With in-class, in-school and out-of-school educational activities, prospective teachers are expected to gain behaviors such as preparing and evaluating the course, preparing course material, finding solutions to problems in the learning and teaching process, understanding the functioning of the management process of educational environments, recognizing the implementation process of social and cultural activities, recognizing the institution where he / she will work, recognizing stakeholder institutions, understanding the importance of professional development, volunteering-based activities. It was expected to gain behaviors such as awareness and report preparation skills (Yılmaz, 2017). 90-hour out-of-school activities included recognition of the city identity, corporate functioning, the school next door, meeting with experience, volunteering and entrepreneurship studies, professional development and career issues (MEB, 2016b).

### 2.2 In-service Training Activities

In the 168-hour in-service training activities; Democracy adventure and 15 July process in Turkey, Multiculturalism in Anatolia, Resources and Education Reflections on Culture and Fundamentals of civilization in our Education Understanding, today Teacher from yesterday, Our Values and Professional Ethics, Legislation Program Related to Teaching, Effective Communication and Classroom Management, National Current Practices in Education System, Education Systems of Developed Countries, Reflections of International Organizations to the System, National and International Education Projects and Model Projects were discussed.



In the process of training candidate teachers, teacher candidates are given the tasks of reading 5 books and watching 10 movies in addition to in-school, out-of-school and in-service activities (MEB, 2016b).

### 3. WITHDRAWAL OF CANDIDACY

The prospective teacher fills in the standard forms related to all kinds of activities in and out of school in order to carry out the monitoring, measurement and evaluation process in a healthy way in the scope of in-school and out-of-school activities. The forms prepared by the Ministry can be used by schools and advisors by adapting them according to their school, classroom and environmental conditions. These forms, along with other documents and materials pertaining to these studies, are kept in the personal and professional development file. This file can be used as data in the Performance Evaluation process and in the oral exam (MEB 2016b). Candidates must participate in all activities specified in the training program. Candidates who cannot participate in the program completely or partially due to legally valid excuses must participate in the make-up program (MEB, 2016a).

In oral exams, teacher candidates are evaluated in terms of comprehending and summarizing a subject, their ability to express and judgment, communication skills, self-confidence and persuasiveness, openness to scientific and technological developments, ability to represent in front of the community and educational qualifications (MEB, 2017).

Candidates who score 60 and above in the arithmetic average of the two exams after being evaluated over 100 points in the oral exam in the written exam are considered successful (MEB, 2017).

### 4. CONCLUSION

It is important to train qualified teachers who keep up with the times, have critical thinking skills, are aware of themselves and their surroundings, and constantly renew themselves. The success of education and training in a society is directly related to the success of teachers. At this point, we see that the process of training prospective teachers is very important in increasing the qualifications of new teachers. When we examine the candidate education program and its content, it has been prepared for the teaching profession by introducing the teacher candidates to the school and classroom environment with the education they receive, and by giving them the opportunity to observe first-hand the structure of the school, educational activities, the elements that make up the school, and out-of-school activities. In addition, it is to facilitate the adaptation of the candidate teacher in different cities, as there are cultural characteristics among the lessons she has taken. We can see that the candidate teacher training program is a program that attaches importance to practice. With the candidate training, it is aimed to ensure that the pre-service teacher who has just started teaching, adapts to both the institution she will work in and her profession, and cope with the difficulties she faces.

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# The Legal Foundations of the Process of Training Candidate Teachers in Turkey

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## Abstract

In Turkey, teacher candidates who complete the pre-service education take the State Employee Selection Examination and then the oral examination. If they pass the two examinations, they are appointed as teachers in line with their scores on the two examinations and they start their jobs as teachers. The process of candidate teacher training constitutes a major stage of teacher training. In this study, it is aimed to give information about the legal foundations of the process of training candidate teachers in Turkey. Relevant literature review was conducted in line with the aim of the study and the relevant literature was examined by the content analysis. As a result of the study, it is seen that there are some legal changes in the process of the candidacy training of teachers in Turkey. In 1995-2015, it was aimed to enable teachers to gain school experience with the directive on candidate training and candidate teachers were assigned consultant teachers so that they would not have any problems in adapting to the teaching profession. After 2016, the number of the courses for the candidacy training of teachers were increased and studies were conducted in order to enable candidate teachers to adapt to school better.

**Keywords:** Turkey, teacher training, candidacy training, legal foundation

## 1. INTRODUCTION

According to the National Education Fundamental Law No. 1739, "Teaching is a special specialty profession that takes the state's education, training and related management duties." Preparation for the profession; field education is provided by general culture and pedagogical formation (MEB, 2016a). Again in the same law, there is the provision that "It is essential for prospective teachers to undergo higher education, regardless of their level, and preparation for the teaching profession is provided by general culture, special field education and pedagogical formation".

The teacher candidates who have completed their pre-service training, if they are successful in the Public Personnel Selection Exam and then in the oral exam, are appointed in line with their scores and start their duty as prospective teachers. Candidate teachers are subjected to candidacy training conducted by the Ministry of National Education after they start their duty. The training of candidate teachers has started within the scope of the "Directive on the Prospective Teacher Training Process" (MEB, 2016b). With this program, it is thought that the problems experienced by prospective teachers since their appointment can be minimized. It is thought that the adaptation problems of teachers to the region where they work, to the national education system, school, class, and students can be solved.

In this study, the legal basis of the training program applied to prospective teachers and aimed at making them more ready for the profession was tried to be examined. The aim of the research is to evaluate the candidate education for teachers according to legal bases and to create a resource for people who want to have knowledge in this field.

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## **2. LEGAL FOUNDATIONS OF CANDIDATE TEACHER TRAINING IN TURKEY**

Turkey relies on the teacher training process of the Republic as we examine the importance of organization. From past to present, the issue of teacher training has been included in the program by all governments, and sensitivity has been shown in all five-year development plans (Bakay, 2006 in Yılmaz, 2017). In the teacher training process, we see that the place of the candidate education was carried out in accordance with the regulation especially in 1995. Later, changes were made in the process and the most recent change was the regulation made in 2016, which includes the instructions for prospective teachers.

## **3. CANDIDATE TRAINING BETWEEN 1995 AND 2015**

In Turkey the candidacy teacher training day January 30, 1995 issued the "Regulation Regarding the Grown Ministry of National Education Officers Candidate" and the day of August 14, 1995 issued "Circular on Nomination Training" is conducted in the framework. In Turkey, prospective teachers in the upbringing of the "Ministry of the Regulation on the Training of Officers Candidate" depending on a training program was implemented (Özonay, 2004). In the proper and efficient implementation of this training program, the school principal has been responsible for all necessary planning and implementation. For this purpose, a guidance teacher is assigned by the school principal from within the school to support the teacher in the training of the teacher candidate from among the qualified and successful staff who have sufficient duty and professional experience. The duty of the counselor in the relevant regulation is to take the necessary precautions for the realization of the activities shown in the applied education program of the candidate teacher in line with the orders of the school principal (MEB, 1995).

In this period between 1995 and 2015, prospective teachers were given 60 hours of basic education, 120 hours of preparatory training and 220 hours of practical training, and those who succeeded in the exams at the end of the process were awarded the right to become a principal teacher (MEB, 1995).

During the training program implemented; a program is implemented in three stages: basic training, preparatory training and practical training, and the framework of which is determined by the relevant regulations (MEB, 1995). But; Candidateships of teachers appointed after 14/03/2014 are removed according to "Ministry of Education Teacher Appointment and Relocation Regulation." When this regulation is examined (MEB, 2015),

Regardless of whether they had a civil service or not, those who were appointed to teaching staff before 14.03.2014 will be subject to the provisions of the Ministry of National Education Regulation on the Training of Candidate Civil Servants (former regulation).

For those who were appointed as teachers before 14.03.2014, but did not start their job or left their jobs without revoking their candidacy, the provisions of the Regulation on the Training of Candidate Civil Servants of the Ministry of National Education (former regulation). Candidacy periods of candidate teachers within this scope will be calculated as follows: If the period from the first time starting to work until the date of leaving the job is more than two years, their candidacy will be canceled by default; Candidate training that they could not receive during their candidacy period will also be taken through in-service training.

Those who completed their candidacy training with the teachers appointed to the Ministry's staff and subject to the same process and whose candidacy was removed from the teaching profession within the scope of the Regulation on the Private Education Institutions under the Ministry of National Education and the Directive on the Registrar and Disciplinary Supervisors of the Education Personnel who were assigned to the Ministry of Education while working in special education institutions when they are appointed to the teaching positions of the Ministry, they will not be considered as candidate teachers regardless of their starting date. Their candidacy for civil service will be abolished at the end of one year, which is the minimum period of candidacy.

Those whose candidacy has been revoked in the teaching staff included in the education and training services class while working in public institutions and organizations, and those who leave their positions after serving as lecturers, lecturers, research assistants and experts at state universities for at least two years, and those who are currently working, If they are re-appointed to the teaching positions of the Ministry, they will not be subject to the provisions of the Ministry of Education Appointment and Relocation Regulation (new regulation) regarding candidate teaching; Candidateship of these persons will be abolished as of the date of taking office (MEB, 2015).

When we examine these items, these articles are explained in the Regulation on the Training of Candidate Civil Servants for the teachers appointed before 14.03.2014 and the teachers appointed after this date. In this regulation, 400 hours of candidate training was given to teachers. In addition, teachers responsible for prospective teachers were called guidance teachers.

#### 4. CANDIDATE TEACHER TRAINING IN 2016-PRESENT YEARS

With the legal arrangement made by the Ministry of National Education in 2016, some innovations were introduced in the process of training candidate teachers. The training of candidate teachers has started to be carried out within the scope of the "Directive Regarding the Prospective Teacher Training Process" and the directive on the process of training candidate teachers entered into force with the Authority Approval dated 02.03.2016 and numbered 2456947. (MEB, 2016b). When we examine the purpose of the directive, we see that it is to organize the training process of those who are appointed as candidate teachers to official education institutions affiliated to the Ministry of National Education.

It was stated that this directive was first prepared on the basis of the Ministry of National Education Teacher Appointment and Relocation Regulation published in the Official Gazette dated 17/04/2015 and numbered 29329 (MEB, 2016). According to the sentence stated here, "It is essential for teacher candidates to undergo higher education regardless of their level, and preparation for the teaching profession is provided with general culture, special field education and pedagogical formation", we can say that the candidate education of teachers comes from here.

With this program, it is thought that the problems experienced by prospective teachers since their appointment can be minimized. It is thought that the adaptation problems of teachers to the region where they work, to the national education system, school, class, and students can be solved. During the program, it was aimed to increase the readiness of prospective teachers with the applications that lasted 6 hours a day, totaling 474 hours. The program includes an experienced teacher who advises each prospective teacher. Prospective teachers make classroom observations under the guidance of their advisors and participate in studies inside and outside the school. In addition, prospective teachers are asked to read the books suggested to them and watch the movies. It is envisaged that prospective teachers who complete this process and succeed in the oral exam will start working as principal teachers (MEB, 2016c). In this program, it was decided to be implemented in the place where the teacher was appointed by making changes since the 2016-2017 academic year. Teachers appointed since September 2016 are participating in the program where they are (MEB, 2017).

When we examined the directive regarding the training process of candidate teachers, it was stated that they were subjected to the training process in the first six months of their candidacy and this process was under the responsibility of educational institution administrators and advisor teachers in line with the Training Program determined by the Ministry. It is stated that prospective teachers perform in-class, in-school and out-of-school activities and participate in in-service training activities. It was stated that with the participation of prospective teachers in these activities, they prepared the teacher candidates for the teaching profession by introducing the school and classroom environment with the education they received, and giving them the opportunity to observe first-hand the structure of the school, educational activities, the elements that make up the school, and out-of-school activities.

#### 5. CONCLUSION

The legal basis for the training given to prospective teachers in Turkey have been examined by this study. In the study, importance has been given to the development of qualified teachers since the first years of the Republic. A qualified teacher is a person who has both professional and personal qualifications and uses these qualities appropriately and correctly in order to help the student to learn in line with the aims of the education program. In other words, a qualified teacher is not only the teacher who knows how to do the teaching or how to solve the problems encountered during teaching, but also the teacher who decides what he / she knows and when to apply it. For such reasons, we see that the candidate training is given in order to facilitate the adaptation of teachers especially when they start the profession and this education has undergone changes in the process. In 1995-2015, with the directive on candidate education, teachers were tried to gain school experience and a consultant teacher was appointed in order to adapt to the profession or to avoid problems in different subjects.

After 2016, the number of courses regarding candidate education of teachers has been increased and efforts have been made to adapt them to the school environment more. Consultant teachers appointed by the school principal helped with matters related to the prospective teacher. In 1995, the concept of guidance teacher was used, and in the following regulation, the concept of "Advisor Teacher" was used. The use of the concept of counselor teacher prevented it from being confused with counseling teachers working in the school guidance service. In addition, 400 hours of training was given to prospective teachers between 1995 and 2005, while a total of 642 hours of training was provided to prospective teachers after 2016. With this training, the number of training prospective teachers received was increased, making it easier for prospective teachers to adapt to the profession.

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# An Overall Evaluation of the Use of Social Media in English Language Teaching

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## Abstract

The aim of this study is to give information about the use of social media and social networks in English language teaching. To this end, relevant studies were examined in the Internet and library. As a result of the study in which the content analysis was used, it was seen that there were not adequate studies on the use of social media in English language teaching. Based on few studies found on the topic, it was concluded that social media should be used in English language teaching. In addition to this, information about the advantages and disadvantages of the use of social media was given in these small number of studies conducted.

**Keywords:** social media, teaching, English language teaching

## 1. INTRODUCTION

Changes in the fields of science and technology affect educational institutions as well as all the institutions of society. What is important with regard to this is benefiting from these changes in the process of education instead of disregarding these changes occurring in the fields of science and technology. One of the most important topics is related to social media. Social media has an important impact not only on adults but also on teenagers. Therefore, social media should be made use of in the process of education.

As a concept, social media, which is defined as “a vehicle, service, applications which ensures the interaction of users by using web technologies”, is made up of dialogues and posts which individuals make with each other (Boyd, 2008). In foreign language teaching, teachers’ and students’ use of these posts with each other in the internet has a significant impact on making lessons interesting and on the reinforcement of what is learned.

In this study, the use of social media in English lessons and its benefits are addressed. Within this framework, first social media was defined as a concept and information was given about its use in education. And then information was given about the use of social media in English lessons.

## 2. SOCIAL MEDIA AS A CONCEPT AND ITS PLACE IN EDUCATION

Social media is one of the most frequently used concepts today. Social media is made up of some vehicles. These are blogs, microblogs, job networks, photograph posts, video posts and social networks. Akar (2010) groups social media vehicles used as blogs, microblogs, wikis, social markup, podcasts, virtual worlds and social networks.

Muijs et al. (2010) state that social media is quite important in education and mentions some of its benefits. These are benefits such as developing school, increasing opportunities (for example, cooperating with companies) and sharing resources.

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Today, with the developing technology, change is very fast and it has begun to be discussed that social media can be used not only in daily life but also as an educational tool (Aydın, 2012). Especially today, teenagers' interests in and aptitudes for technology require making use of the opportunities provided by technology in the process of technology (Gülseçen et al., 2010).

As is known, the general aim of the process of education is the healthy integration of children and teenagers into society. Education has important responsibilities in this regard. Societies cannot fulfill this expected task of education without fault because it is difficult to distribute education equally to all sections of society. In addition to this, developed countries update their curriculum so that education can benefit from the changes experienced.

Today, developments in the fields of science and technology and increasing fast interaction through information and communication cause the reorganization of education systems (Kaya, 2011). In this period when technology is indispensable for our lives, the idea of including technology in educational environments has become quite common. Especially computer technology and internet is used to support learning in education environments, and even rate of use and variety is increasing day by day. Many researchers argue that the use of instructional technologies in education is a force that makes teaching better quality (Çağltay et al., 2001).

Studies point out the important benefits of using social media in education. Studies show that the use of technology in the classroom provides students with faster and more permanent learning opportunities (Gömleksiz, 2004). In addition, the use of social media in educational environments is generally accepted and it is predicted that integrating it into education and training environments will provide various opportunities for education and training as new technologies emerge.

Its features such as widespread, easy and free usage opportunities offered to learners, increasing social support and cooperation, providing peer support, providing a more flexible learning environment, allowing different applications in teaching and evaluation processes make social media an important element in education (Jones et al., 2010).

### **3. THE USE OF SOCIAL MEDIA IN ENGLISH LANGUAGE TEACHING**

Communication is one of the most important topics of today's world. One of the most developed communication tools is social media. When it is considered as a concept,

social media; content such as internet, websites, multimedia applications, interactive broadcasting can be transformed into digital data and transmitted from any point to point over computer networks at any time. It is a media field that has the ability to present a large number of documents, images, sounds and text by combining them in various ways.

Based on this, it is seen that social media has some features. First of all, it is considered an important advantage that users can access content or applications in different time periods and in interaction with social media (Wikipedia, 2021).

In scientific studies, most of the students state that the use of social media tools is necessary in their education process and that they significantly increase their course success. As a feature, social network sites are seen as an important advantage because they are flexible and user-friendly, and they can be used more easily than other teaching management systems.

Especially, the formation of a community of many educators and their sharing among themselves provides a great deal of convenience in terms of communication and feedback. In addition to these features, social networking sites also benefit educational institutions due to features such as enriching blended teaching experiences and supporting the teaching and evaluation process (Jones et al., 2010). In order to benefit from these benefits of social networks in English lessons, teachers should take the necessary precautions. English lessons are among the lessons in which interaction and the effects of daily life are seen the most.

For this reason, social media, where there is intense interaction and sharing, should be used in English lessons as well.

The 21st century we are in, is also called the age of communication. Today, technologies for social networking sites, where people come together for cooperation, learning and information structuring, with computer and communication technologies are rapidly developing. In an environment that can be accessed from anywhere at all times and high connectivity, demand-driven, it can expand the scope of education and become an environment where people leave passive consumerism and participate actively or produce content together. Thus, it is necessary to expand social networks as a social process where learning supports personal life goals and needs. (McLoughlin, Lee, 2007).

It is frequently stated in today's learning theories that knowledge is created through dialogue. Dialogue enables individuals to reveal their assumptions, ideas, beliefs and feelings. This creates new ideas, tools and applications. In this process, the structures that are implicit in the minds of the individuals are transformed as enriched to a great extent (Katz & Earl, 2010).

In learning English, it is aimed to make it easier for students to remember information with the visual materials used, and audio materials are used to associate the visual materials used with words and to teach accent and pronunciation. Therefore, it is thought that easier and more effective teaching can be done by using both visual and audio materials together. All technological teaching materials we have with today's technology provide an advantage in language teaching (Turamberg, 2017).

With the educational games played in English teaching, it is possible to attract students' interest in the teaching process and to make this process more enjoyable for them. Different word games, puzzles or songs that can be played with the help of a computer or tablet enable students to participate in the lesson more effectively. The biggest step in this regard in our country came from the Fatih Project and the Ministry of National Education started to distribute tablets to students in 2011 within the scope of this project (Turamberg, 2017).

The use of smart boards in the classrooms where English teaching takes place is another tool that makes the learning environment interesting and fun for students. Smart boards, which give teachers the chance to download different games and play with their students, also provide the opportunity to watch educational videos and listen to songs by connecting to various internet addresses (Turamberg, 2017).

#### 4. CONCLUSION

The changes in the field of science and technology deeply affect the education systems. One of the most important effects on this issue is experienced in the teaching methods in the lessons.

For this reason, the methods and techniques used in learning and teaching processes should be able to respond to these changes. One of these important concepts in this regard is social media.

When some features of social media are examined, it shows that it can have a very important effect on English lessons. Some advantages such as the frequent use of this environment by the new generation, as well as the possibility of interaction, show us that this environment can be used in English lessons.

As it is known, lessons become more meaningful when integrated with life.

This is why it is important to use social media in English lessons.

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# The Effects of Web Project-Based Learning for Students on Van Hiele Levels

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## Abstract

This study was undertaken to explore the fifth-grade students' level of geometry thinking influenced by the web project-based learning system.

After quantitative analysis, the results were drawn as follows:

1. To analysis the effects for experimental group pre-test and post-test for van Hiele geometric thinking level, level 1, 2 reached obvious levels on learning achievement. There is no big difference on pre-test and post-test for level 3. Overall, "Web PBL system" affected students positively on the promotion of van Hiele geometric thinking level.
2. The majority of the experimental group students are highly interested in and enthusiastically accept the Tablet PC and Web PBL. The Tablet PC and Web PBL are the media to help students study. They also provide equality and interaction with classmates. The students are looking forward to not only keep using this way on study math, but also on other subjects.

**Keywords:** Project-based Learning, Web PBL, PBL, geometric thinking level, van Hiele Model

## 1. INTRODUCTION

The Dutch mathematics educator van Hiele and his wife first proposed five levels of student geometry concept in 1957, and the development of levels is related to teaching factors, and is not affected by the maturity of children's age. After the teacher's appropriate teaching process, students will go through five levels from level 0 to level four in order (van Hiele, 1986). Crowley (1987) pointed out that van Hiele believed that the growth process of each level is mainly through teaching, not due to the maturity of the individual age, so the organization and method of teaching, the selection and use of teaching materials are very important. Therefore, the organization and methods of teaching, the selection and use of materials are very important. It is clear that the design of the curriculum and the mode of instruction are influential factors in achieving good teaching outcomes. However, the effectiveness of traditional educational models has been the focus of research for many years (Chai & Tan, 2009). Students' passive learning motivates teachers to constantly seek innovative ways to motivate students in order to improve learning outcomes (Finn, 1991). The past emphasis on the structure of mathematical knowledge, basic computational skills, and routine problem practice has shifted to a perspective that emphasizes students' active construction of mathematical knowledge (Becker & Selter, 1996).

Developed in the early twentieth century, project-based learning is considered a very important learning strategy because students grow when given the choice to actively engage in outcomes, processes, and evaluation (Adams, 2006). The literature shows that project-based learning allows students to interact with learning (Synteta & Schneider, 2002) and to structure knowledge through exploration (Prince & Felder, 2007). In particular, it helps to enhance students' motivation and higher-level problem-solving and thinking skills (Moursund, 2002), create classroom

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atmosphere (Oscar et al., 2011), and improve collaboration skills (Rooij, 2009).Based on the above research motives, the main objectives of this study are as follows.

1. To investigate the effect of learning mathematical geometry units through a web-based project-based learning approach on the geometric thinking level of elementary school children.
2. To investigate the learning effectiveness of a web-based project-based learning method for Chinese elementary school children to learn geometry units in mathematics.
3. To find out the satisfaction level of Chinese elementary school children learning mathematical geometry units by web-based project-based learning method.

## 2. MATERIAL AND METHOD

### 2.1. Participants

Sixty fifth-grade students from a national elementary school in Taipei City, Taiwan, were used as the subjects of the study. The samples were selected to facilitate sampling. The experimental group with 31 students uses the Web PBL teaching. The control group with 29 students uses the traditional narrative teaching. This study only covers the concept units related to triangles, quadrilaterals, circles, and sectors in the field of elementary school mathematics. Duration of the study: three weeks from late March to early April, 101.

### 2.2. Instruction design

The Mathematical Geometry Learning Effectiveness Test is compiled by revising the usual assessment papers of the grade in the experiment. Validity is expert validity, and reliability is pre-tested by 28 students in the sixth grade of elementary school in the experiment. The total reliability Cronbach's Alpha value is .823. After the analysis of the test questions, all the questions are retained. The contents of the test papers include: 4 multiple-choice questions, 5 filling questions, and 5 calculation questions are subdivided into 10 questions. A total of 24 questions should be considered as the official post-test questions for this study.

The van Hiele geometric concept test refers to the "Wu-Xue's elementary school children van Hiele geometry test" developed by Wu Debang (2003). It is modified and compiled into a tool for pre- and post-test. This test is a four-choice test with 70 questions. Questions 1 to 25 are part of level 1, questions 26 to 45 are part of level 2, and questions 46 to 70 are part of level 3. Expert validity Reliability is the pre-test conducted by 28 students in the sixth grade of elementary school in the experiment, and the total reliability is Cronbach's Alpha value. 829

## 3. RESULTS

Analysis of van Hiele geometric thinking hierarchy test pre and post test I. Number of Passers and Passing Rate

- From Level 1 to Level 3, each level has 25, 20, and 25 questions.
- One point will be given for each correct answer and zero point for each incorrect answer.
- According to Usiskin's (1982) benchmark for assessing van Hiele levels, the criteria for achieving a level is to answer at least three-fifths or at least four-fifths of all questions in a given level.
- Analysis of van Hiele geometric thinking hierarchy test pre and post test I.

The number of people who passed and the rate of passing (three-fifths as the standard)

Table 1. The number of passers and pass rates at each level of van Hiele for the experimental group and the control group using the three-fifths criterion

		Experimental group			Control group		
		Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Pre-test	Number of people tested	31	31	31	28	28	28
	Number of Passengers	31	31	4	25	24	2
	Pass Rate	100%	100%	13%	89%	86%	7%
Post-test	Number of people tested	31	31	31	28	28	28
	Number of Passengers	31	31	9	28	28	9

Pass Rate	100%	100%	29%	100%	100%	32%
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Two, four-fifths as the standard

Table 2. The number of passers and pass rates at each level of van Hiele for the experimental group and the control group using the four-fifths criterion

		Experimental group			Control group		
		Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Pre-test	Number of people tested	31	31	31	28	28	28
	Number of Passengers	22	17	0	21	15	0
	Pass Rate	71%	55%	0%	75%	54%	0%
Post-test	Number of people tested	31	31	31	28	28	28
	Number of Passengers	28	28	1	25	21	3
	Pass Rate	90%	90%	3%	89%	75%	11%

Analysis of van Hiele geometric thinking hierarchy test pre and post test

- The pretest scores of the two groups of students were compared and independent samples were examined to see if there were differences between the two groups of students.
- At the end of the course, the post-test scores of the two groups of students were validated as independent samples to examine the impact of the experimental group on the students' geometric thinking levels after receiving the web-based thematic orientation.

Analysis of van Hiele geometric thinking hierarchy test pre and post test

- Two groups before the test t test

Table 3. Comparison between the geometric levels of the experimental group and the control group for each level of the pre-test and the total score

Thinking Level	Group	Average	Standard deviation	t-value
Level 1	Experimental group	19.84	2.505	-1.149
	Control group	20.93	4.578	
Level 2	Experimental group	16.84	2.339	1.644
	Control group	15.61	3.370	
Level 3	Experimental group	9.87	3.612	1.055
	Control group	8.82	4.028	

Table 4. Comparison of the geometric post-test scores of the experimental group and the control group with the total scores of each level

Thinking Level	Group	Average	Standard deviation	t-value
Level 1	Experimental group	22.39	2.044	.946
	Control group	22.96	2.631	
Level 2	Experimental group	18.16	1.635	1.240**
	Control group	17.43	2.714	
Level 3	Experimental group	12.39	3.313	.178
	Control group	12.57	4.614	

\*P<.05 \*\*P<

Pre- and post-test analysis of learning effectiveness tests

- In this study, one-way covariance analysis was conducted with the pre-test and post-test scores of the experimental and control groups.
- The homogeneity hypothesis was first used to examine whether there were differences in the basic learning abilities of the two groups of students.

- A post hoc comparison of pairs was conducted to examine the effectiveness of web-based project-based learning in the experimental group.

After quantitative analysis, the results were drawn as follows:

1. To analysis the effects for experimental group pre-test and post test for van Hiele geometric thinking level, level 1, 2 reached obvious levels on learning achievement. There is no big difference on pre-test and post test for level 3. Overall, “Web PBL system” affected students positively on the promotion of van Hiele geometric thinking level.
2. The majority of the experimental group students are highly interested in and enthusiastically accept the Tablet PC and Web PBL. The Tablet PC and Web PBL are the media to help students study. They also provide equality and interaction with classmates. The students are looking forward to not only keep using this way on study math, but also on other subjects.

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# Talent Development Program Directorate General of Taxation Ministry of Finance of the Republic of Indonesia

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## Abstract

This study aims to evaluate the talent development programs carried out at Directorate General of Tax (DGT) as part of a talent management strategy. This study uses a qualitative research methodology with the CIPP (Context, Input, Process and Product) Program Evaluation model proposed by Stufflebeam in Lapan, Quartaroli and Reimer (2012) and a talent management perspective approach according to Blass, Brockhorf, and Oliveira (2009). From the analysis carried out, there are three conclusions as follows, the talent management program at DGT is aligned with the ASN's talent Management Strategy as a whole, the development program in talent management at DGT is focused on aspects of maturity to act and think for talents before the development compensation is given and DGT has fully applied talent management from two perspectives, namely a process perspective and an HR planning perspective.

**Keywords:** talent management, talent development, managerial competence, generational competence, aspects of talent maturity

## 1. INTRODUCTION

Since the existence of the ASN Law and the issuance of Government Regulation No. 11 of 2017 as amended by PP 17 of 2020 on Civil Servant Management, civil servant management has undergone significant changes, especially in relation to career management, career development, competency development, career patterns, mutations, and promotions. This change is especially related to the application of merit system principles to improve the competence, performance, and professionalism of civil servants. Merit system as a new thing that is different from the previous rules, aims to realize succession planning that is objective, planned, open, timely, and accountable implemented in Talent Management.

To accelerate and strengthen the application of Talent Management in the Ministry of Finance, it is stipulated in Regulation of the Minister of Finance No. 60/PMK.01/2016 on Talent Management of the Ministry of Finance, which is then amended several provisions with PMK No. 161/PMK.01/2017. In the regulation, among others, it is stated that Talent Management aims to find and prepare talent to occupy higher level target positions or other positions that are considered strategic by the Ministry of Finance.

Directorate General of Taxation (DGT), is the 1st echelon unit in the Ministry of Finance that first implemented Talent Management in selecting Supervisory and Administrator officials in accordance with the Regulation of Talent Management of the Ministry of Finance in the management of its HUMAN RESOURCES. Based on the results of the 2019 research on the DGT Talent Development Program, interviews were conducted with several officials who manage human resources in DGT about the history of talent management implementation in DGT, obtained data that before the existence of Talent Management regulations, DGT promoted employees in the echelon III and Echelon IV positions with an internal promotion system without a specific development process. After the new official was promoted, a few months even some until a year later were given training in Pusdiklat Pajak. With this condition, based

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on the results of the author's interviews with DGT officials and his co-workers, data obtained that many newly promoted officials are considered immature managerial competencies and slow to adapt to the new environmental conditions he leads. Some of them are not mentally ready to lead, less able to empower their staff, and lack understanding of the strategies outlined by the organization when occupying new positions, so that the organization's performance is not optimal (Widiatmanti and Widjarso, 2019).

With regard to complaints about maturity in leadership, the demographic condition of DGT employees is currently dominated by millennials. Based on data from the Hr Bureau of the Ministry of Finance, millennial employees in DGT in recent years ranged from 70% of the total employees. The demographic condition of this generation requires the ability to lead in a way, strategy and maturity of thinking and acting on a leader.

In line with the implementation of Talent Management in DGT, since the end of 2018 DGT began to involve the Financial Education and Training Agency (in this case the Human Resources Development Center) in supporting the implementation of this talent management. Development programs for talent who have been included in the Talent Pool, play a very important role. The purpose of development is to improve competence and performance so that the talent in question deserves to be promoted. The implementation of the development is carried out in an integrated manner between the Pusdiklat Human Resources Development for the development of talent in the classroom and DGT prepares development programs outside the classroom through coaching, mentoring, job shadowing, secondment, assignment, on the job training, job enrichment, job enlargement, and internship according to the mechanisms set out in KMK 1227/KM.1/2016 and PMK 161/PMK.01/2017.

The design and implementation of appropriate managerial competency development programs in Talent Management will result in future leaders who are responsive to change, able to adjust, able to perform well and lead change wherever they are, so that complaints as mentioned earlier will not happen again.

Based on the initial research that has been done by the author, it seems that DGT has not found what factors are specific to design strategies for the implementation of talent management programs that have different characteristics and needs, so the author is interested to examine how DGT designs talent management strategies, find important factors that can accommodate the needs of DGT and bring about employee involvement in its development and retention programs. So the question of this research is the extent to which the talent management program implemented in DGT has harmony with asn Talent Management strategy, and how effective is the talent management program viewed from a diverse approach?

## 2. THEORITICAL FRAMEWORK

### 2.1. Definition of Talent Management

Talent management has been defined by various descriptions in several versions. Table 1 below describes some summary of definitions of talent management.

Table 1. Summary of Several Definitions of Talent Management

Source: Vigara, 2013; has been reprocessed.

Author	Author Definition Summary
Lewis and Heckman in Collings and Mellahi (2009)	There are 4 large streams of talent management. The first flow focuses on rebranding of HR management, the second stream focuses on workforce planning, the third stream focuses on managing top performers, and the fourth stream focuses on key positions and cadres to fill those key positions.
Pella and Inayati (2011)	The process is carried out to ensure the company's ability to fill key positions of future leaders and positions that support the company's core competencies. A comprehensive and dynamic process to develop the highest potential employees in the company through unidirectional and integrated development.
Collings and Mellahi (2010)	Activities and processes of systematic identification of key positions that contribute differently to long-term competitive advantage, talent pool development, and supporting architecture development.

ASTD (2008)	Leadership and corporate culture go hand in hand, if there is support from the leadership and organizational culture, then the talent management program can run effectively. Talent management is a holistic approach to optimizing human resources to achieve short-term and long-term targets through cultural development, engagement, capability and capacity of employees through an acceptance, deployment and placement process that aligns with the company's objectives.
ADP (2011)	A deliberate and continuous process to identify, assess, develop and retain talent to achieve short-term and long-term business needs.
Armstrong (2008)	The company's activities to ensure the availability of talent to achieve the company's goals, ranging from identifying, developing, recruiting, retaining and placing talent.
Garavan, Carbery, and Rock (2011)	A group of activities implemented in the company that refers to how the organization attracts, selects, develops and manages employees in integrated strategic measures.
Knez & Ruse, in Berger & Berger (2004)	Identification, development and management of talent portfolios—i.e. the number, type and quality of employees who will effectively achieve the company's strategic operational objectives. The focus is on the importance of identifying an optimal talent portfolio, by calculating the impact of investment on the company's ability to achieve appropriate strategic and operational objectives or exceed expected

While the definition of ASN talent management is based on Regulation of the Minister of PANRB No.3 of 2020 concerning State Civil Apparatus Talent Management (ASN), ASN Agency Talent Management is an ASN career management system that includes the stages of acquisition, development, retention, and placement of priority talents to occupy target positions based on potential levels and highest performance through certain mechanisms implemented effectively and sustainably to meet the needs of central and regional agencies.

Based on Regulation of the Minister of Finance No. 60 of 2016, the definition of talent management is one of the hr management methods developed to find, manage, develop and retain the best Employees of the Ministry of Finance who are prepared as future leaders in order to support the achievement of the organization's vision, mission, and strategy in the long term.

With this understanding, talent management can be interpreted as a process to ensure the organization's ability to fill key positions of future leaders and positions that support the organization's core competencies (unique skills and high strategic value). This talent management consists of various processes, namely planning, recruitment, placement, orientation, development, assessment, management, and proper compensation to all employees owned by the organization.

## 2.2. State Civil Apparatus Competencies and Generational Competencies in Talent Management

Position competency for State Civil Apparatus (ASN consists of technical competence, managerial competence and socio-cultural competence. Technical competencies are knowledge, skills, and attitudes/behaviors that can be observed, measured and developed that are specific to the technical field of office. Managerial competencies are knowledge, skills, and attitudes/behaviors that can be observed, measured and developed to lead and/or manage organizational units. Cultural social competencies are knowledge, skills, and attitudes/behaviors that can be observed, measured and developed related to the experience of interacting with the plural community in terms of religion, ethnicity and culture, behavior, national insight, ethics, values, morals, emotions and principles, which must be met by each office holder to obtain the results of work according to roles, functions and positions (Ministry of PANRB, 2018).

Understanding generational competencies is the ability of organizations to respond to each person's unique needs, including differences rooted in generational differences. In his writing Piktialis (2011) argues that the company now needs one type of competence that it calls generational competence in managing talent, is the ability to understand, appreciate, and meet the needs, wants and aspirations of various generations of employees who are present simultaneously in one organization.

How an organization uses its generational competencies as part of a talent management strategy will vary depending on the organization's objectives and the generation structure within the organization. So if you look at the phenomenon, it forces the organization to be more maximal in the management of talent management. Pella & Inayati (2011) argues that generational competencies are cross-cultural competencies that must be immediately adapted and developed by various organizations, in order to be able to face the diversity of needs of the four generations of workers present at the same time every day coloring the dynamics of talent management.

### 2.3. CIPP Evaluation Model

The concept of CIPP evaluation according to Stufflebeam (2002) aims to improve not to prove. Cipp model is prepared with the aim to complete the basis of decision making in system evaluation with analysis oriented to planned changes.

CIPP evaluation model is an evaluation model consisting of four evaluation components namely Context, Input, Process, and Product (CIPP).

#### 1. *context evaluation.*

Context evaluation is a depiction and specification of the program environment, unmet needs, population characteristics and samples from the individuals served and the purpose of the program. Context evaluation determines needs, issues, assets, and opportunities to help decision makers set goals and priorities and assist the broader group in goal making, priorities, and outcomes. According to Sukardi (2011) the results of context evaluation are information about various needs that have been prioritized so that the objectives can be formulated.

#### 2. *input evaluations.*

Input evaluation determines alternative approaches, implementation of activity plans, provision of facilities, provision of cost effective for the preparation of needs and achievement of goals. Sukardi (2011) conveyed the results of input evaluation is the availability of information about the selected inputs, details of strengths and weaknesses, strategies, and design to realize the objectives.

#### 3. *process evaluations.*

Evaluation of the process refers to "what" activities are carried out in the program "who" the person given responsibility in the program, "when" the activity will be completed. The evaluation process is directed to find out how far the program is implemented, what programs are implemented, and what components need to be improved. Sukardi (2011) said that the evaluation process will be generated information for evaluators in monitoring the newly implemented things, so that strong things can be utilized and vice versa can be eliminated.

#### 4. *product evaluations.*

Product evaluation is an assessment carried out to measure success in achieving a set goal. The resulting data will determine whether the program continues, needs to be modified, or even stopped. According to Sukardi (2011) product evaluation will accommodate information to ensure in what conditions the objectives are achieved and also to determine if strategies related to procedures and methods applied to achieve the goals should be stopped, modified, or continued in the current form.

### 2.4. Perspective Approach

This perspective approach was put forward by Blass, Brockhorf and Oliveira (2009) as an effort to map out the talent management process in broader HR management activities. To evaluate whether HR as an important role-holder to create added value already has the capacity to run talent management programs, a perspective approach is used as a description of the area of talent management activities specifically as part of human resource development. The table in the appendix describes the perspective used and how talent management activities are implemented based on that perspective.

In the table there is a categorization of perspectives, namely process perspectives, cultural perspectives, competitive perspectives, development perspectives, talent planning perspectives and change management perspectives. Each perspective represents a different point of view in observing the running of Human Capital management functions in the implementation of talent management. There are also categories of supporting aspects of talent management in the organization, namely aspects of key beliefs, aspects of recruitment and selection, aspects of retention, aspects of service returns, aspects of succession planning and aspects of development approaches.

## 3. RESEARCH METHODOLOGY

### 3.1. Types of Research

This research uses qualitative research method with descriptive research type with CIPP Evaluation Program model (Context, Input, Process, Product) presented by Stufflebeam in Lapan, Quartaroli and Reimer (2012) and perspective approach from Blass, Brockhorf and Oliveira (2009) as an effort to map the talent management process.



### 3.2. Data Collection Techniques

The types of data used in this study are primary data and secondary data. Qualitative data collection techniques using observation, interviews, and documentation studies. Primary data collection was conducted by interviewing 10 informants, and FGD with 29 talent people and 69 people from 3600 consisting of superiors, peers and subordinates. Components of research objects in this study include:

1. *Locus*, this research at the Directorate General of Taxation.
2. *Actor*, actors who are of concern to the author are the Talent and Staff Management Officers in DGT.
3. *Activity*, activities related to aspects of talent management, especially activities that occur in the process of talent determination, development, to retention at the Directorate of Internal Compliance and Apparatus Resource Transformation (KITSDA) and the Department of Planning, Development and Dismissal of Employees.

Findings/data can be declared valid if there is no difference between what is reported and what actually happens to the object being studied. To obtain valid and reliable data, the validity and reliability tested is the data itself. In contrast to quantitative research, namely its instruments (Bungin, 2013).

Triangulation data information sources in interviews to obtain data in this research is intended to ensure the validity and reliability of qualitative data. Researchers purposively determined the informants consisted of echelon 2, echelon 3 and echelon 4 officials from the Directorate General of Taxation and teachers and organizers from BPPK involved in talent management programs. Researchers provide code for informants to ensure informant confidentiality, maintain objectivity and reliability of data and make it easier for researchers to process interview data. All relevant information is presented in the analysis section and contained in the attachment.

### 3.3. Analysis Method

In this study, the analysis and discussion were divided into two main parts, namely:

1. Discussion based on CIPP Method (Stufflebeam, 2007) in accordance with the relevant information in each section. The discussion flow is divided in order from the acronym "CIPP" namely context, input, process and product. The discussion of the product section consists of analysis related to the impact on the effectiveness of the program (achievement of goals) and the sustainability of the program. Analyze the data as listed in table 2 below.

Table 2. Resources for Evaluation of Talent Management Program in DGT  
Source: Stufflebeam in Eight, Quartaroli and Riemer (2012); has been reprocessed

Resources	Context	Input	Process	Product	Effectiveness
Organization Situation	Regulatory Data				
Policy	DGT's Policy	Policy and SOP Development	Tools Talent Development		
Interview	Stakeholders interview	Stakeholders interview	Stakeholders interview	Stakeholders interview	Stakeholders interview
Internal Data (from research questionnaire)	Talent demographic data	DGT Talent Management Work Program	Determination Data Talent; Implementation Talent Activities	Key Position Report	Post-Learning Evaluation Data Talent development Program

2. Analysis of Talent Management Perspective Implementation in DGT based on Talent Management Perspective Approach by Blass, Brockhorf and Oliveira (2009). The discussion flow is divided into six perspectives, namely process perspective, cultural perspective, competitive perspective, development perspective, HR planning perspective and change management perspective.

Thus, researchers will use cipp evaluation model as a tool to collect specific information about talent management programs that have been running, to then be analyzed more in using aspects contained in the perspective approach of talent management. With this follow-up analysis, researchers can answer whether the process activities carried out in DGT have met existing perspectives to improve their effectiveness.

As a conclusion, this research will answer the research question, namely the extent to which the talent management program implemented in DGT has alignment with the ASN Talent Management strategy and the extent to which the effectiveness of talent management programs is viewed from a diverse approach of perspectives.

#### 4. RESULTS AND DISCUSSION

##### 4.1. CIPP Model Context Section

###### Maintaining Organizational Risk Losing Superior Human Resources

The discussion of the context section is based on information related to regulatory data and organizational situation in DGT. With the development of the organization, increased competition related to human resources arises a variety of risks that have the potential to become a problem for institutions. One of them is DGT has the risk of losing talent that moves outside the institution. If this is to have an impact on the sustainability of the organization, as revealed by Armstrong (2008), there is a challenge for the institution to ensure the availability of talent that has a strong motivation to meet current and future needs. From interviews to stakeholders there are concerns about the risk of losing potential DGT employees, for example: "We take care of these potential employees so as not to want to resign from DGT despite the lure of outsiders to be drawn to work in the private sector" (Informant 1), "Keeping our talents in order to have engagement with the organization" (Informant 2), "If there is no clarity of career, there is no clear program (talent management program) , then we can lose a lot of good people in this organization" (Informant 10). The opinion was in line with several opinions, one of which was by Pella and Inayati (2011), who mentioned that talent is people who want to be managed well by the company because of its advantages.

###### Aligned with ASN Talent Management Strategy

From interviews to informants obtained information that the application of talent management and its development through the Talent Development Program (TDP), is a program carried out as an implementation of the ASN Law, which was downgraded to PP No. 11 on Civil Servant Management, KMK 161/PMK.01/2017 on Talent Management of the Ministry of Finance and guidelines for talent development and mentoring mechanisms in the management of talent in accordance with KMK-1227 / KM.1 /2016. Excepts of some of these revelations are listed in table 3.

Table 3 Context Related Interview Excerpt Summary

"... We carry out the Ministry of Finance's policy in Talent Management to ensure the availability of qualified human resources to occupy strategic positions in DGT in accordance with the guidelines in PMK 161/PMK.01/2017 and KMK-1227/KM.1/2016..."	Informant 1, 12 Juli 2019
"... DGT follows the policy in the ASN Law based on merit system so we want to develop the Talent ..."	Informant 2, 12 Juli 2019
"... Talent Management Policy in the Ministry of Finance itself has been since 2016. This is the first time this year we have implemented it under the name Talent Management. Well... you know, I'm not not perfect yet but we try to implement it. Actually the previous years are also more or less the same, Just the name and the program is different ... Another Echelon 1 yet huh...? ....."	Informant 3, 12 Juli 2019
"... If there is no (talent management program), then we can be overtaken by other institutions..."	Informant 4, Agustus 2019
"... We carry out the program according to the user's needs. And again this is also in the framework of the implementation of talent management regulations in the Ministry of Finance. DGT the first... The other unit has asked..."	Informant 6, Agustus 2019
"... certain strategies and programs are needed to maintain talent commitment.. They're champions."	Informant 2, Juli 2019

From the response, there can be seen the need to maintain competitive excellence through talent management programs. According to Informant 1 and informant 2, talent is a champion, which can be interpreted as people who have high potential, with the ability, aspiration and engagement to grow and succeed in critical and strategic positions in accordance with Tansley's opinion (2011). The talent appears not instantaneously but results from development activities, in accordance with the opinions of Informant 4, Informant 6 and Informant 8, where talent needs to be deliberately formed and developed. In accordance with Becker and Huselid in Collings and Mellahi (2009), this development activity is a consequence of the implementation of Strategic Human Resource Management which aims to have differentiating power to outperform competitors (Batt, 2007).

#### Organizational Strategy Alignment with Talent Management Program

According to Batt (2007), it is necessary to have a close relationship between the company's business strategy and the HR strategy to improve overall performance. Talent management is an activity that is regulated as part of an HR strategy that needs to be aligned with the organization's objectives. Based on interviews to stakeholders, there is a positive response to the alignment between the organization's strategy and the talent management program as follows, "It is aligned I think it does not matter" (Informant 1), "It is aligned, talent management is reviewed in and involved BPPK for its development, so it is appropriate" (Informant 2). "Already aligned, we develop the competence of the talents to be more mature and ready to be leaders" (Informant 6).

This shows that stakeholders see that talent management programs are part of the organization's overall strategy. In accordance with the opinion of Pella and Inayati (2011), that talent management is a comprehensive and dynamic process to develop a group of people with the highest potential in the company, whose practice is carried out by the company's leaders. From the interview above, it was obtained that the leadership of echelon 2 has seen that the talent management program is in line with the organization's strategy and DGT has assigned a special section namely the DGT Personnel Management Development to manage and monitor the ongoing development of the program.

#### 4.2. CIPP Model Input Section

Daryanto (2007) argued that the input is a means or material or capital and a strategic plan set out to achieve the objectives of the program. The input evaluation component consists of: a) human resources, b) supporting facilities and equipment, c) funds or budgets, d) various procedures and necessary rules. Based on the results of the interview obtained the following data:

##### 1. Overly Urgent Talent Pool Designation

Talent Pool determination based on information from informants mentions that the timing of the determination is somewhat backwards from the original plan. This makes preparations for the development program also less optimal because it is too urgent. From interviews with stakeholders obtained the following data: "... talent pool determination constraints because they have to wait to be signed by the authorized officials.." (Informant 1), "... the talent is a person who has performance and competence that is included in the criteria in box 7, 8, 9 but yes ... sometimes so shearing, initially the box 9 only .. then changed again" (Informant 5), "... because the Talent signatories also backed down then the talent pool announcement, the preparation of the TDP automatically somewhat backwards as well.." (Informant 4).

##### 2. Adequate Supporting Facilities and Equipment

Supporting facilities and equipment at the time of TDP activities are in accordance with the expectations of participants and in accordance with learning needs. It is shown from the results of quantitative post-learning evaluation analysis that shows excellent satisfaction level. Some inputs from the FGD results of the participants stated as follows:

Table 4 Summary of Input Related Interview Excerpts  
Source: Researcher, 2019

"... fun infrastructure, carpeted room makes us freely follow the learning, games equipment is also complete and as needed. It's cool..."	FGD, Aceh, Juli 2019
"... it seems that if the game tools are really not fun pictures also yes ... So we're kind of a real practice..."	FGD, Balikpapan, Juli 2019

### 3. Better Forms of Training than Workshops

TDP budget is carried out by using the budget pusdiklat PSDM for the implementation of development in the classroom, while the budget for development in the workplace using DGT's budget. Based on the additional information asked to the General Section, they would be happier if the request for training needs has been there since the beginning of the year than the form of a workshop that is sudden, so that it can be budgeted more optimally. Although not all informants say the same thing over and over again in coding, but in analysis it becomes an important input that is a better form of training for the facilitators than the form of workshop. The results of the interview are like the following table 5.

Table 5 Summary of Input Related Interview Excerpts  
Source: Researcher, 2019

"... If the Learning Design was arranged in the form of training, all preparations would be better. There is KAP, there is GBPP, there is SAP, the Widyaiswara will also be able to calculate the entire productivity of its work. So that it can be given an appreciation in accordance with the resulting performance. If in the form of a workshop, the training hours can not be calculated so that from the budget side the teachers can not be taken into account the hours of training ..."	Informant 6, Juli 2019
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### 4.3. CIPP Model Process Section

#### 1. Talent Development Regulations

In terms of talent development regulations, the process has been regulated, namely the Decree of the Minister of Finance No. 1227/KM.1/2016 on Guidelines for Talent Development and Mentoring Mechanisms in the Management of Kemenkeu Talent. The talent development and mentoring infrastructure implemented in DGT TDP has not fully used the existing regulations.

#### 2. Talent Determination Process for Target Positions

The process of determining or selecting those who enter the talent pool is not known by the field that conducts the development. So the information obtained is too sudden. While in the terms of talent management, the development process is given a period of time until the promotion and retention process. Some opinions are as follows; "... must have been around for a long time, shot and developed continuously so that the talent in question is quite mature. Six months, too short..." (Informant 3), "...I think there is a system that accommodates the vacancy of the target position that is open to all employees, such as so good deh ... Employees will be able to prepare and set themselves to be as desired according to the target position.." (Informant 4).

#### 3. TDP Development Process In a Structured and Sustainable Manner

Informants as stakeholders also have a firm opinion on the importance of talent management programs as follows: "Very important" (Informant 1, July 2019), "Urgently needed" (Informant 2, July 2019), "Mandatory and necessary to prepare" (Informant 6 and Informant 8, July 2019), "Very important" (Informant 3, July 2019), "Talent management is important to ensure we have people ready to lead this organization forward" (Informant 4, July 2019). In line with this opinion, the respondents of TDP alumni also all stated the same thing, that the TDP program is very important to be done in a structured and sustainable manner.

This opinion shows that there is a positive attitude towards talent management programs among stakeholders. In the question of the importance of talent management programs, there is no negative response regarding the needs of talent management in DGT. This is in line with research conducted by Stephens (2010) that the majority of company executives include talent management as the company's key strategy to maintain a competitive advantage. The above opinions can be an advantage, where DGT has succeeded in eliminating one of the barriers to talent management success, namely the lack of leadership support for initiatives for talent management (ASTD, 2008). The opinion is also because the existing talent management regulatory instruments are PMK 161/PMK.01/2017 and KMK 1227/KM.1/2016 so that it becomes a reference for

echelon 1 units within the Ministry of Finance. As Pella and Inayati (2011) think that organizations that have top leadership support to talent management programs are one of the characteristics of organizations that manage talent effectively.

#### 4. TDP As Mental Preparation

The subject of the respondents also explained that the process of talent development and management is very important in shaping the maturity of the talents in leading, as in table 6.

Table 6 Summary of Interview Excerpts Related to Process  
Source: Researcher, 2019

<i>"... TDP makes us mentally ready and motivated to carry out our duties..."</i>	<i>FGD, Menado, Mei 2019</i>
<i>"... after following the TDP that we initially did not imagine how to lead so more PD. It can provide a lot from the facilitators and also from the theory presented. So want to learn more so you're better prepared... Yes in fact it is very very used ..."</i>	<i>FGD, Aceh 2019</i>
<i>"... Competition between talent will certainly be tighter in the future, we are challenged to maintain achievements as talent from all aspects, be it performance or ways of leadership, communication, responsibility and so on. With this program we want to try to make our DGT sustain, be able to survive and be the best ..."</i>	<i>FGD, Aceh, Mei 2019</i>
<i>"... Great people to be cadres, people who can lead the team, have the ability to serve, can be leaders make decisions, dare to make quick and appropriate decisions and can score new leaders under it..."</i>	<i>Informant 2, Aceh, Mei 2019</i>

From the response, it appears that there is awareness of the subject as a stakeholder on the importance of talent management, as part of the organization's strategy to make innovations, maintain achievements, improve indicators of success and so on. This is in line with armstrong's concept of human resource strategic management (2008) where the HR of a company plays a strategic role in the company's success and is the primary source of competitive advantage.

#### 5. Development Through A Training

Related to the form of development in talent management in the form of classical learning, the respondents did not pay much attention to whether the form of training or workshop, for respondents the most important thing is that the material is very useful, the facilitators are very reliable, the method is fun and the media is very appropriate with the purpose of learning. This is in accordance with the results of the evaluation of learning that states the level of satisfaction for the implementation of 4.81 (Excellent). However, from the informants and respondents FGD obtained interesting information as table 7 below.

Table 7 Summary of Interview Excerpts Related to Process  
Source: Researcher, 2019

<i>"... yes it seems better if made training yes ... to be more structured and have complete components... There are IDPs that can be monitored with more structured, there are post test values and post tests as well... If the workshop doesn't exist, right? So incomplete"</i>	<i>Informant 2, Juli 2019</i>
<i>"... because last year's needs are urgent then we use the workshop. But... if with the training seems much better because all the reference components are complete ..."</i>	<i>Informant 4, Juli 2019</i>
<i>"... workshop...ehm... indeed yesterday hunted time yes .. if from the purpose of the good program is packed in training anyway ... so there is action learning ... If the workshop seems a bit less fitting yes ... Isn't that right?"</i>	<i>Informant 5, Juli 2019</i>

Based on these opinions all stated that if the program is packaged in training, with complete learning design components, starting from AKP, then determine the program, dissusun KAP, GBPP and SAP and there is a structured KNS, will be very helpful at the time of determining and assessing objectively the talent that is ready to be promoted according to the standards of position competency desired by the institution in accordance with Permen PANRB 38 year 2017 on Asn Position Competency Standards.

#### 6. Talent Development Materials, Methods and Media

In this section, the analysis is sourced from FGD data and interviews with 3600 talent talents, namely colleagues, subordinates and superiors. This FGD and interview is a deepening of the results of

questionnaires filled out by 157 respondents and has been analyzed quantitatively. When researchers ask what material supports the needs of talent at the time of place / promotion. All materials are very useful and can be implemented in daily tasks. Some additional interesting information in table 8 as follows.

Table 8 Summary of Interview Excerpts Related to Process  
Source: Researcher, 2019

"... The most interesting and useful of all the materials given during his first time in office is the competence of Empowering Others and Problem Solving Analysis seems to be very fitting for us..."	FGD, April 2019
"... The managerial competency material taught is in accordance with the needs of the participants..."	Informant 3, Juli 2019
"... We have a favorite facilitator. Maybe it's because he understands what we do. It feels good if in the form of training yes ... if the training so that each material holder has prepared a minimum teaching material that will be delivered to participants who are updated with the latest conditions and adjusted to the real conditions that will support the process of material implementation."	FGD, Manado, April 2019
"... stakeholders should also be involved in preparing material in the form of recent case examples continuously..."	Informant 6, Juli 2019
"... stakeholders should collect many cases and be presented to teachers so that facilitators will be more helped in preparing materials that link and match with the materials given to TDP participants..."	Informant 8, Juli 2019

Based on interviews, the methods used in TDP are lectures, discussions, case studies, roleplay and games. The most memorable and implemented methods according to participant respondents are case studies, role play and games. This is stated in several summaries of opinions from FGD and interviews in the following table.

Table 9 Summary of Interview Excerpts Related to Process  
Source: Researcher, 2019

"... I think the case study ... Because it's like we're going through the situation ourselves..."	FGD, Balikpapan, April 2019
"... all methods is fun .. not two days still feel less long. But the most yes that last game .. super really cool .."	FGD, Manado, 2019
"... Case studies and role play are real practices... so it can be implemented... It... the game is really crazy...very fun learning"	FGD, Aceh 2019
"...role play, studi kasus...I think..both is very powerful to implemented..."	FGD, Aceh 2019
"...We think the methods are all ok... Lectures and discussions if presented with favorite facilitators are fun aja ... But when asked which one is very easy to implement in my opinion case studies and role play ..."	FGD, Aceh 2019

The method of case stusi and role play and games, on the one hand fun for participants, is able to make participants much more intense in exploring and deepening competencies better. However, the constraints of understanding participants and facilitators on the case that occurred have not been evenly distributed resulting in the process of digging up information is reduced in quality. This is possible to be the perception of some participants just having fun. The input from the participants, related to the role of teachers in the sharing session is still required sharing sessions from the speakers, while the role of teachers is more role as a host to dig information. This is as stated in several summaries of the results of interviews with resource persons as stated in the following table 10.

Table 10 Summary of Interview Excerpts Related to Process  
Source: Researcher, 2019

"... incidentally there are teachers who understand the world of work in the field from the participants so that the program is rushed to be made without preparation can still be. However... there should be a Learning Design created for training, the method is contained in GBPP and SAP so that anyone can be the facilitator..."	Informant 6, April 2019
"... The method applied to the TDP Level Basic learning process has not been standardized because it has not been contained in the Learning Program Outline (GBPP)..."	Informant 3, Juli 2019
"... It seems that if there is a method of sharing sessions from speakers who are experiencing situations like ours besides the teachers, it would be even better..."	FGD Aceh, 2019
"... There's a slight obstacle... for case studies, if participants do not understand the importance then this method is only the origin, fun.. Ha.. Ha. Or if the facilitator	FGD, Manado, April 2019

<i>doesn't understand our business process either... So hard to understand. If the method of case studies and games seems to need to be strengthened lesson learnednya what ..."</i>	
<i>"... stakeholders should also be involved in preparing material in the form of recent case examples continuously..."</i>	<i>Informant 6, Juli 2019</i>

From the aspect of learning media, the availability of games equipment, case studies and proper role play are the main keys in the learning process. In the Regulation of the Head of BPPK Nornor 4 Year 2017 on Guidelines for Learning Design in the Ministry of Finance, stated that the media is contained in KAP, GBPP and SAP. The complexity of the material makes the complexity of providing learning media. Audio, video and training venues can explore material deepening for participants. Then, as well as the method, the media received input from all participants from the questionnaire, obtained information that the classroom was enough to help understand the material in the TDP.

There was no media-specific comment or feedback. All informants stated from the learning media side has been standardized and poured in the Learning Design and given ToT first.

#### 4.4. CIPP Model Product Section

##### 1. Perception of Competency Improvement

The results of questionnaire data recapitulation from the evaluation of the impact of Talent Development Program (TDP) training based on the assessment of alumni respondents as well as the assessment of 3600 from superiors, peers and subordinates of the respondents showed 100% of respondents increased their competence. The scale of competency gap changes according to respondents ranged from 0.07 to 6.00 points using the Likert scale of 1 to 10 for the level of competency application. Number 1 indicates that respondents have never applied the competencies taught at all, while the number 10 indicates that respondents always apply the competencies developed in the TDP.

The existing data shows that respondents who experienced the lowest competency increase, competency was initially at 8.7 points. Meanwhile, those who have the highest competency improvement because before following the TDP the perception of competence of respondents is assessed at 3.67 and after following the TDP respondents are perceived to always apply those competencies and get the number 9.67. After an interview to explore why the competency improvement was so great, the respondents stated that he had never attended managerial competency training so for him the material was very useful and gave new knowledge that was directly applied. After being asked by the speakers why they expressed very high satisfaction with the implementation of this TDP program, respondents stated that the program is very useful, the material provided is very applicative, the learning method is very easy to understand, many cases and practices are carried out during learning so that it makes them feel more confident with new tasks and encourages them to always apply it in carrying out tasks and learning media that are comfortable and enjoyable. Competencies needed to position new positions according to respondents 91% answered decision-making competencies, 89% said that developing themselves and others is needed, 87% stated emotional intelligence.

##### 2. Achievement of a Set Goal

The resulting data will determine whether the program continues, needs to be modified, or even stopped. According to Sukardi (2011) product evaluation will accommodate information to ensure under what conditions the objectives are achieved and also to determine if strategies related to procedures and methods implemented to achieve the goals should be stopped, modified, or continued in the current form. The questions used in product evaluation include: a) what results have been achieved? And b) what to do after the program runs?

The results have been achieved on the TDP:

##### 1) Material Mastery.

Measurement of material mastery in TDP is done quantitatively measured more focused on the time in the classroom and its implementation after returning to work. Fellow participants from both the subordinates, superiors and peers stated that the competence of the participants improved well. It is indicated by the parameters of behavior, all the materials taught are always applied in daily work. Average competency improvement of 1.98 points from a scale of 1 to 10. This has been discussed on the results of quantitative analysis.

##### 2) Graduation.

What is meant by graduation in TDP using alumni parameters has been placed in a new position, not on each material. Overall at the end of the training the participants were assessed by facilitators, discipline, cooperation and activeness in the learning process in the classroom. The average rating is 93.20 on a scale of 0 to 100.

### 3) Level of organizing satisfaction.

What is meant by the level of satisfaction of the implementation is the satisfaction of participants for the program carried out, facilitators as teachers, learning materials provided, delivery methods used and learning media in the form of rooms, facilities, services and learning facilities provided. Such level of satisfaction has been discussed in quantitative analysis of the results of 4.81 (Excellent).

Things to do after the program runs.

The informants said that the TDP has not been evaluated post-workshop by the internal party DGT itself. So no feedback has been obtained how the continuation of this program. In accordance with cipp method as an evaluation program (Stufflebeam, 2007), the discussion of effectiveness is an assessment of how far the program can reach its target. This is explained through the extent to which DGT achieves KPI targets related to talent management. Based on kpi studies related to talent from DGT from the observations of researchers do not exist yet. Things that can be measured for example:

- Availability of succession plan (RTC-Replacement Table Chart). Obtained by calculating the RTC ratio is dividing the number of positions in the RTC divided by how many exclusive successors are available at the end of the year.
- Talent IDP Implementation is measured by comparing the talent development plan with the realization of the plan that has been running for the past year.
- Talent Turnover at the end of the year to see how many people entered the talent pool who then can no longer enter the talent pool the following year. To measure how big the pattern of competency development in DGT.

These calculations will result in DGT having complete data about structured talent management patterns. It can also be implemented in other organizational units in the Ministry of Finance. The RTC ratio shows that talent management programs in particular and the People Development pillar as a whole have succeeded in increasing effectiveness in ensuring succession within the organization. It is in line with the theory that with the RTC above 1 : 1, it is considered that DGT has the ability to survive in case of changes at the managerial level (Vigara, 2013).

#### 4.5. Diverse Perspective Approach from Talent Management

The process perspective emphasizes the main belief of talent management is to cover all processes to optimize human beings. Therefore, the recruitment and selection aspects are carried out based on competencies with a consistent approach. For DGT stated by informants and fgd speakers that aspects of mental maturity in leading become crucial in the recruitment process. Aspects of competence as measured from the assessment center results often do not describe the current situation. In the retention aspect there is an emphasis on the process, the importance of Work Life Balance, and intrinsic factors to make people feel attached to the organization. The returns are calculated based on a review of performance results and some potential elements. Succession planning is carried out with periodic reviews based on the performance assessment cycle process, and for aspects of the development approach individual development plan and development plan reviews are carried out as part of performance management coupled with individual interventions. DGT has started this need evaluation whether really the process of coaching, mentoring and performance counseling has gone well. From this process aspects of retention and observation of superiors to the potential and maturity of employees will be easier to know from the beginning.

Cultural perspective has the belief that DGT needs talent to be successful in carrying out interactions with many stakeholders. DGT also needs to emphasize the introduction of the vision of the organization's mission as well as strategy to prospective talent. The retention aspect is carried out by providing flexibility for employees to show their potential, both in the form of success and failure. Returns are provided with flexible packages based on individual needs, and succession planning emphasizes that when possible development is carried out from within using secondment patterns, job shadowing, assignments, job enrichment and others. For aspects of the development approach, there are activities where individuals have the opportunity to negotiate their personal development. Coaching and mentoring are standard procedures.

The competitive perspective has the belief that it is important to keep talent away from the competition. Recruitment and selection is done by paying with alimony and getting the best chance. In the retention aspect, there is a belief that productive people enjoy working with productive people as well. If someone comes out, it's not because



they get a better salary. Succession planning is directed at retention, making employees know the goals of future positions. Aspects of the development approach are carried out using both planned and opportunistic approaches. Mentors are directed to build loyalty.

In the perspective of the development approach, the main belief is to accelerate the development of potential employees. The retention aspect is carried out with a clear development direction to keep potential employees on track. The salary increase is based on performance and also based on the development process that has been passed as an intervention in the aspect of service returns. Aspects of succession planning are carried out by creating talent groups that will be developed at every level in the organization. The development approach is carried out both planned and opportunistic.

The HR planning perspective emphasizes the belief to choose the right person, in the right position, at the right time. Recruitment and selection are carried out with the target at an empty position in the DGT or the target position based on the agreed quota. The retention aspect is done by estimating the turnover rate to be monitored, planned follow-up, and compensation is carried out based on a clear scale and parameters. Aspects of succession planning are carried out with clear planning in mapping individual development and development approaches are carried out in a planned cycle according to the needs of the organization.

The change management perspective emphasizes the belief that DGT needs to use talent to urge change in the organization and recruitment and selection systems are made to recruit unique personal and change pioneers to join. Retention is done by providing projects and special assignments for change agents. Aspects of service returns are carried out with the presence of some employees getting benefits above the standard scale and salary structure, succession planning and development is carried out opportunistically until when the change is cultivated and the agency of change encourages other employees who are aligned with them to become the next generation of talent.

## 5. CONCLUSION

Answering research questions on the extent to which the talent management program implemented in DGT has alignment with ASN Talent Management strategy, from CIPP evaluation results in general has been aligned with ASN talent management strategy. From the context section based on the organizational situation and existing regulations, DGT's talent management strategy has kept the organization's risk of losing superior HR, has aligned with ASN's talent management strategy and is in line with the organization's strategy. From the input, the determination of human resources in the Talent Pool is still too urgent, supporting facilities and equipment are adequate and preferred if the form of development in the form of training. From the part of the process, the rules governing Talent Management already exist, the determination of Talent for the target position should be systematical and transparent, the TDP development process is structured and sustainable, TDP is an event to prepare mentally mature talent and increase competence in leading packed in training and coaching, mentoring and counseling appropriately. In terms of products, there has been an increase in competence and achieved the goals that have been set.

Answering the second research question is how effective the talent management program is viewed from a diverse approach of perspectives resulting in two conclusions. First, the development program in talent management at DGT is focused on aspects of maturity of acting and thinking for the talents before the development compensation is awarded. Second, DGT applies talent management programs seen from a diverse approach of perspectives, obtained results that from six perspectives, DGT has fully applied two perspectives, namely process perspectives and talent management planning perspectives, and applied in its aspects namely recruitment and selection, retention, service returns, succession planning and development approaches. Likewise, for other perspectives such as cultural, competitive, development and change management DGT requires two important factors for a Talent, namely maturity in thinking and acting and adequate technical, managerial, socio-cultural competencies according to the needs of the organization.

## 6. IMPLICATIONS AND LIMITATIONS

The limitation of this research is that the competencies of the talents evaluated are still limited to the perception of improving managerial competencies. It will be more comprehensive if this research is continued with the improvement of technical and sociocultural competencies.

Of the two components of talent management regulations that must be improved is the preparation of a standardized IDP and the provision of appropriate feedback and improving parameters and transparency on the results of talent development.

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# Sub-models of Blended Learning in Distance Education Applications

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## Abstract

With the development of technology and its reflections on education, the use of technology as a tool in the teaching process of the courses is becoming more widespread. As a result of this widespread use, it becomes a necessity to move learning-teaching activities beyond the boundaries of the classroom or school. Distance education applications, which emerge with the effect of individuals' needs for learning independently from place and time, are becoming widespread especially in the electronic environment with the rapid developments in technology and the increase in Internet access opportunities. All these circumstances have made some teaching and learning models inevitable during the recent Pandemic. In the study, we aimed to present what is the best sub-model of Blended Learning for the students to access best learning. When the sub-models of Blended Learning are examined, it appears that each model has its own advantages, and it is necessary to use the most appropriate model according to the learning skills of the students. We have determined that A La Carte Learning Model, one of the sub-model of Blended Learning, is the most appropriate model for the students who have difficulty in fixed programs and fixed courses, as it gives them a great opportunity of choosing the best courses according to their interests. We have the conclusion that the sub-models of Blended Learning should be applied in the process of Distance Education in order that the learners could be successful and get academic achievement during the recent Pandemic.

**Keywords:** Distance Education, Blended Learning, A la carte Learning, Flipped Classroom, Educational Management

## 1. INTRODUCTION

Although individuals can receive education with web-based education without limitation of time and space, it is seen that they cannot benefit from some opportunities of face-to-face education. These needs combined the most important features of classroom learning and e-learning, resulting in the emergence of an approach called blended learning (Yaman and Graf, 2010; Hebebcı and Usta, 2015). According to Horton (2000), blended learning is the combination of web-assisted learning with several powerful and advantageous aspects of classroom learning. Blended learning also appears to have many advantages compared to traditional learning. Hofmann (2006) stated that the blended learning approach is more flexible and has low cost compared to traditional classroom approaches, and it is possible to make presentations to small groups or even one-on-one instruction. In addition, he stated that it can be used repeatedly without requiring an extra cost and that the course can be compensated when necessary.

Considering the technological developments, it is clear that blended learning will be a learning approach that will be more preferred by educational institutions in the future (Fook, Kong, Lan, Atan and Idrus, 2005). From this point of view, researches on designing blended learning environments are becoming more important. However, there are different approaches to define blended learning in subjects such as learning environments used in blended learning

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environments, learning methods, the way of applying these methods and their effectiveness, and how and which elements should be blended in these environments. For this reason, there is no single model or an application recipe presented in the design of blended learning environments. For the effective implementation of blended learning, institutions, administrators, teachers and students need to understand blended learning correctly (Biluic, Goodyear and Ellis, 2007).

## 2. BLENDED LEARNING

Combining different teaching methods to ensure effective learning has been around for many years. For this purpose, teachers mix and use different teaching strategies in classrooms. The technology interpretation of "mixing" is blended learning, which gained significant momentum in 2001. Although blended learning is not a new concept, its potential has emerged with e-learning (Sloman, 2003; Dağ, 2011). Blended learning, which has been presented as an effective instructional design approach in recent years, is the use of different knowledge transfer methods together and in some cases within the scope of a learning method. Blended learning is the combination of two separate learning/teaching models, traditional face-to-face learning system and distributed learning system, with emphasis on computer-based technologies.

Blended learning is primarily expressed as the mixing of web-based technologies (virtual classrooms, self-teaching education, collaborative learning, video, audio and text streaming) to achieve an instructional goal. Secondly, using a different conceptual approach, combining various educational approaches such as behaviorism, cognition, constructivism to produce the most appropriate learning outcomes with or without using instructional technologies is expressed as blended learning. Thirdly, using face-to-face education under the guidance of a teacher and combining different formats of instructional technologies (video, CD-Rom, web-based learning, distance learning technologies, etc.) is blended learning. Fourth and lastly, blended learning is defined as combining and blending real work tasks and learning technologies to create a harmonious effect for learning.

. Blended learning does not have a limited scope, such as the use of some strategies such as discussion forums, mail, content presentation, which are used only in e-learning, in face-to-face teaching and mostly as a tool to support face-to-face teaching (Usta, 2007; Ünsal, 2010). Blended learning, which should be accepted as an instructional design approach, is a process that should be strategically planned in order to be implemented in the realization of teaching for a course, in the dimension of a curriculum or an educational institution.

Blended learning focuses on achieving the highest achievement by matching the right learning technologies and applying the learning objectives, with the right personal learning style to equip the right skills to the right person at the right time. The principles hidden in this definition include some important points such as  
The focus is on learning goals rather than sharing method.

Many personal learning styles need support to reach large audiences.

Each individual participates in the learning event with different information.

In many cases, the most effective learning strategy is just what is needed at that moment.

There are main elements associated with blended learning such as psychological, technological, theoretical, communication and management system. Blended learning interacts with computer assisted learning, web based learning, electronic learning, learning management system and learning platform. In addition, there are other areas in which all these elements that blended learning is related to are also related to each other. For example, computer-assisted learning is directly related to behaviorism, computer-assisted applications, lifelong learning, and Web-assisted learning, and developments here change by affecting computer-assisted learning. Web-supported or face-to-face learning approaches can be used in the school environment, inside and outside the classroom. One of them can be done or there may be a few of them. What is important here is the planning to be decided with the participation of other experts in the company of the instructor. In addition, it is the rational evaluation of the school's opportunities and strengths. The blended learning approach to be applied will have many benefits for both the student and the teaching staff, as well as the educational institution and its effectiveness. We can briefly explain some of the benefits of the blended learning approach as:

1. It increases learning effectiveness.
2. It makes the richness of learning permanent.
3. It is convenient in terms of time and cost.
4. Results take place at the most appropriate level.
5. Collated studies occur immediately.

In addition to these, the application of the blended learning approach includes learning wealth, access to information, social interaction, management of learning and so on. It leads to important results (Osguthorpe and Graham, 2003).

It is understood from these explanations that, in general, this learning approach provides diversity, cooperation and communication density in terms of individual learning, individual speed, listening, reading, seeing and application. In addition, it can be said that feedback has a positive effect such as speed, freedom in the learning environment, saving in time and learning costs.

### 3. SUB-MODELS OF BLENDED LEARNING

#### 3.1. Station Model

This model is a rotation model application in which students are included in one of the small learning centers, called a station in the classroom, that contain different learning methods. Students move between different stations in groups. Some students can start learning on their own from the online learning station, while others can start learning under the leadership of a teacher. After a certain learning is achieved, they are moved to cooperative learning stations. They usually do a project task with other students at this stage. Then they move back to the online learning phase on computers.

##### The Benefits of Station Model

- Teachers can organize the flow of time in their classroom with very little adjustment. Most students are already used to walking through a number of learning centers.
- Splitting the class into groups helps with classroom management and provides a way to do differentiated teaching.
- It provides frequent physical position changes as students move between stations
- In this model, the interest and motivation of the children are kept high with different activities.

##### The Difficulties of Station Model

- Teachers should learn new skills such as how to plan small groups correctly.
- Classrooms need a robust learning management system that will help bring every student to the right online content and create actionable reports for teachers.
- The online learning station should be easy for students to do on their own with minimal teacher intervention.

#### 3.2. Lab Rotation Model

This model is a rotation model application where students do not stay fixed in the classroom and work in different learning areas within the school, such as Online learning lab.

Within a given subject, students move between different learning areas in the school according to a fixed schedule. One of these areas is a lab for online learning.

It is beneficial for primary and secondary school students to have a fixed and consistent schedule for moving between learning activities in a blended learning environment.

This structure allows students to know what to expect and serves to alleviate anxiety.

##### The Benefits of Lab Rotation Model

- It requires little regulation in school design and teachers' classroom activities.
- This model allows teachers and other assistants to set up flexible schedules and enables schools to use their existing computer labs.
- Time is saved by converting 25-50% of the face-to-face training activities into online activities in the lab environment.

##### The Difficulties of Lab Rotation Model

- The computer lab needs to be available and requires planning for its use.

- Learning labs need a robust learning management system that will guide every student to the right online content and help create actionable reports for teachers.
- Online learning should be easy for students to do on their own with minimal teacher intervention.

### 3.3. Personalized Model

This model is a rotation model application that is adapted individually for the student in a course or subject and in which different learning methods are applied cyclically, at least one of which is online learning, within a certain plan. Students are allowed to rotate between stations, but only on individual schedules determined by a teacher or software. Unlike other rotation models, students do not have to stop by every station, but only attend activities planned in the program lists.

#### The Benefits of Personalized Model

- It allows each student to work with a special program at their own pace.
- Students can use the method that is most suitable for them in the learning process.
- Fixed timing may work better for students who need predictable routines and scheduled face-to-face checks than the Flexible, Self-mixed or Enriched Virtual models offer.

#### The Difficulties of Personalized Model

- It requires the transformation of teaching, school, and content delivery.
- Fixed programs can be a disadvantage for students who can learn faster with a more flexible schedule.

### 3.4. Flipped Classroom Model

This model is the most known and popular model. In this model, the main learning takes place online. That is, it is learned at home / dormitory, applied and reinforced at school. The teacher provides guidance to make up for the learners' deficiencies in face to face activities. With this model, it is aimed to bring the theoretical knowledge of the participants to the same level before the face-to-face training, and to use the classroom training time for implementation, discussion and project. It is a method that aims students to learn theoretical knowledge through individual study using different tools. Supporting tools such as interactive video, online simulation, book, and article are used in individual studies. Digital learning materials are interactive and include plenty of formative feedback and assessment in a way that the learner can progress at their own pace. Students work by watching content individually and can review, fast forward or skip some content based on their assessment scores, feedback, and their own assessment of their progress. This model reverses the traditional relationship between lesson time and homework.

#### The Benefits of Flipped Classroom Model

- It is student-centered and provides active learning.
- Students have the opportunity to learn with the tools suitable for them and at the appropriate pace before the training.
- Teachers can enrich the classroom time with different methods and techniques instead of lecturing.
- It increases peer interaction in the classroom.
- It develops the responsibility for learning.
- It provides the most efficient use of both online and face-to-face environment.
- Students can watch the contents over and over and ask the teacher if they don't understand.
- There is no homework stress, and they can get help instantly. as homework, activities and projects will be done at school.

#### The Difficulties of Flipped Classroom Model

- Students must have devices such as computers and tablets and a reliable internet infrastructure at home.
- Teacher competencies need to be improved.
- Since the whole training process needs to be redesigned and new contents created in the implementation of this model, the trainers should rule over the process.
- Learning content and materials should be shared with the students, ready before the course.

- Students with low learning motivation and lack of self-study habits can pose problems.
- Students may come unprepared for the course. In order to eliminate this risk, only the participants who have completed the preliminary studies can be invited to in-class training.

### 3.5. Flexible Model

In this model, teaching is primarily online, but still in a school setting. Students work at their own pace and individually. Teachers are in the role of supervising, guiding and helping learning process. Teachers provide flexible face-to-face support with practices such as small group training, group projects, and individual courses Teachers can take immediate action since they are in the learning environment.

#### The Benefits of Flexible Model

- Students navigate through various stations whenever they need it
- and they are not constrained by time limits.
- It can increase student motivation and autonomy.
- It is mostly implemented at the whole school level, but can be accomplished at the classroom level with careful planning.

#### The Difficulties of Flexible Model

- This model requires advanced curriculum planning for the development, improvement, and creation of online course materials that allow students to progress independently on the material.

## 4. RESULT AND SUGGESTIONS

In blended modeling, organizing educational materials in accordance with the online process, bringing methodical and practical learning together and targeting the need-oriented outcome are among the most basic objectives. Individuals' learning skills, levels and past stories differ. In this blending that supports the need-based acquisition of knowledge by using multiple methods, it should be based on determining the educational infrastructure to be created for the needs of students. It is also known that blended learning provides permanent gains, with the principle of sustainability that will allow the effectiveness of the method, and educational achievements that require process management such as research-development, monitoring, analysis-synthesis, also allow measurement and evaluation in multimedia.

Since the teaching-learning process requires a dynamic process management, the role of the teacher is great. In the Blended Learning approach, with the inclusion of technology in education, teacher-student interaction has become even more important. Considering the variability of learning styles, practices based on individual learning. With this approach, which develops the traditional understanding of teaching, the perception that learning does not only take place in the classroom but that technology is an educational need becomes widespread. Through this approach, which is structured on learning rather than teaching, it has been the main goal to train autonomous students and improve their learning capacity. For this purpose, the fact that knowledge is partially removed from being a phenomenon presented by the teacher means that the existence of researcher-student also appears. Supporting and observing the student in the process should be the basic principle of the teacher. It is the responsibility of the teacher to introduce methods that lead to research and aim to develop skills in the transfer of knowledge. The teacher aiming at the lifelong learning skill of the students should be able to support the student's independent determination of the learning according to the needs in the content and subjects of the acquisition. The parallelism of the processes of parsing, verifying, applying and personalizing knowledge with the term independent learner is too important to be left to chance. Freedom and awareness in learning are skills that can be acquired through multiple experiences. Therefore, teacher observation and guidance is essential at the point of producing and reproducing knowledge. One of the unchangeable rules of education is to prepare individuals for the responsibility of shaping society healthily. In this context, the teacher should raise individuals who are equipped with the principle of independent learner education, self-sufficient, productive and aware of their social responsibility.

The Blended Learning model also supports the collaboration of students, especially in project-based studies. Online interaction requires verbal participation. It has been observed that this model plays an important role in the formation of awareness that supports active learning such as brainstorming, multiple thinking, critical thinking and

decision-making mechanisms in distance education process during Covid-19 pandemic. It is possible for students to monitor factors such as determination, assertiveness, willingness and skill, and to make an academic development assessment. Undoubtedly, all these observations make it necessary that preliminary and acquisition-oriented infrastructure works should be designed in advance according to the needs. It is again the teacher's responsibility to create the curiosity or need for learning in an online environment. The diversity of the skills students will offer in line with their abilities also ensures the continuity of learning skills. Under all circumstances, leading the education without interruption, supporting technology use skills, emphasizing the importance of task-responsibility relationship, maintaining assertiveness, regular reporting of student status and feedback should be taken as a basis by the teacher.

In this way, while it is possible for the student to take responsibility for his / her learning, to evaluate goal planning and self-achievements, it is also possible to fix the concept of autonomy. In the lifelong learning process, the teacher is no longer the only source of knowledge. This is an important strategy of the Blended Learning approach. The educational purpose of the materials used in modeling should be conveyed to the students in advance and to raise awareness about its necessity, to consensus with the students to change or enrich the content according to their learning levels when necessary, and especially to design activities that can maximize their creativity together will increase the educational quality. The perception that the classroom environment is not the only place for learning should be instilled in the students, and the fact that this perception can be applied under all conditions that threaten public health should be encouraged.

Within the personality, ability and capacity of the student, his efforts to become an independent learner must be supported at all times, taking into account his cognitive strategies in order to increase his motivation. One of the most important factors affecting autonomous learning is to pay attention to the fact that the materials can be developed according to the learning and skill level. In the educational environment created, the mood dynamics of the students should be constantly observed. The requirements should be reviewed and students should be allowed to evaluate themselves.

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# Developing Education Tourism Pattern: The Study of MBA Students' Opinions on Study Tour Programs toward Perceived Learning Outcome

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## Abstract

With the high competitive in business management field, the institutions need to design programs to offer requisite knowledge, skills and ethics to fit right person into the organization. Studying MBA can transform students to deal with the business issues and apply the management techniques. The MBA study tour is a useful educational tool for transforming learning experience beyond the traditional classroom. Two interviewed open-ended questions were proposed: 1) Do students feel they have gained a more comprehensive insight into how the company operates? and 2) What are your opinions before going, during, and after attending on study tour? (Pre-tour, On-tour, and Post-tour stage). Content analysis was used to analyse the data collected from the study tour. Implications and recommendations were suggested to tour operators, MBA program directors, and academic institutions.

**Keywords:** Education tourism, MBA study tour, learning outcome

## 1. INTRODUCTION

### 1.1 Background of the Study

Today, there is a massive choice of career fields to choose from, and numerous of educated people to compete with for those careers. With the high competitive in business management field, the institutions need to design programs to offer requisite knowledge, skills and ethics to fit right person into the organization. Master of Business Administration (MBA) has become one of the most popular degree for learners to choose from. It is usually pursued by young professionals with a minimum of two years of work experiences and even by senior employees, that feel up to the challenge. MBA courses offer specialize areas such as General Management, Accounting, Financing, Accounting, Marketing and Logistics and Supply Chain. Studying MBA forces students to deal with the business issues and apply the management techniques. More than 50% of the MBA graduates worldwide are senior managers or board directors. This type of position brings along a higher salary and opportunity to become an entrepreneur or a business owner.

Ramkhamhaeng University is Thailand's largest open university. It was named in honour of King Ramkhamhaeng the Great of Sukhothai. The university provides an effective and economical way to meet public demand for higher education. The university is composed of the Faculties of Business Administration, Law, Humanities, Education, Science, Political Science, Economics, Engineering and Education Technology. The main campus is in Bangkok and there are several campuses locating in other provinces in Thailand and International MBA program. Each year, there are thousands of MBA students graduated from MBA Ramkhamheang.

Along MBA courses, students require to attend the "study tour" in order to complete their courses' requirement. It may be part of a day or longer and take place either domestics or international destination. It can be a simple guided

tour to an area of interest or it may include conducting active learning in business and operation field. The purpose of study tour is designed to develop students an entrepreneurial outlook, domestics or international business perspective, offers an environment fostering, and discussion and company networking. Students may also gain benefit from a range of value-added experiences, such as opportunities to study different cultures and languages.

The MBA study tour is a useful educational tool for transforming learning experience beyond the traditional classroom (1). Previous studies (2,3,4) have reported study tour to have enhanced students' learning and increased their practical knowledge in the absence of actual work experience. Besides enhancement of student learning, study tours also benefit faculty members with valuable professional development experience. (5)

### *1.2 Statement of the Problem*

The problem to be addressed is what is the importance of including study tour experience in higher continuing education? What can be gained by providing by offering an educational study tour? One of the specific issues in education management is the development of MBA students' capabilities and competences. As the business industry has become a more complex industry, research on study tour in this area of education is an important and neglected research area (6), where future employers expect non-vocational skills as well such as interpersonal skills, analysis and reflection (7).

### *1.3 Objectives of the Study*

The objective of the study is to determine the MBA students' opinions on study tour experience towards learning outcome in terms of their competence. A study was conducted to examine the opinions' differences between the students who took either domestics or international study tours towards their educational experiences. Two interviewed open-ended questions were proposed:

1. Do students feel they have gained a more comprehensive insight into how the company operates?
2. What are your opinions before going, during, and after attending on a study tour? (pre-tour, on-tour, and post-tour stage)

## **2. THEORY**

### *2.1 Education Tourism*

Education tourism also called as edu-tourism is a sub type of the travel and tourism sector. Education tourism could be referred to as an approach for pursuing education, carrying out research activities and knowledge acquisition. This sector is acquiring popularity these days and is a fast growing sub-sector in the travel and tourism industry. As far as academics are concerned, this sector has vast scope and is changing the dynamics of the sector constantly; it is more of a perspective type of tourism (8).

Education tourism is focused on a number of students' basic needs: physiological, psycho-physical, emotional expressions, social, needs for a change, self-actualization needs, intellectual development, the exploration and development of creative potential. All of them should be considered when designing field trips or professional tours. Education tourism is also called by other names such as job development, career enhancement or self-actualisation experience. The idea is that apart from self-improvement, travel can be relaxation, learning can be more fun than ever (this does not include people who wish to travel for educational purposes but are unable to travel due to health problems)(9).

### *2.2 Study tour Overview*

Study tour can provide a customised and unique learning opportunity for authentic, meaningful, and self-determined learning for continuing adult learners. MBA study tours need structure to capitalize on these learning opportunities and should provide motivation in the form of the adult learners feeling empowered by self-choice, as well as by learning from the encouragement of the instructor, who motivates them to engage in learning activities while on the tour.

Therefore, it can be concluded that study tour is an activity where students venture outside of the classroom to partake in hands-on learning experiences that relate directly to the curriculum. There are many advantages to study

tours, including the opportunity for students to have first-hand experiences with the subject matter that they have learned in class. However, there are also disadvantages that should be considered before planning begins. An educational study tour can be a necessary part of the instructional system. Study tour give MBA students direct experience identified with the theme or idea being talked about in the industry. Here're some advantages of study tour discussed below:

### *2.2.1 Advantages of study tour*

- Real world learning. Whether that's a trip to the factory, manufacturing hubs, SME businesses, a company, each experience that a student participates in contributes to understanding of business world. When students leave the classroom, they possibly see the connections between what is happening at classroom into the 'real-world'. They begin to see that what they learn within the walls of the classroom can help them solve the problems they see in the world around them and can have a direct impact on who they become as people.

- Ways of thinking. Benefits to study tour can include economically useful skills in numeracy, literacy and appreciation of arts and culture (10). Culturally enriching study tour can increase students' critical thinking skills, as well. Out of the classroom learning can lead to a positive impact on low-income students by providing opportunities to experience things to which they have previously not been exposed (11). Such experience can improve students' ability to think critically, tolerate differing views, and develop an interest in returning for further visits. They can develop a stronger historical understanding as well as empathy, as a result of a study tour.

- Access. Students are able to access tools and environments that are not available at classroom. The company and community they visit can be rich learning laboratories. Each experience solidifies learning and supports important academic concepts.

- Socio-emotional growth. MBA students who go on study tour become more empathetic and tolerant. For example, Ability to understand company's workforce gives a chance to think about a topic from a different perspective.

- Academic impact. Study tours are important because students are able to engage with content in a variety of ways. Concepts are presented through all different media and different modalities, so students who struggle with traditional learning can feel smart and confident. They are able to access the content better when they can learn by doing. When they return to classroom, the trip that they took can serve as a touchpoint for an entire unit.

### *2.2.2 Disadvantages of study tour*

A study tour can create a rewarding and exiting learning experience for a student. But there are also disadvantages to taking your classroom outdoors or visit the company factory. Budget and time restraints, difficulty controlling students' behaviors, organizing an engaging lesson and dealing with anxious students are potential challenges. Establishing rules, soliciting support and proper planning can alleviate many of the disadvantages of taking a study tour.

## *2.3 MBA Study tour conceptual*

The study tour is project based – there are no formal lectures or tutorials and no final exam. Rather, the subject is learner centred and provides a context in which students can acquire skills and develop knowledge at their own pace. Furthermore, an aim of the tour is to deepen the students' discipline expertise as well as develop and test their acquisition of generic skills. This educational outcome as a process of mastering business action where the students' engagement and the purposes of MBA course are connected by the development of actionable knowledge (12). So, these aspects emphasize that the educational subjects planned by MBA educators can only be transformed into relevant knowledge by the students.

### *2.3.1 Understanding Business Practices*

Understanding business practices is an important area of learning for MBA students studying in Master of Business Administration (MBA) programs today, and many graduate business programs offer study tour programs for experiential learning. The business or organization visits provide a context for real-world teaching instruction,

allowing students to directly see and question what they have previously read in textbooks and/or discussed in class, prior to travelling overseas. This component exposes students to:

- deal with regular business practices;
- learn from impact of culture on conducting international business;
- examine the views of managers and senior executives from a range of companies on domestic or international business issues; and
- understand other business areas or operations not directly related to the students' major areas of study.

Furthermore, company visits provide students with the opportunity to compare real-world scenarios with textbook representations. In most cases, the company hosts are senior executives (CEOs or CFOs), who are keen to share information on their experiences with young business people. The immediacy of the visits and opportunity to ask questions of such senior staff motivates curiosity, inspires student engagement and encourages deep learning about international business issues. These issues can include the role of human capital, the development of marketing strategies, managing diversity, and the enormous significance of legal and ethical frameworks necessary to effectively undertake into business knowledges.

### *2.3.2 Current Theories on Management Education*

Management education in MBA programs is a frequent topic in the literature dealing with the perspective of corporate performance and the research into its relationship with some important aspects of competitive advantage, such as competences, leadership, differentiation, etc. As learning processes are considered to be one of the strategic bases for company effectiveness (13), MBA programs are highly valued by companies and managers because they are perceived as a space to enhance managers' business practices and prepare them to deal with the environment of uncertainty and rapid changes in the current socioeconomic context. However, the main debate about the contributions of MBA programs has focused on identifying their limitations in developing management capabilities and competences that are relevant to business practice.

The focus of such critiques is concentrated in two contexts of analyses: (a) companies, as the environment of business actions, where the students play the role of managers, and (b) management education programs, as the environment where strategies and methodologies aim to provide a relevant contribution to the students' professional practice in the companies. Authors address questions about the adequacy of MBA programs regarding their contribution to students' development in a way that prepares them to deal with the speed of a changing business environment, where the effectiveness of corporate performance is linked to new, increasingly complex, and superior competition and cooperation methods.

### *2.3.3 MBA Study Tour Achievement*

There is a growing need for education to transform the traditional teaching methods that disconnect student learning and instead move toward an adaptive and engaging teaching methodology. Also, if some scholars do not agree with reference to this issue (14), instructors have the responsibility to understand quickly what kinds of teaching tools must be adopted in order to reach their students (15). Numerous studies have demonstrated that active, collaborative, problem-based learning is superior to traditional lecture-based methods (16). If educators do not understand that it is essential to adopt a teaching style that encourages active participation and enables progressive learning, it will be impossible for them to motivate or draw interest from students (17).

There is a wealth of research to confirm the effectiveness of experiential learning in higher education. The challenge is improving the way instructors teach learners relative to students taught conventionally. Relative to students taught conventionally, cooperatively-taught students exhibit better analytical, creative, and critical thinking skills, deeper understanding of learned material, greater intrinsic motivation to learn and achieve, better relationships with peers, more positive attitudes toward subject areas, lower levels of anxiety and stress, and higher self-esteem (18).

The goal for instructors who decide to incorporate study tour is to provide students with a unique learning experience that would affect their lives and careers. There is a need to close the gap between students with industry experience and students without industry experience in traditional and non-traditional learning environments. Industry leaders are asking institutions to prepare students to be better at thinking critically for the business world. Industry advisory boards at universities are emphasizing communication and critical thinking skills as the areas for curriculum improvement. Earlier course content suddenly becomes relevant as students assimilate and accommodate new

understanding and cognition (19). Activities designed with interactive exhibits, interviews, simulations, and demonstrations help students with concepts that are not easily obtainable in the classroom environment.

#### *2.4 Study Tour Learning Outcome*

##### *2.4.1 Traditional classroom versus study tour*

Traditional instruction involves the act or practice of teaching, generally in a standard classroom. A traditional classroom generally includes textbooks, computer program access, and face-to-face instruction and lab materials. There may be limitations to teaching in a traditional classroom such as lack of resources, few opportunities for stimulation, and little room to expand upon presented knowledge.

Learning in an informal location, such as a museum for example, can provide access to learning objects and awaken learner interests and emotions. Positive interest and emotions can lead to greater engagement (20). Teaching outside the walls of a traditional classroom can help students understand the past and relate it to the present as responsible citizens (21). Educational study tours can help expand on a lesson plan. They are helpful for the teacher to seek to clarify, establish, correlate and coordinate accurate concepts, interpretations and appreciations. They enable instructors to make learning more concrete, effective, interesting, inspirational, meaningful and vivid (22).

Education study tour can provide a triangular process of learning that incorporates motivation, clarification and stimulation all rolled into one experience. Often classroom environments lack the necessary tools, equipment or means to give adult learners a better understanding of concepts, practices and procedures. Learning in, and at, an off-premises environment can help make up for lack of resources within the university, and add value to the course content and curriculum. Educational study tour aims at enriching, vitalizing and complementing content areas of the curriculum by means of first hand observation and direct experience outside the classroom (22).

From a pedagogical perspective, students can benefit considerably from the active learning environment of the study tour, as it alters the classroom climate, the learning processes and can impact on the enthusiasm of the lecturers for the particular subject. Students and instructors that have undertaken study tours together often reflect on the experience as one that brought faculty members and students closer together, thus creating a more supportive learning environment (21)

Study tours engage “and even entertain students, helping to make the educational experience more enjoyable and . . . more memorable and more sociologically meaningful,” increasing the motivation of the students for their subject matter.

However, one of the most significant benefits of study tours is the transitional impact on students. Study tours, particularly those aimed at the application of theoretical knowledge in a professional environment, can facilitate very effectively “the transition between undergraduate education and the workforce, subsequent courses in the discipline and post-baccalaureate schooling,” as well as exposing undergraduates to potential employment opportunities, developing their social skills and defining their professional goals (21). Often, students are uncomfortable or too intimidated to engage with the professions prior to completing their undergraduate education and study tours of this nature can allow students to connect with professionals and to access locations to which they may not normally be admitted entry (23).

##### *2.4.2 Traditional Lecture-Based Learning and Experiential Learning*

Adopting traditional lecture-based learning is a major teaching methodology in most universities and higher education institutions (24). Although educators view traditional lecture-based learning as an effective method to transfer knowledge to students, there are limited opportunities for students to practice active learning (25). In traditional lectures, students are limited to passive learning through mainly note taking and listening. However, traditional lectures are necessary (26) as they serve as a platform for providing background information, basic concepts, and theories required by students before they embark on their independent learning journey and become effective participants in discussions (24). Nevertheless, it is often necessary to include other learning methods such as experiential learning to compensate the limitations of traditional lecture-based learning.

Experiential learning is an interactive learning method by doing (27), in which students learn through direct hands-on action or activity, and carry that particular experience into future experiences (24). One of the most influential models of experiential learning is where he proposed that an individual’s learning process of knowledge is created through the transformation of experience. These concrete experiences and reflective observations are essential for learning (28).

This cyclical experiential learning process is widely known as four stage experiential learning model: (stage 1) concrete experience (28) – where the learner is actively experiencing an activity; (stage 2) reflective observation – where the learner is consciously reflecting back on that experience; (stage 3) abstract conceptualization – where the learner is being presented with a theory or model of what is observed or to be observed; (stage 4) active experimentation – where the learner is trying to plan how to test a model or theory or plan for a forthcoming experience. A way of learning by doing is through field trips and school excursions, which has been considered an important part of school life (29). Study tours are very useful for theoretical courses to engage in experiential activities for a chance to reflect upon the study tours experience and relate it to their wider reading and theoretical aspects of the course (19).

#### *2.4.3 Roles of Educator and Learner in Study Tours*

Educators play an important role in enhancing the students' learning experience. Experiential educators as “ministers of the light of understanding” who has experienced a higher truth and is actively liberating and guiding learners to a new level of awareness through questioning. This sees educators highly involved in the different stages of planning and organizing the field trip (30).

A three stage (pre-trip; on-trip; and post-trip) learning process in field trips (5). At the pre-trip stage, educators need to prepare students for learning during the study tour by providing lectures, guest speakers, or related assessments. During the on-tour stage, the educator should perform the role of a facilitator and allow students to perform active learning and independent participation during the tour. A question and answer should also be included to allow informal interactions and networking with the host. The post-tour stage occurs when the students return to the classrooms, where students reflect their study tour experience to the theories studied in the pre-tour lectures. Several educators (8) have adopted a similar study tour learning process when organizing study tours. Regardless of the study tour learning framework used, study tours should demonstrate experiential learning outcomes through preparation, participation and reflection (1).

Students are viewed as learners during study tours, with the learning by doing approach, and taking some ownership of their learning experiences (30). Certain essential roles students perform during experiential learning, such as involvement in the pre-tour stage, and engaging in interactive activities during the on-tour stage (5). Although providing support and feedback throughout the experiential learning process is essential (1), the students / learners are responsible for their learning experiences during the study tour and not dependent on the educator (5).

### **3. METHODS**

#### *3.1 Scope of the Study*

The purpose of the study tour was to provide MBA students with an opportunity to understand and experience business activities and environment. More importantly, the study tour was designed to allow students an opportunity to apply theoretical concepts learnt in traditional classroom settings in a practical environment. The study tour was organized for students enrolled in MBA program in Ramkhamheang University, Bangkok and other campuses. This study conducted between January to September 2019.

Data was collected from both students who were engaged in domestic trips (20 students) and students who were engaged in international trips (20 students). Students' interviews were used to collect data. The study tour was related to the students' group report, which placed significant importance in the study tour. The study tour design adopted the three stage process (pre-tour, on-tour, and post-tour) theoretical framework (31).

#### *3.2 Instrument Design*

The objective of this paper was exploratory to understand and compare students' opinions toward study tours across the three stages (pre-tour, on-tour, and post-tour). Respondents consisted of students who attended the study tour, a convenience sampling strategy (32). There were given a total of two research questionnaires:

1. Do students feel they have gained a more comprehensive insight into how the company operates?
2. What are your opinions before going, during, and after attending on a study tour? (pre-tour, on-tour, and post-tour stage)

The open-ended questions are ideal for qualitative research because they disclose the nature of individual experiences in particular instances (33). This allowed the researcher to explore further into the students' study tour experience. Content analysis was used to analyse the data collected from the study tour interviews.

#### Pre-tour

Prior to the study tour, students assigned to divide into small groups to deal with class projects which divided into four parts: Management & Operation, Finance, Marketing, and Current Issues. They were spend two tutorial sessions on background information and relevant theories to be used during the study tour. Students were instructed to conduct secondary research by visiting the company's website to understand the company's marketing activities and competitive industry. These learning outcomes were then structured into company's questions. Along with the questions, the study tour itinerary was given to students two weeks before the study tour to better manage student expectations.

#### On-tour

Students travelled to the manufacturing area in accompanied by tour guide and program staffs. During the study tour, students were given a two-hour tour of the conference room, company exhibition, operation and manufacturing areas. This was followed by a presentation by the Training and Development team . A question and answer session was conducted towards the end for students to direct questions to the presenters.

#### Post-tour

Following the study tour outing, students presented their experiences with a short presentation. This experience learning process was then reflected in the students' group report, which they submitted 4 weeks after the study tour.

## 4. FINDINGS

### *4.1 Student Aspects on Study Tour*

Students were asked prepared answer during the interviews and they had been asked "Tell me about the study tour". The interview questions were useful in ensuring that all aspects of the tour were discussed.

Student responses were categorized into three areas:

- Discipline-specific skills and knowledge;
- Employability (impact on the student's employability and career options);
- Generic skills (for example, teamwork, communications, problem-solving);

#### *4.1.1 Discipline-specific skills*

Student responses on discipline-specific skills mostly focussed on the business visits and in particular, comparing different visits, and highlighting favourites. All students were highly positive about this aspect of the tour – they appreciated the access to such senior personnel and felt privileged that the hosts gave so generously of their time. In particular, students claimed that the information provided by the business hosts was more accessible and more memorable than similar information read from a textbook, primarily due to this information being first-hand and specific.

Examples of student comments included:

- ...be able to apply business theory in textbook
- ... opportunity to be creativity, less controlled or rigid way and challenged me to think outside the box.
- ... gave a real insight into what they do and why they do it.

#### *4.1.2 Employability*

Similarly, only positive comments were received about the perceived impact on student employability. All students have now featured the study tour on their resume, even those who found it a personally negative experience, indicating that they realize that potential employers will see this as a positive achievement, and that it sets them apart from other students. Typical comments from the students included:

- ....I am very open to any international opportunities that may come up.
- ....I highlighted this on my resume under 'Achievements'.



#### 4.1.3 Generic skills

For generic skills, students spoke mostly about communication and teamwork. When questioned further about other generic skills, they agreed they gained some personal confidence in public speaking, when interviewing the business hosts. Typical comments included:

- ...I felt I was a valued team member.
- .... The group selection process was very difficult.
- ... Within our team, we did have a different understanding of the task.

#### 4.2 Learning Outcome Towards Subject

Firstly, a key theme that emerged from the questionnaire was positive learning outcome. Most students reported a positive learning outcome throughout the three study tour stages. These learning outcomes became more positive through the post-stage. For example, students mentioned:

“During the pre-tour, I perceived the information from the study tour be very useful for my assignment; and when I was at the company, the information was really useful for my studies. After the study tour, I felt I could relate my assignment with real life examples from the company.” (Domestic study tour).

Another student had similar thoughts:

“I hope to get a better understanding of the theories in the textbook from the study tour. During the study tour, we were given practical examples. The post-tour discussion also reinforced certain key points, which made me studying easier.” (Domestic study tour).

Students who traveled to international study tour made the following comment:

“Before the study tour, I wondered if it’s going to be fun and knowledgeable. When we were at the manufacturing area, the tour was very useful in understanding the importance of operation and manufacturing sessions. After the study tour, I referred to my lecture notes to see how I can apply theory and use it for my working experience.”

However, students who traveled to domestic study tour were more concerned about how the study tour enriched their knowledge in passing the subject whereas domestic study tour students associated the study tour experience to their future work experience. Some of the domestic study tour students mentioned:

“I think this study tour will help me to better understand this subject. During the study tour, the presentation by the function manager was interesting and I think could be tested in our comprehensive exam.” (Domestic study tour)

“I am able to apply the textbook theories better now and I spent a day after the study tour reflecting on how these theories can be applied to our assignment.” (Domestic study tour).

In relation to future working experience, some International study tour students commented:

“I hoped it was going to be fun and knowledgeable. When the marketing department met us, they gave a very interesting presentation with diagrams of marketing concepts, which gave us a good understanding. I kept some of their handouts such that I can use for my future working experience.” (International study tour)

“I was really looking forward to the study tour as our expectations were very high based on our lecturer’s exciting stories and materials. During the study tour, I took pictures of the company’s facilities. After the field trip, I shared the pictures with my classmates and we learnt about how current company’s issues can be improved.” (International study tour)

#### Interest Level in Subject

The second main theme identified was the increased level of interest in the subject over the three study tour stages. Almost all those interviewed said that they became more interested in the subject after going on the study tour. Domestic study tour students tend to have a higher increase level of interest in the subject as they had less practical exposure and relied heavily on theories and concepts from textbooks. The study tour assisted their learning and visualization of key concepts. However, International study tour students became more interested in the subject because it adds to their working experience. Some of their comments include:

“It should be as boring as textbooks. However, when we were there, it was very exciting to see how the 4ps work in a company; it’s so different from the textbook. After the study tour, I realised the importance of marketing and it can be quite interesting too.” (Domestic study tour student)

“Initially, I thought that the study tour was going to be a waste of time. However, when the Director presented, he made organization management more understandable. I can understand concept of the book.” (Domestic study tour student)

“At first, I don’t think it would be anything different from my workplace. I would now consider working in International marketing.” (International field trip)

“I can’t understand how the company compete in the industries. The study tour was useful and presented by the Training department, they seemed so loyal to the company. I can see myself working in the industry, everyone is so passionate.” (International study tour)

However, there was a couple of students who became less interested in the study tour:

“I have worked in different departments in the company and it’s all the same with long hours and low pay. I don’t see if we learnt anything new from this study tour.” (International study tour)

## **5. CONCLUSIONS, DISCUSSIONS AND IMPLICATIONS**

### *5.1 Conclusions and Discussions*

The problem to be addressed is what is the importance of including study tour experience in adult higher continuing education? What can be gained by providing by offering an educational study tour? One of the specific issues in management education is the development of students’ capabilities and competences in MBA programs.

A key theme that emerged from the questionnaire was positive learning opinion. Most students reported a positive learning attitude throughout the three study tour stages. These learning opinions became more positive through the later stages. Domestic study tour students’ opinions towards the study tour were more about how the experience and knowledge can enhance their learning in relation to the subject. Whereas, International study tour students’ opinions about study tours were related to how the study tour experience would enhance their future career and employment. Nevertheless, study tours can be seen as enhancing understanding of subject materials, which translates into positive outcomes for students (Isoardi, 2010).

The enhancement of understanding of the subject through study tours also allows students to test theories and concepts studied in traditional lectures. In relation, this helps to stimulate interest in the subject material and application in their group report. This is a form of experiential learning process through reflective observation and active experimentation of various marketing theories to an actual situation. Knowledge transfer benefits has been reported in past studies to be a key benefit in study tour learning (Light & Cox, 2001). Sanders and Armstrong (2008, p. 33) have also reported that students strongly believe that study tours allow education to be experienced in a real life setting.

### *5.2 Implications of the study*

1. The graduate of MBA program should be prepared the graduate to be the competent and successful business leaders, managers, industry and academic practitioners who possess the required professional skills in leadership, management of business enterprises and organizations, and contribute to the growth and development of their community. Therefore, it is important for academics to manage students’ expectations with clear objectives before the study tour and ensure that these objectives have met during the study tour with appropriate activities and to allow reflection during the post study tour stage with discussions to maximize the study tour experience.

2. For tourism academic, study tours as a particularly effective form of learning can be used in the study programmes designed to train tourism professionals (for example, the Entrepreneurship, Business manager and Hospitality Management). Therefore, tourism institution must concern to design the course in order to serve the niche market.

3. Tour operators are like the middleman who arrange and promote the trip options, working with organizations, book hotels, airlines and other transport companies in order to execute the arrangements. They can get a better understand how to operate the tour program to achieve the students’ needs. They can provide students with advice about which company best to reach for in each destinations.

### *5.3 Limitation of the Study*

This research must be treated with caution as the sample groups are based on a single study tour rather than multiple study tour. Thus, results must not be generalized for the entire population. Therefore, one future area of research is to include students from other study tour subjects to reduce subjectivity and bias toward a single subject.

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# Horizontal Wedge Recognition in 2D Photographs of Cuneiform Tablets

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## Abstract

In today's world, around half a million cuneiform tablets are estimated to have been excavated, of which only about 100 000 have been read and published and the rest remains untranslated, unstudied, and unpublished. [16]

This research aims to prove, that cuneiform signs can be looked at like any other form of writing and can be processed by a specially developed Optical Character Recognition (OCR) in the future, which would significantly speed up the clay tablet reading and translation, because the only thing that would need to be done is taking a high-quality photograph of the tablet.

The result of this initial part of research is a successful horizontal wedge recognition in 2D photographs with F-measure equalling to 82.4 %. This partial success leads to an assumption, that if the research is expanded with a larger dataset and vertical, oblique up and down wedges classifiers are added, the whole cuneiform signs can be identified and translated by using Timo Homburg's PaleoCodage [16] coding to Unicode and put into context of sentences by Shai Gordin's Natural Language Processing (NLP) [1] technology.

**Keywords:** cuneiform, object recognition, convolutional neural networks, artificial intelligence, OCR

## 1. INTRODUCTION

In the ancient times of Mesopotamia, whole cultures e.g., Akkadians and Sumerians have engraved cuneiform texts in clay tablets. They contained everything, from shopping lists and school exercises to accounting. [18] Hundreds of thousands of cuneiform clay tablets have been excavated yet and more are being discovered every year. Manual transliteration and translation are a very complex and time-demanding process.

Like in any other field, also in modern archaeology is the use of artificial intelligence such as automatic object recognition sometimes essential and necessary to process a large amount of data. Cuneiform, like any other writing, consists of basic shapes – in this case, wedges – and therefore, as assumed, if all wedges are identified and put into context by existing coding technologies such as PaleoCodage [17], the characters can be recognized by using specially developed OCR [14], put into context by NLP [1] and translated much more easily and faster. In the end, the process of translating and publishing newly discovered tablets could be accelerated.

This initial part of research is dedicated to recognizing one of the cuneiform character elements, the horizontal wedges.

## 2. THEORETICAL OVERVIEW

In the past, many universities have conducted research related to cuneiform transliteration and translation. However, so far no one has been able to successfully identify the wedges from 2D photographs.

First in 1995, Wernicke, G. et al. introduced a technology called optoelectric image processing, which was used for cuneiform restoration by using spatial filters of averaged signs. This was followed by another optoelectric device, developed by Demoli, which investigated features in object, Fourier space and similarity measures between the signs. [13][12] In 2002, Demoli introduced another device to recognize cuneiform characters in real time, but from transliterations. [10] In 2007, Hahn introduced a 3D scan for cuneiform tablets. [9], which was followed by Hubert Mara's et al. "GigaMesh" framework, which is able to extract cuneiforms from the 3D scans in 2010. [11] In 2016, Mara also invented a line detection algorithm from the 3D scans, using OpenCV library, which used image filtering. [7] In 2018, Kenji Yamauchi et al. have created datasets of black and white cuneiform handwritten transliterations. [4] In 2019, Grüning introduced a two-stage detector for cuneiform signs separation, that used open-source ARU-net neural network to decide, where in the text is a separator, beginning and end by line detection. [3]

The most contemporary methods for cuneiform processing include Natural Language Processing (NLP), which was officially published in 2020 by Shai Gordin et al. [1] They used Recurrent Neural Networks to transliterate and segment Unicode cuneiform glyphs into words, and therefore the words can be more easily put into sentences and translated.

There is a research gap in this field, which is the transliteration from photos. If the transliteration process can be simplified and done directly from 2D photographs of cuneiform clay tablets, the transliteration and translation using already published technologies is going to speed up significantly.

## 3. OBJECTIVE

As follows from the research gap, the objective of this research is to recognize the wedges in 2D photographs of cuneiform tablets. This initial part of research serves to prove, that this task can be completed, by proving it on horizontal wedge recognition.

Positive results will prove, that if horizontal wedges can be classified, the same will be possible for vertical, oblique up and down wedges, and later these can be folded into whole cuneiform vowels and sentences by using other technology. A following research is already planned.

## 4. METHODOLOGY

In order to identify objects in 2D photographs, one of the options that can be used is a Convolutional Neural Network (CNN). Among other methods, CNN have proven to be faster and very precise. [15]

The selected network architecture was YOLOv5. The family of CNN architecture YOLO (name comes from You Only Look Once) was created in 2015 by Joseph Redmon et al. [6] and the latest version 5 was published in 2020. As the name suggests, the network only analyses the picture once, and derives the final result from probability areas. The implementation used for this research is created by Ultralytics LLC [19].

To train a network, a dataset split to training, validation and testing subsets needs to be created. To increase the number of images, augmentation can be used. The recommended number of pictures for each class is about 1000. [8] Roboflow [20] is a web application used for creating augmented datasets from manually labelled data in labeling.py [21].

After training the network, it needs to be evaluated. The standard evaluation metrics include precision  $p$ , sensitivity  $s$  and  $F$ -measure.

$$\text{precision } p = a / (a + c) \tag{1}$$

$$\text{sensitivity } s = a / (a + b) \tag{2}$$

$$\text{F-measure} = 2 \cdot (s \cdot p) / (s + p) \tag{3}$$

If the results of the classifier are not satisfactory, fine tuning can be applied, hyperparameters can be changed or the number of input data can be increased.

## 5. RESULTS

227 images have been manually labelled (815 labels in total) and for the final version of the model, augmented using Roboflow. [20] The augmentations used were flip, crop, grayscale, saturation, brightness, blur and noise. The final dataset contains 545 images (approximately 2000 labels). 23 images were selected for testing, 45 for validation and 477 for training. The augmented dataset of horizontal wedges is available at the following link. [22]

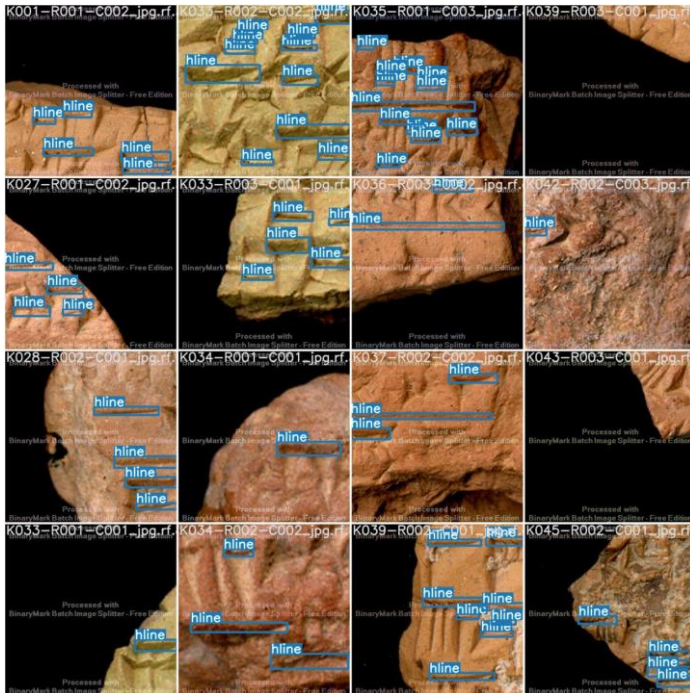


Fig. 1. Labelled horizontal wedges - training set example

Training was conducted on Google Collaboratory, using a GPU Tesla K80 with 13 cores, 11441 MB total memory. There were 1000 epochs with batch of 16 images. Validation loss (MAE) decreased from 0.2071 at first epoch to 0.06153 at the final one, and training loss reached less than 0.04 as visible in Figure 2.

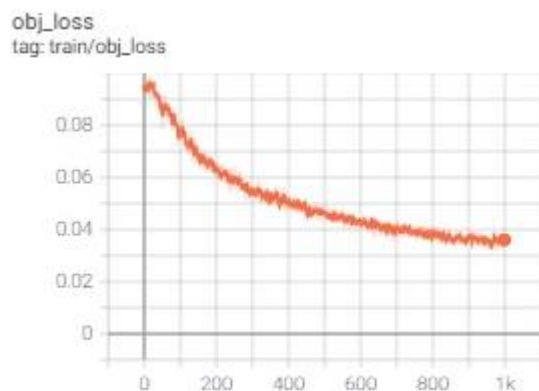


Fig. 2. Training set loss, source: Tensorboard

Testing set consisted of the following photographs:

- 20 photos contained 102 labelled horizontal wedges.
- 3 photos did not contain any labels of horizontal wedges.

Testing took 0.714s and the results of the classifier are following:

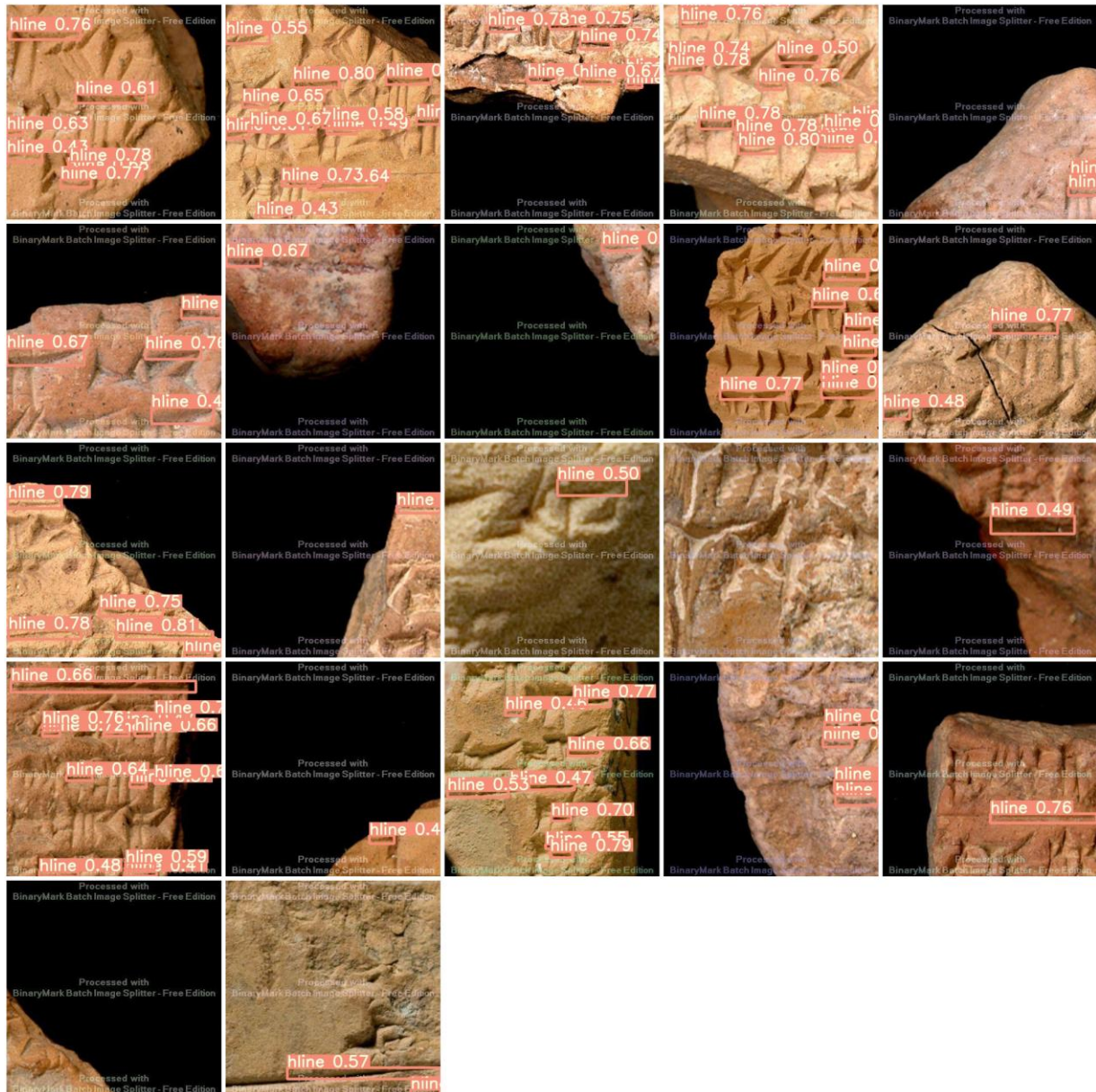


Fig. 3. Horizontal Wedge classifier results on Testing set

Name	True positive rate (a)	False negative rate (b)	False positive rate (c)	Precision (p)	Sensitivity / recall (s)	Quality of algorithm (F)	True total number of labels (N1)
Value	82	20	15	0.845	0.804	0.824	102

Table 1. Horizontal wedge classifier results on Testing set



## 6. DISCUSSION

In relation to the relatively small number of input data, the results of the horizontal wedges classifier were very good, as the F-measure reached 82.4 %. The precision and recall on the testing dataset were above 80 % as well, which means above 80 % of the horizontal wedges were correctly found and the model can be used.

In GigaMesh, the analysis of 3D scan of cuneiform tablets has been conducted, and the character extraction success rate has not been published in the article. [11] Also the recognition of handwritten cuneiform vowels published by Yamauchi [4] has not shown any tables with classifier results.

The comparison with the results of other authors, in this case, is therefore very difficult. Also because there has been no attempt to recognize horizontal wedges in 2D photos of cuneiform yet. However, from the artificial intelligence point of view, different authors have used object recognition to achieve other tasks.

Cho Junghwan et al. have reached about 97% accuracy on GoogLeNet network architecture (Inception v1) using a dataset of about 4000 very high-quality images of CT body scans, and the decrease rate for lower number of images has been described there accordingly. [8] A similar success rate as in this research has been reached in Great Tits recognition from Smart Nest Boxes using YOLOv3 architecture, where the F-measure reached 83%. [2] This fact indicates, that using this YOLO type of architecture brings similar results, and if a different one is chosen, like Inception, and the dataset is expanded, the results will highly likely improve.

## 7. CONCLUSION

The initial results of horizontal wedge classification were successful and proved, that the final task, thus the OCR of cuneiform tablets, is reachable. Therefore, more research in this field is yet to come.

In order to increase the F-measure, expanding the dataset of horizontal wedges is planned, and as mentioned in the discussion, a different architecture might bring better results for this task.

The research is going to continue by creating new datasets of vertical, oblique up and down wedges, connecting them and transliterating by using PaleoCodage [17], and putting them into context by using NLP. [1] With some small uncertainty, by bringing up these initial results, we may claim, that it is going to be possible to read cuneiform signs by OCR in the future.

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