VOLUME 9 NUMBER (1) 2023

ISSN (Online) 2466-2860

In Serbian:
Inženjerski menadžment

ENGINEERING MANAGEMENT

The International Student Journal for Theory and Practice of Management Science

Editor-in-Chief:
Sanela Arsić

Published by:
Technical Faculty in Bor

www.menadzment.tfbor.bg.ac.rs/english/student-journal/

Engineering management 9 (1) (2023)
The International Student Journal for Theory and Practice of Management Science

Engineering management

EDITORIAL BOARD

ISSN (Online)	2466-2860

Department of Engineering Management of Technical faculty in Bor, University of Belgrade started to publish a journal "Engineering management – The International Student Journal for Theory and Practice of Management Science", during 2015. The journal has international character and publishes student articles in the field of theory and practice of management.

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Engineering management 9 (1) (2023) 1-12

Engineering management

ADVANCEMENT OF INFORMATION TECHNOLOGY AND ORGANIZATIONAL PERFORMANCE IN NIGERIAN TERTIARY INSTITUTIONS*

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Abstract

The study focused on advancement of Information Technology and Organizational Performance in Nigerian Tertiary Institutions. Pressure, time wasting, distraction and stress emanating from technological advancement can influence organizational performance which in turn might lead to loss of productivity in an organization. The study adopted co-relational survey design and questionnaire as instrument for data collection. The total population of the study comprised of 3,125 senior non-teaching staff of Federal University of Technology, Owerri, Imo State, Nigeria. The sample size was determined using Taro Yamane formula and calculated as 264. Simple random sampling technique was adopted in the distribution of the survey. Out of 264 questionnaires administered only 211 were filled and returned while the remaining 53 were not utilized for the study. The test result of the research question established that there exists a significant positive relationship between electronic mail and service quality. The researchers recommend management of tertiary institutions to support upskilling of employees through development program on the use of ICT tools.

Keywords: *Information Technology, Electronic Mail, Service Quality, Internet, Organizational Performance*

1. INTRODUCTION

The education sector is currently being transformed by digital technology in Nigerian tertiary institutions in order to add value to the system. Other industries in Nigeria have followed suit in embracing innovative technology, outside educational institutions. Employees are expected to become proficient in technology as businesses change the operational strategies that govern how they conduct business. Organizational structure is made up of people, and how well they can connect, communicate, and innovate determines how successful the business will be.

The strategy that firms adopt can make either positive or negative impact on their operational performance. The rates at which technological break-through are emerging have created opportunities for growth and competition for organization to enhance its performance (Harvard Business Review, 2018). Information Technology was used by managers to make wise decisions on improving business processes to achieve

* *This paper is presented at „19th Students symposium on strategic management“*

organizational objectives. Advancement in Information and Communication Technology (ICT) has placed value system in electronic administration, decision-making process, cost of running administration, time reducing etc. in tertiary institutions.

According to the views of Abdullahi (2019) Information technology plays significant role in the efficient management of tertiary education, enhancement of the administration process, reduction of the cost of governance, achievement of flexibility in learning of tertiary education. Information Technology helps in administrative services and management of both students and staff records and inventory management in Nigerian universities.

Regrettably, to say that distraction is one of the negative impacts of innovative technology at the workplace. The emerging technology has created much pressure on employees due to much time workers spend on using digital platforms, all of which led to cyber loafing, time wasting and lost productivity. Average worker in tertiary institution spends more time on personal chatting via digital platforms instead of performing legitimate functions in the office. Therefore, pressure, time wasting, distraction and stress emanating from technological advancement had negative influence on quality of service which can result to loss of productivity in a particular unit or department. Those employees who cannot adapt to digital trend may find it difficult in meeting with desired outcomes and expectations in some units/departments. The negative effect of the emerging technology has underlying problems and may cause loss of privacy, cyber-bullying and difficulty focusing on important task. Inability to curtail excessive use of this digital trend can influence organizational productivity. It is against this backdrop of information that study objective is formulated below.

Previous studies of Helpman and Trajtenburg (1998) revealed that technology adoption contribute positively to firm productivity. Another study by Gallego, Gutierrez and Lee (2011) found that technology adoption increase the size of the organization which in turn will lead to firm growth. In light of the above, previous study did not ascertain the influence of electronic mail (digital technology) and service quality in tertiary institutions in Owerri, Imo State, Nigeria. It is in this gap that study is formulated to achieve study objectives.

2. REVIEW OF RELATED LITERTAURE

2.1. The Concept of Information Technology

Rouse (2014) defined Information Technology in terms of devices, networking components, applications and systems that allow people and organizations to interact in the digital world. The author posit that information technology encompasses all components related to computer and digital technology. It is made up of the internet access, mobile devices (smart phones), cloud computing, communication technologies (such as, landline telephones, radio and television broadcast), hardware, software and data which allow people and organizations to share information in the digital globe. Olasanmi, Ayoola and Kareem (2012) define Information Technology as a computer systems, telecommunication, networks and multi-media application that augment knowledge for carrying out a given task which implies skills and processes essential for conducting business operations in a specific way. The authors concur that technology not only increases productivity and operational efficiency of both employees and organization but also saves cost for the organization.

2.1.1. The Concept of Electronic Mail

It is defined as a computer-based application for the exchange of messages between users (Harrison, 2003; Sampson, 2003). A worldwide email network allows people to exchange e-mail messages very quickly. Root and Thompson (2019) have identified merits and demerit of using electronic mail in doing businesses. One of the advantages of email communication is that it works for twenty-four (24) hours a day, which allow users to send multiple messages at their convenience to a client or business associate who is located thousands of miles away. One of the disadvantages of electronic mail is its ease of exposure to loss. It does not take time for someone to access private information of another person. Again, important information on hard drive can be crash or hacked within seconds. It is difficult to interpret emotions using email unlike face-face contacts which offers individuals opportunity to express emotions and feelings.

2.1.1.1. The Concept of Performance

Business Dictionary (BD, N.D) defined performance as the accomplishment of a given task measured as present known standard of accuracy, completeness, cost and speed. Performance evaluates whether an individual perform his/her job well (Campbell, McCloy, Oppler & Sager, 1993). It clarifies the overall estimated value to the organization of the discrete behavioral occurrences that an individual carries out over a standard period of time. Job performance is an important criterion for organizational outcomes and success. Berkeley (2019) further explain that the objective of performance is to improve strategy execution by aligning business activities and individual actions to achieve firms' strategic and operational objectives. According to the authors perspective, performance helps in the periodic rating, monitoring, reward and compensation, planning and expectation setting to achieve organization goals. Organizations need to have top performing individuals to improve quality of products to be able to meet market demands and to achieve competitive advantage.

Kaplan (2012) identified key performance indicators (KPI) as financial and non-financial indicators. Financial indicators are those that contribute to financial success. Examples of financial indicators are; asset turnover, liquidity, profit or loss of the year, solvency, leverage, equity, growth in revenue, net profit margin, gross profit margin, operational cash flow, current accounts receivables and inventory turnover. Financial Performance Indicators are generally based on income statement or balance sheet components, and may also report changes in sales growth (by product families, channel, customer segments) or in expense categories. Typical non-financial indicators include measures that relate to customer relationships, employees, operations, quality, cycle-time, and the organization's supply chain or its pipeline.

2.1.1.1.1. The Concept of Service Quality

Service Quality describes how service delivered conforms to the customers' expectations (American Marketing Association, 2012). It is considered the difference between service expectations and service perceptions. Service expectations are the desired expectations that customers want the service to meet in practice. It reflects both past and present service evaluation and user experiences. Service quality or quality of service also refers to excellence provided to the end customer in the service offering provided. Service business

operators often assess the service quality provided to their customers in order to improve their service, to quickly identify problems, and to better assess client satisfaction.
Janakiraman and Gopal (2006) have identified five dimension or component of service quality. They are listed as; reliability, responsiveness, timeliness, completeness and assurance. Reliability refers to consistency of performance. It is the ability to perform the service dependently, accurately and consistently. Responsiveness refers to ability to meet with the expectation of customers. This implies providing timely service to clients. Timeliness is the ability to render prompt services to customers. It is when a service is rendered to customers as when promise or without delay. Assurance refers to the knowledge and courtesy of employees and their ability to express trust and confidence. Completeness describes a situation when all items in the order are included (Janakiraman & Gopal, 2006; Arora, 2006).

2.2. Theoretical Framework

This study is anchored on Resource-Based View postulated by Barney in 1991. Resource Based View (RBV) theory explains why organization succeeds or fail in the market place. It states that resources that firms possess influence its performance. According to this theory, organizations achieve its competitiveness using human resource and capabilities that domicile inside the organization. This theory is linked to information technology and organizational performance because firm's competitiveness depends on staff (human resources) which can be a source of its competitiveness (competitive advantage) if they are; valuable (v), rare (r), inimitable (i) and non-substitutable (n) compared to its rivalry (Pankaj, 2010).
The theory was criticized based due its methodological nature, RBV theory was criticized on the ground that it is a political theory because it is applicable to leading firms with resources of high order to shape their strategy to achieve sustainable advantage (Kirsten, 2017). On the issue of terminology, RBV failed to consider factors surrounding resources, that is, an assumption that they simply exist, rather than a critical investigation of how capabilities are acquired or developed. Finally, it is impossible to find resources that satisfied all of Barney's VRIN criteria (Stinchcombe, N.D).

2.3. Empirical Review

Onobrakpeya, Nana and Odu (2018) examined the Effect of Information Communication Technology on Service Delivery in the Nigerian Manufacturing Industry. The total population of the study comprised of 515 employees of six selected private listed manufacturing firms (AG Leventis, Lever Brothers, PZ industries, UAC Nigeria, UTC Nigeria, 7UP Bottling Company PLC) in Nigeria. Cross Sectional Survey Research Design was adopted and questionnaire was used as instrument of data collection. Correlation and multiple regressions was used to test the hypothesis to generate data. Findings showed that electronic mail, teleconferencing and telecommuting variables of information and communication technology had positive effect on service delivery.
Obra, Camara and Melendez (2002) investigated Internet Usage and Competitive Advantage in Spanish Firms. Study adopted descriptive survey approach and survey as instrument for data collection. Correlation method was used to analyse the relationship between the variables. Study found that, there exists significant relationship between internet technology and competitiveness advantage (market share) of firms.

Hammami and Zghal (2016) conducted a study on Internet and Competitiveness of Small and Medium Enterprise in Tunisia. The study population comprised of 206 Tunisian manufacturing small and medium enterprises (SMES). Structural Equation Modeling (SEM) technique was used to analyze the result. Findings showed that internet has positive influence on competitiveness of firms.

Ashish (2008) investigated the Influence of Information Sharing Practices, Supplier Network Responsiveness on Time to Market Capability of a Firm in USA. The web-based survey yielded 294 responses from industry professionals in the manufacturing and supply chain area. The hypotheses were tested and analyzed using Structural Equation Modelling (SEM). Findings point out that higher levels of information sharing practices can lead to improved supplier network responsiveness and reduced time-to-market of a firm. Findings also showed that supplier network responsiveness can have a direct positive influence on time-to-market capability of a firm.

3. RESEARCH METHODOLOGY

Research designs are developed to meet the unique requirements of a study. A research design is the overall plan for obtaining answers to the questions being studied and for handling some of the difficulties encountered during the research process (Kassu, 2019). It is a blue print that shows the manner and method research will adopt to analyse data to fulfill objectives of research. It is valid when conclusion is accurate. Correlation survey design was adopted to test the influence of electronic mail on service delivery. Research design allow the researchers to make observation of what happens in the field without manipulating data.

The total population of the study comprised of 3,125 non-teaching staff of both Federal University of Technology and Imo State Polytechnic Umuagwo, Owerri, Imo State, Nigeria. The researchers focus only on senior administrative and executive staffs from grade level eleven and above. The reason for choosing them is due to their level of experience about university administrative system.

3.1. Sample Size and Sampling Technique

The sample size was statistically determined using Tarro Yamane formula (1967) for finite population. The formula is mathematically stated as:

$$n = N/1 + Ne^2 \tag{1}$$

where n = sample size; N = Population Size; e = Sampling Error = 0.05.

$$n = \frac{N}{1 + N \cdot (e)^2} = \frac{3125}{1 + 3125 \cdot (0.05)^2} = 264.08 \approx 264 \tag{2}$$

The sample size was determined statistically and calculated as 264. Simple Random sampling technique was adopted to select the participants in the survey. This method allows every item in the population a chance to be selected. This implies that every sample (institutions) has the probability of being selected and represented in the survey.

3.1.1. Method of Data Collection

Primary data was sourced with the aid of structured questionnaire administered using five points-likert scale. The response scoring weights were listed below; Strongly Agree (SA) rated as 5, Agree (AG) rated as 4, Undecided (UN) rated as 3, Disagree (DA) rated as 2 and Strongly Disagree (SD) rated as 1.

3.1.1.1. Method of Data Analysis

The data used in testing the hypotheses was obtained from research topic Advancement of Information Technology and organizational Performance in Selected Tertiary Institutions in Owerri, Imo State, Nigeria. Simple regression technique was used to test the hypothesis statistically.

3.1.1.1.1. Model Specification

Information Technology was proxy to electronic mail, while organizational performance was also proxy to service quality. The model specified below showed the the influence of electronic mail on service quality. The model equation is stated below.

$$Y= \beta_0 +\beta_1 X_1+\beta_2 X_2+ \beta_3 X_3 + e \qquad (3)$$

Where; X is a function of, X_1, X_n representing independent variable (information technology), and B_1, B_2… B_n are the coefficients of the regression equation; Y= Service quality (Y_1); β_0 = parameter constant; e= Error term.

4. RESULT AND DISCUSSION OF FINDINGS

4.1. Presentation of Result

In this study, Federal University of Technology Owerri and Imo State Polytechnic Owerri, were chosen as two higher education institutions, with a view toward how information technology affects organizational performance. Primary information was gathered and presented according to the study question. Utilizing the IBM Statistical Package on Social Science (SPSS Version 20), data were gathered, tabulated, and analysed. Only 211 of the 264 copies of the questionnaire that were sent to the respondents were filled out and returned; the other 53 copies were kept and utilized in the analysis.

4.1.1. Analysis of Research Hypothesis

H_{A2}: Electronic Mail contributes significantly to service quality. Table 1 below shows participant response on research question one using five-point likert scales. Instruction: Please tick (✓) a response according to your own opinion using; strongly agree (SA=5), agree (AG=4), undecided (UN=3), disagree (DA=2) and strongly disagrees (SD=1).

Table 1: Investigative Questions on Information Technology and Organizational Performance

S/N	Test Questions	SA	AG	UN	DA	SD	Total
A	Information Technology						
	Electronic Mail						
1.	Every unit in my institution is optimized with digital platforms which affords us the opportunity to do our work faster.	148	53	9	1	0	211
2.	Our staff are trained on the use electronic administration.	163	40	4	3	1	211
3.	Electronic mail provides faster and easier access to information.	162	38	9	1	1	211
4.	Technology reduces job load and work stress in my unit.	153	47	3	6	2	211
5.	Electronic mail provides possibility of sharing common information in my workplace.	113	88	1	8	1	211
B.	Organizational Performance						
	Service Quality						
6.	Our services have improved as a result of digital platforms.	153	47	3	6	2	211
7.	My institution provides uninterrupted internet services to students and lecturers.	157	50	2	2	0	211
8.	My establishment aims at maintaining error free records in all units and departments.	168	32	5	4	2	211
9.	We have improved our communication system from paper work to the use of electronic mail.	142	61	4	2	2	211
10.	We have gained trust and confidence of our students using our electronic platforms in making payment and registering of courses.	153	51	4	1	2	211

Source: (SPSS Version 20)

4.2. Test of Research Hypothesis

H_{A1}: Information Technology contributes significantly to service quality.

4.2.1. Decision Rule

When p-value is ≤ 0.05 reject the null hypothesis (H_0); otherwise accept the alternate (H_A) hypothesis. When the p-value (.000) was less than the critical value (0.05), the alternate hypothesis which states that information technology contribute to service quality was accepted; while the null hypothesis which states that information technology do not contribute to service quality was therefore rejected. The result indicates that the relationship is statistically significant between the variables.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.998[a]	.999	.999	4.43872	1.156

Source: (SPSS Version 20)
a. Predictors: (Constant), EM
b. Dependent Variable: SQ

Table 3: Result of Analysis of Variance (ANOVA[a])

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	473950.336	1	473950.336	24055.610	.000[b]
	Residual	551.664	341	19.702		
	Total	474502.000	342			

Source: (SPSS Version 20). a. Dependent Variable: SQ; b. Predictors: (Constant), EM; SQ represent Service Quality; EM represent Electronic Mail

Table 4: Result of Simple Regression (Co-efficients[a])

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.349	1.096		-.319	.752
	EM	1.003	.006	.999	155.099	.000

Source: (SPSS Version 20); a. Dependent Variable: SQ

$$Y= \beta_0 +\beta_1 X_1+ \beta_n X_n + e \tag{4}$$

The regression analysis can thus be restated as follows:

$$SQ = -3.49 + 0.999 (EM) \tag{5}$$

4.3. Discussion of Findings

The linear regression approach was used to test the hypothesis, and the resulting model summary and analysis of variance are shown above. The findings of the hypothesis test were evaluated in light of the statistical significance of the regression coefficient. Tables 2, 3, and 4 illustrate the results, correspondingly. A correlation value (R) of .998 was obtained in Table 2, indicating a significant linear relationship between the variables electronic mail (EM) and service quality. Further research generated an adjusted R squared value of 0.999, indicating that the information technology variable (electronic mail) accounts for 99.9% of changes in service quality, with the remaining 0.1% being explained by other factors not included in the current regression model. The ANOVA test result in table 3 above were performed at 95 % confidence level to show the models goodness of fit. The result further showed that the model predicting the influence of information technology on service quality was significant ($F= 24055.610$, $p <0.05$). The result explain that information technology had a significant positive influence on service quality. The null hypothesis was rejected, while alternate hypothesis was accepted.

5. FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1. Summary of Findings

The summary of the finding was presented as follows. Findings of research hypothesis revealed that information technology variable (electronic mail) and organizational performance variable (service quality) are statistically at 5 % level of significant. Findings revealed that, there exists a significant positive relationship between electronic mail and service quality. Simple Regression result showed the value of R Squared = .999, F cal. = 24056, Durbin Watson = 1.2 and P (value)= 0.000.

5.1.1. Conclusion

This study focused on the influence of information technology on organizational performance in selected tertiary institution: Federal University of Technology Owerri and Imo State Polytechnic Owerri. This result confirmed that electronic mail (digital technology) promotes service quality of tertiary institutions. This result is in agreement with findings of Onobrakpeya, Nana and Odu (2018) which showed that electronic mail, teleconferencing and telecommuting variables of information and communication technology had positive effect on service delivery.

5.1.1.1. Recommendations

Based on findings above, the following recommendations were made to guide this study.

I. Organizations are advised to communicate to employees their visions and mission to enable them achieve organizational goals.
II. The management of Tertiary institutions are advised to support their staff in skill acquisition program on the use of ICT tools.
III. There should be increased collaboration between staff and management in adopting electronic administration in order to achieve efficiency in the university administration.
IV. There should be provision for adequate ICT facilities in every unit and department to enable use of electronic administration quality in the university.
V. Universities should deploy computer technicians in every department/unit to handle technical issues associated with ICT.
VI. The study also recommends management to adopt automation system in all administrative process in the university to meet global best practices.

5.2. Future Research

This study is limited to two tertiary institutions in Owerri. Future researchers are advised to identify problems from another angle and explore it using other sectors in Nigeria. The study recommends future researchers to explore the influence of electronic governance on Nigerian economy.

RAZVOJ INFORMACIONIH TEHNOLOGIJA I ORGANIZACIONIH PERFORMANSI U NIGERIJSKIM TERCIJARNIM INSTITUCIJAMA

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Izvod

Studija je fokusirana na unapređenje informacionih tehnologija i organizacionih performansi u nigerijskim tercijarnim institucijama. Pritisak, gubljenje vremena, ometanje i stres koji proizilaze iz tehnološkog napretka mogu uticati na performanse organizacije, što zauzvrat može dovesti do gubitka produktivnosti u organizaciji. Studija je usvojila korelacioni dizajn istraživanja i upitnik kao instrument za prikupljanje podataka. Ukupnu populaciju studije činilo je 3.125 ispitanika višeg nenastavnog osoblja Federalnog tehnološkog univerziteta, Overri, država Imo, Nigerija. Veličina uzorka je određena korišćenjem Taro Iamane formule i izračunata je kao 264. U distribuciji ankete je usvojena jednostavna tehnika slučajnog uzorkovanja. Od 264 primenjena upitnika samo 211 je popunjeno i vraćeno, dok preostala 53 nisu korišćena za studiju. Rezultatom testa istraživačkog pitanja utvrđeno je da postoji značajna pozitivna veza između elektronske pošte i kvaliteta usluge. Istraživači preporučuju menadžmentu tercijarnih institucija da podrže usavršavanje zaposlenih kroz razvojni program o korišćenju IKT alata.

Ključne reči*: informacione tehnologije, elektronska pošta, kvalitet usluge, internet, organizacione performanse*

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HIGH PERFORMANCE SPORTS COACHES JOB SATISFACTION AND INTENTION TO CHANGE JOB IN PUBLIC SECTOR SPORTS ORGANIZATIONS*

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Abstract

Objective. To determine the relationships between high performance sports coaches job satisfaction and the intent to change their current position and the profession. Methods. 87 high performance sports coaches from Lithuania participated in a survey. Participant's job satisfaction was measured with Minnesota's job satisfaction questioner short form. Intent to change job was measured with two questions: Do you have intentions to change you profession? Do you have intention to change your organization? Results. The study found that employees had high levels of job satisfaction and internal satisfaction but were dissatisfied with external factors such as pay, benefits, and working conditions. No significant differences were found in job satisfaction between genders or age groups, but significant among coaches in different cities. Employees who intended to change their profession or organization had lower levels of overall job satisfaction, intrinsic job satisfaction, and extrinsic job satisfaction. The study also found medium-level negative correlations between overall job satisfaction, intrinsic job satisfaction, extrinsic job satisfaction, and the intent to change profession and organization. Conclusions. Study highlights the importance of addressing external factors to improve employee satisfaction and retention. By focusing on areas such as pay, benefits, and working conditions, organizations can increase employee satisfaction and reduce turnover, ultimately leading to more successful operations in public sector sports organizations.

Keywords: *Job satisfaction, Intent to leave, Intent to change job, Sports organizations, High performance sports coach*

1. INTRODUCTION

Every working person desires job satisfaction, but the decreasing number of employees in sports organizations each year presents a problem for promoting physical activity. Research has shown that job stress positively affects the intention to leave work, job satisfaction negatively affects the intention to leave work, and emotional exhaustion positively affects the intention to leave work (Yo and Supartha, 2019). Individuals suffering from burnout may exhibit a decline in work quality (Kumar, 2015) and experience depression symptoms more frequently (Oreskovich et al., 2015). In modern society, there is increasing interest in retaining employees, and good working conditions are essential for employee well-being.

The popularity of research on the intention to change jobs and job satisfaction has practical significance, as knowledge of these variables can help predict job turnover. Moreover, job satisfaction is related to lower employee turnover (Rudolph et al., 2021) and better work

* *This paper is presented at „19th Students symposium on strategic management“*

quality (Stefanovska-Petkovska et al., 2019), which is particularly important for sports coaches in training athletes to achieve high performance. However, there is a lack of research on the psychological and behavioral states of sports organization employees, highlighting the need for further study (Cho and Lee, 2022).

2. LITERATURE REVIEW

2.1. Concept of job satisfaction

Due to the popularity of the field of organizational psychology among employees and organizations (Spector, 1997), various scholars and practitioners provide their definitions of what job satisfaction is. However, the two most commonly encountered definitions describe job satisfaction as a pleasant or positive emotional state that arises from evaluating one's job or work experience (Jex, 2002; Setyaningsih, Widaningsih, & Widodo, 2020) and as whether people like (satisfaction) or dislike (dissatisfaction) their job (Spector, 1997).

In general, most definitions encompass emotional feelings towards one's work, including their job or their attitudes towards specific aspects of it, such as colleagues, salary, or working conditions (Lu, While, & Barriball, 2005). Moreover, the level of job satisfaction can be determined by how much job outcomes meet or exceed expectations. However, job satisfaction depends not only on how much employees enjoy their work. Taber and Alliger (1995), who studied employees of the American Institute of Education, assessed how much they enjoyed individual tasks while performing their duties. Their scores were moderately correlated with satisfaction with the job itself and weakly associated with overall job satisfaction. Taber and Alliger (1995) also found that other factors (such as concentration levels required for work, level of supervision, and task importance) did not affect job satisfaction. This study indicates that improving one's sense of well-being while performing work tasks increases overall job satisfaction. However, the weak relationship suggests that other factors besides pleasure contribute to how employees feel satisfied at work.

According to Jex (2002), job satisfaction consists of three components: a mood component, a cognitive component, and a behavioral component. While the emotional component reflects the feelings experienced at work, the cognitive aspect of job satisfaction reflects the employee's beliefs about their work or work situation - the employee may think that their job is interesting, stimulating, boring, or demanding. Often, these two aspects are related. The behavioral component is an indicator of work-related behavioral intentions, such as arriving at work on time, working hard, and so on.

2.2. Job satisfaction in the field of sports coaching

Service-oriented professions, such as trainers, teachers, doctors, and nurses, all share the common goal of providing a positive tangible or intangible impact to their clients. Despite role differences, all service-oriented professions face similar challenges related to the nature of their professional environment (e.g., a large number of clients, a fast-paced environment, and limited personal time). The goals of personal trainers (PT), athletic conditioning trainers (ACT), and HPSC are to provide clients or athletes with guidance and knowledge on how to create and maintain a healthy lifestyle, improve their quality of life, and enhance their fitness. To adapt to each athlete, a sports specialist must be able to create and evaluate programs, monitor a client's progress, and periodically provide reports to the athlete, client, or supervisor. However, in the coaching profession, various skills are needed, such as counseling, emotional support, mentoring, teaching, selling, marketing, group dynamics management, as well as legal knowledge and contract mastery (Chiu, Lee, & Lin, 2010). Sports coaches are required to take care of not only athletes but also their environment, auxiliary staff, and funding agencies, and there is a constant pressure to show results in competitions (Cho & Lee, 2022). Moreover, practitioners must continuously follow the scientific literature to improve and update their knowledge and apply it in practice, maximizing the benefit to the client. Therefore, the job duties of PT, ACT, and HPSC are unique compared to other healthcare professions, especially in the medical field (e.g., nurses and doctors).

Although starting a career based on helping individuals can provide a sense of reward, the significant physical and psychological needs associated with service sector professions can lead to burnout and a desire to change jobs (Adriaenssens, De Gucht, & Maes, 2015; Oglesby, Gallucci, & Wynveen, 2020). Burnout can be described as a multifactorial negative psychological response to chronic work-related stressors (Schaufeli, Maslach, & Marek, 2017). In terms of career fields such as fitness professionals, work-related situations (e.g., decreased client attendance), and among HPSC, reduced athlete performance and number of children, may be perceived as stressful when there is an importance to maintain work in an unstable economic environment (Gucciardi, Hanton, Gordon, Mallett, & Temby, 2015). Thus, a negative psychological response is often characterized by a decreased sense of achievement, depersonalization from the client or team, and overall detachment from work (Schaufeli, Maslach, & Marek, 2017).

3. METHODOLOGY AND ORGANIZATION

Participants. The study involved high-performance sport coaches (HPSC) from the five largest budgetary sports organizations in Lithuania. The sample was obtained through a quantitative study using a convenient non-probability sampling method. Only those employees (coaches) who agreed to participate in the survey and filled out an anonymous electronic questionnaire in their free time were surveyed. The results obtained apply only to the respondents who participated in the study and not to the entire population, as the representative sample is smaller than that determined based on data from the Lithuanian Sports Centre for 2021. The Paniotto formula was used: $n=1/(\Delta 2+1/N)$.

N - size of the general population;
n - size of the representative sample;
Δ - margin of error of the sample.

With a 5% margin of error and 95% confidence level, it was determined that a representative sample of 334 employees was required to obtain statistically significant results. $n=1/(0.05^2+1/2029) = 334$ The survey reached 169 coaches, of which 87 fully and properly completed the questionnaire.

Table 1: Characteristics of the participants.

		N	Percent
Gender	Male	34	39.1%
	Female	53	60.9%
Age	20-30 Years	17	19.5%
	31-40 Years	26	29.9%
	41-50 Years	17	19.5%
	50 + Years	27	31.0%
City	Vilnius	13	14.9%
	Kaunas	24	27.6%
	Klaipėda	24	27.6%
	Šiauliai	16	18.4%
	Panevėžys	10	11.5%

The research methods were applied in the study. A questionnaire survey was used in the study, and the level of job satisfaction was assessed using the short version of the Minnesota Job Satisfaction Questionnaire. It consisted of a 5-point Likert-type scale with 20 items. The evaluation and interpretation - the sum of all the answers to the questions measures the overall job satisfaction. All twenty statements allowed measuring the overall level of employee satisfaction with work. It was divided into three levels of job satisfaction based on the calculated sum of all the marked points on the scale:

1. Up to 25 points - low job satisfaction level;
2. 26-74 points - average job satisfaction level;
3. 75 or more - high job satisfaction level.

Based on Danaci and Koç (2020), internal job satisfaction was assessed based on twelve statements from the Minnesota questionnaire (1, 2, 3, 4, 7, 8, 9, 10, 11, 15, 16, and 20). Meanwhile, external job satisfaction was assessed based on the other eight statements (5, 6, 12, 13, 14, 17, 18, and 19). According to Pearson and Seiler (1983), Likert scale scores below 3.50 are considered more on the “dissatisfied” side, while scores above 3.50 are considered more on the “satisfied” side. In this study, the Cronbach's alpha coefficient of the questionnaire was 0.937. The intention to change jobs was determined by answering the following questions:

> Are you planning to change your profession at the moment?
> Do you plan to leave the sports organization where you currently work?
> Answer options were (1 - no; 2 - sometimes I think about it; 3 - yes).

Demographic data, such as gender, age group, and the city where they work, were also collected in the questionnaire (Table 1).
Research procedure. After obtaining the permission of the Research Ethics Committee of Lithuanian Sports University (permit No. 30012) to conduct a scientific study, an electronic version of the questionnaire was sent to the directors of sports education centers of Vilnius, Kaunas, Klaipeda, Šiauliai, and Panevėžys municipalities, with a request to share the questionnaire with high-performance sports coaches. The survey was conducted from December 2022 to March 2023 using the apklausa.lt website. The data was collected and analyzed statistically.
Statistical analysis of research results. The data collected during the study was analyzed using the statistical software program SPSS 28.0. The results were presented in graphs and tables indicating percentages or means. Mann-Whitney U and Kruskal-Wallis tests were used to compare two groups. One-way analysis of variance (ANOVA) was used to compare means of several independent samples. Spearman's correlation coefficient was used to determine the relationship between job satisfaction and the intention to change jobs. Differences between features were considered statistically significant when the p-value was less than 0.05.

4. RESULTS

The results are shown in Table 2. As can be seen, both the overall job satisfaction and internal satisfaction ratings exceed the 3.50 threshold, indicating that HPSC employees are satisfied with internal satisfaction factors and overall, with their work. The average scores indicate the employees' average job satisfaction. The average rating for external satisfaction is lower than 3.50, indicating HPSC dissatisfaction with external factors.

Table 2: Average value of job satisfaction in HPSC

	Overall satisfaction	Inner satisfaction	External satisfaction
Scoring Averages (±SD)	74.84 (± 13.93)	47.91 (± 6.82)	26.93 (± 7.91)
Average of the Likert scale values (±SD)	3.74 (± 0.70)	3.99 (± 1.04)	3.36 (± 0.57)

Figure 1 presents the results indicating that the overall satisfaction level does not significantly differ between genders ($p > 0.05$). The level of job satisfaction among males was found to be moderate (74.03 ± 13.4), while among females it was high (75.36 ± 14.4).

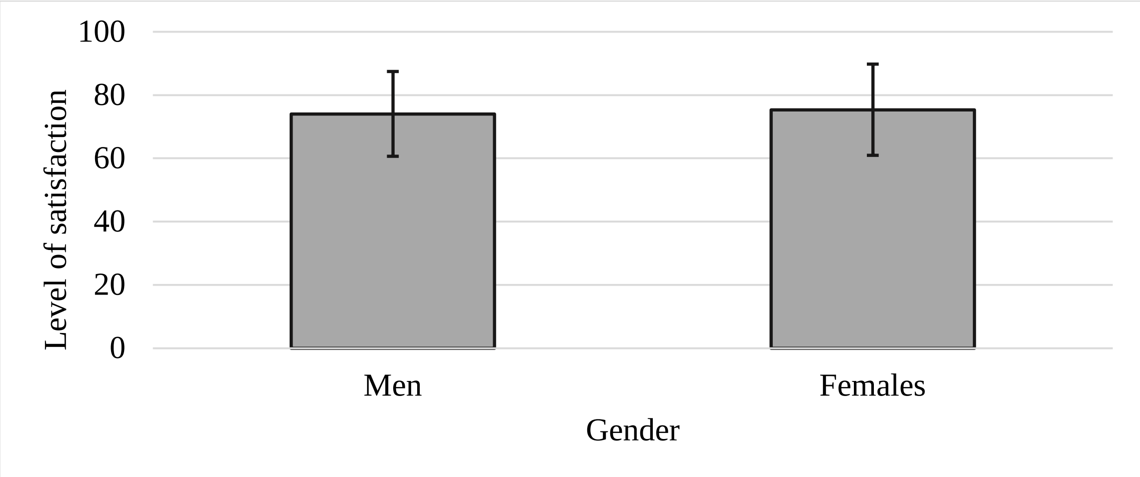

Figure 1. HPSC overall distribution of employee job satisfaction levels by gender ($\bar{x}$ ± SD)

Results presented in Figure 2 indicate that the overall satisfaction level does not significantly differ between different age groups ($p > 0.05$). The level of job satisfaction was found to be high among those aged 20-30 (79.18 ± 15.076), medium among those aged 31-40 (73.58 ± 11.168), high among those aged 41-50 (76.59 ± 16.707), and medium among those aged 50 and above (72.22 ± 13.687).

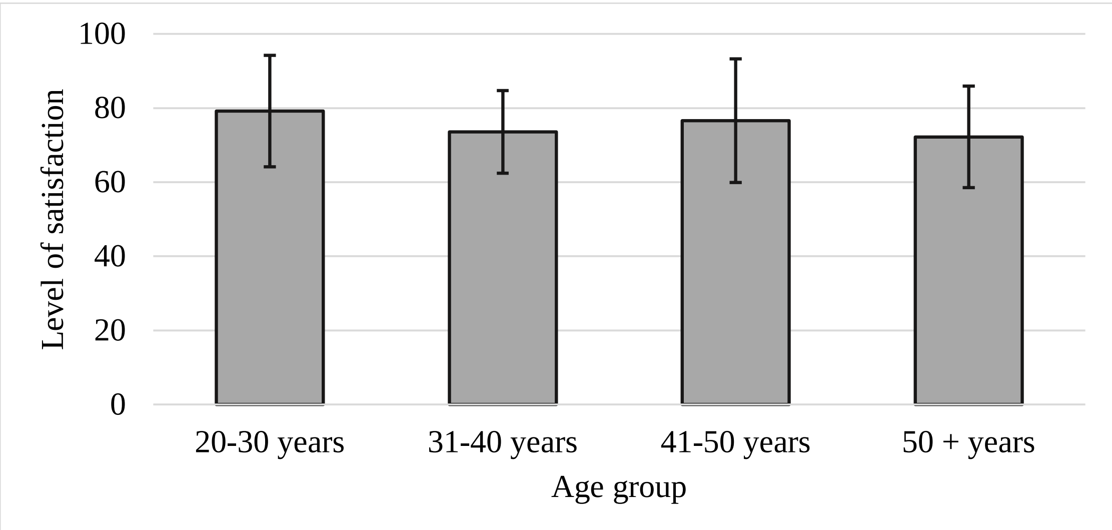

Figure 2. The distribution of job satisfaction levels among different age groups of HPSC ($\bar{x}$ ± SD)

Results presented in Figure 3 indicate that the overall satisfaction level of coaches in different cities significantly differs ($p < 0.001$). The lowest overall satisfaction level was found among coaches in Vilnius, although it remains medium (60.77 ± 9.427). The highest overall satisfaction level was found among coaches in Šiauliai – high (83.25 ± 11.556). The overall satisfaction level of coaches in Kaunas is medium (73.00 ± 14.099), in Klaipėda it is high (77.58 ± 11.462), and in Panevėžys it is high (77.50 ± 14.864).

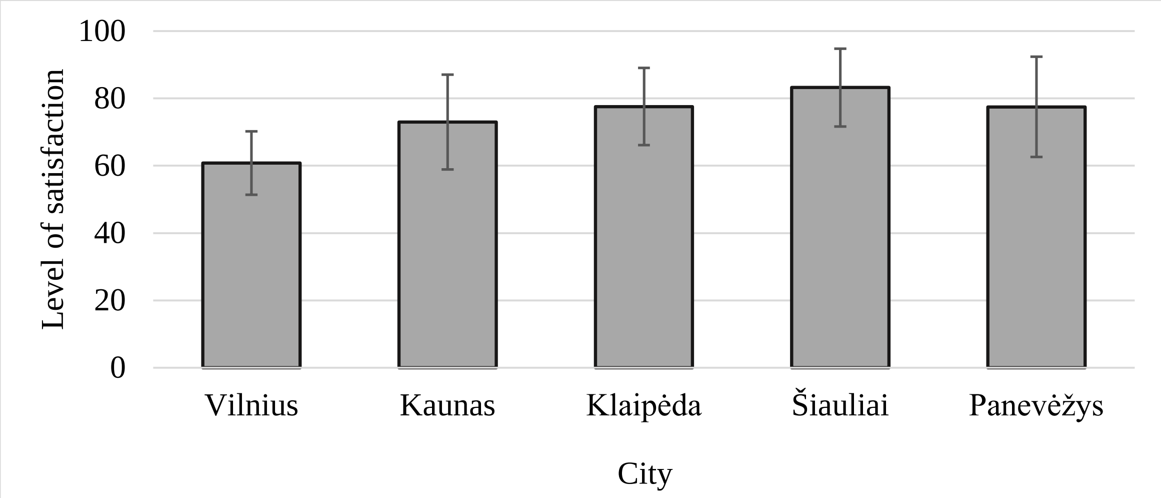

Figure 3. The distribution of job satisfaction levels among different cities of HPSC ($\bar{x}$ ± SD)

Data presented in Figure 4 shows the intentions of HPSC to change their profession and their satisfaction level. The majority of HPSC do not intend to and do not think about changing their professional activity. The image shows a gradual decrease in job satisfaction level from those who do not intend to change to those who do. The presented data shows that the overall satisfaction level significantly differs ($p < 0.001$) between those who do not intend to change their profession (80.29 ± 12.26), those who sometimes think about it (64.29 ± 8.32), and those who intend to change their profession (57.75 ± 16.215).

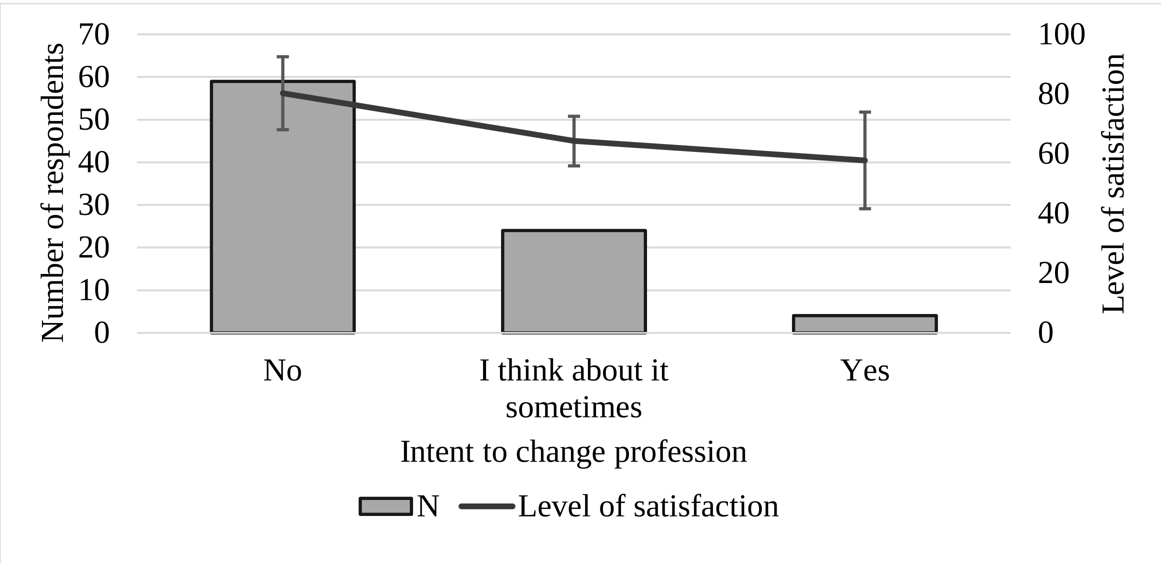

Figure 4. The intention to change profession (N) and job satisfaction level of HPSC ($\bar{x}$ ± SD)

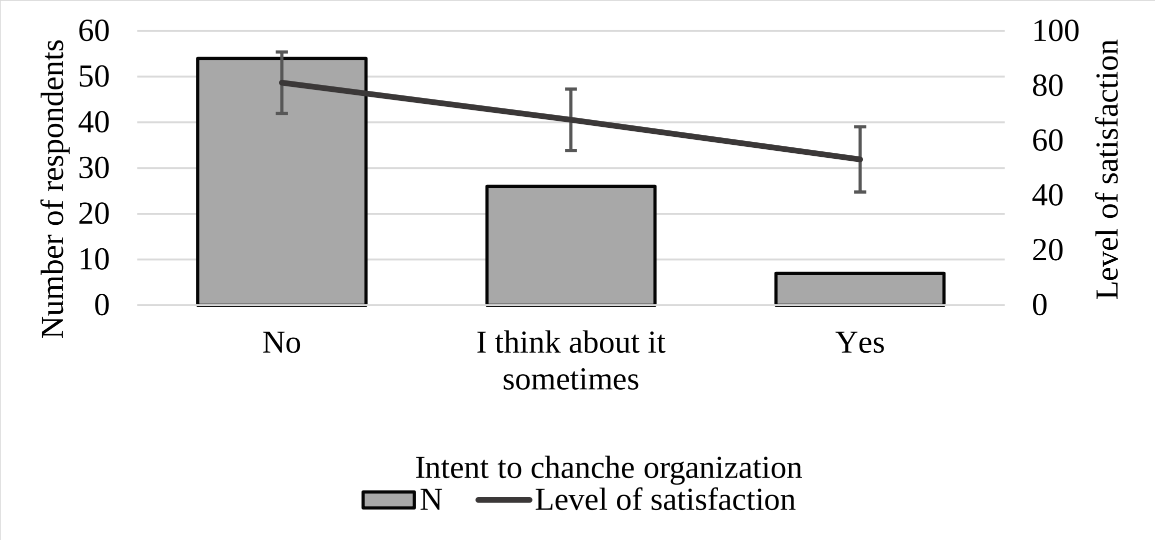

Figure 5. The intention to change organization (N) and job satisfaction level of HPSC ($\bar{x} \pm SD$)

Data presented in Figure 5 shows the intentions of HPSC to change their organization and their satisfaction level. The majority of HPSC do not intend to and do not think about changing their organization. The image shows a gradual decrease in job satisfaction level from those who do not intend to change to those who do. The presented data shows that the overall satisfaction level significantly differs ($p < 0.001$) between those who do not intend to change their organization (81.13 ± 11.186), those who sometimes think about it (67.62 ± 11.186), and those who intend to change their organization (53.14 ± 11.838).

Table 3: The relationship between overall, intrinsic, and extrinsic job satisfaction and the intention to change profession and organization of HPSC

Intention to change job	Overall job satisfaction	Internal job satisfaction	External job satisfaction
Intention to change profession	$r = -.599^{**}$ $p <.001$	$r = -.481^{**}$ $p <.001$	$r = -.614^{**}$ $p <.001$
Intention to change organization	$r = -.615^{**}$ $p <0.001$	$r = -.465^{**}$ $p <0.001$	$r = -.656^{**}$ $p <0.001$

Data presented in Table 3 shows moderate negative correlations between overall job satisfaction, internal job satisfaction, external job satisfaction, and the intention to change profession and organization. This indicates that when the level of job satisfaction is lower, people are more likely to consider and intend to change their organization and profession. External job satisfaction had a stronger correlation with the intention to change profession.

Table 4: The distribution of sources of job dissatisfaction of HPSC

Variable	Darbo aspektas	Vidutinis vertinimas (±SN)
The way my boss handles his/her workers	extrinsic	3.34 (±3.34)
The way company policies are put into practice	extrinsic	3.22 (±1.24)
My pay and the amount of work I do	extrinsic	3.22 (±1.243)
The chances for advancement on this job	extrinsic	3.21 (±1.268)
The way my co-workers get along with each other	extrinsic	3.31 (±1.113)
The praise I get for doing a good job	extrinsic	3.32 (±1.289)
The chance to tell people what to do	intrinsic	3.48 (±0.833)

Data presented in Table 4 shows the sources of job dissatisfaction among HPSC, whose average evaluation was lower than 3.50. External factors are significantly more frequent than internal factors, of which there is only one – satisfaction with the opportunity to indicate to people what they should do.

5. DISCUSSION

The aim of this research was to establish the relationship between job satisfaction and intention to change job among coaches in public sector sports organizations. The hypothesis put forward was confirmed, as job satisfaction had a moderately negative correlation with the intention to leave, indicating that coaches who intend to change their work or profession are less satisfied with their job. These findings are consistent with the results of other studies conducted in Lithuania (Valickienė, Valickas & Sinkevič, 2007) and among sports coaches and teachers in the United States (Bravo et al., 2019; Madigan & Kim, 2021). However, Hann et al. (2011), who studied 1,174 family physicians over five years, found that although higher levels of job dissatisfaction were associated with an increased likelihood of leaving their job, higher job satisfaction did not prevent them from leaving. This raises the question of whether higher job satisfaction really impedes job change, thus requiring further longitudinal studies to establish this.
Examining job satisfaction among coaches is important in order to increase work productivity, as well as the level of sports training, and to maintain or improve athletes' performance (Washington & Reade, 2013). While differences were found between different age groups and genders in other studies conducted in Lithuania (Savickas, 2022; Šalnienė & Fominienė, 2021), this was not the case in this study. Andrade et al. (2019) also conducted a study to examine whether gender differences affect the level of employee job satisfaction, and found that the overall level of job satisfaction did not differ between men and women. Dumangöz (2021) examining job satisfaction among tennis coaches, found that age has a significant effect, which they attribute to the fact that older coaches have more experience and are recognized as coaches. However, the results of Savickas (2022) and Baykara & Orhan (2020) were opposite, with younger coaches reporting greater job satisfaction. Similarly, Baykara and Orhan (2020) did not find any differences between genders in their study. However, in this study, a significant difference was found only among coaches from different cities. Therefore, we cannot yet conclude that coaches' gender or age has a significant effect on job satisfaction.
The results of this study on job satisfaction among coaches are related to the results of other studies, which helps to highlight trends in job satisfaction and its relationship with the intention to change job among HPSC, which can later help identify major problems and ways to improve job quality. Analyzing the research data revealed that job satisfaction among HPSC varies between medium and high levels, which is consistent with Gujytė (2020) research on job satisfaction in Lithuania's sports sector.

6. CONCLUSIONS

Analysis of scientific literature shows that the majority of health and sports organization employees are satisfied with their work because they enjoy what they do. Research also indicates that autonomy, feedback, skill variety, task identity, and task significance are significantly related to job satisfaction. Scientific literature also demonstrates a significant relationship between job satisfaction and intention to change it.
It has been established that dissatisfaction among sports coaches in the study was determined by: the nature of leadership by the director, the practical implementation of the

organization's policies, the ratio of salary to workload, career opportunities provided, mutual understanding among colleagues, and the praise received for good work.

It has been found that the sports coaches who participated in the study were satisfied with internal satisfaction factors and generally satisfied with their work, but dissatisfied with external factors. There was no significant difference in job satisfaction between gender and age groups. A significant difference was found between job satisfaction of coaches from different cities.

It has been established that lower job satisfaction among sports coaches in the study leads to a greater intention to change the organization and profession. External job satisfaction level has a stronger relationship with intention to change profession than internal job satisfaction level.

ZADOVOLJSTVO POSLOM SPORTSKIH TRENERA VISOKIH PERFORMANSI I NAMERA O PROMENI POSLA U SPORTSKIM ORGANIZACIJAMA JAVNOG SEKTORA

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Izvod

Cilj. Utvrditi odnose između zadovoljstva poslom sportskih trenera visokih performansi i namere da promene svoju trenutnu poziciju i profesiju. Metode. 87 trenera visokih performani iz Litvanije je učestvovalo u upitniku. Zadovoljstvo učesnika je mereno kratkim formularom Minesotinog upitnika o zadovoljstvu poslom. Namera o promeni posla merila se sa dva pitanja: Da li nameravate da promenite profesiju? Da li nameravate da promenite svoju organizaciju? Rezultati. Studija je pokazala da su zaposleni imali visok nivo zadovoljstva poslom i unutrašnjeg zadovoljstva, ali su bili nezadovoljni spoljnim faktorima kao što su plata, beneficije i uslovi rada. Nisu nađene značajne razlike u zadovoljstvu poslom između polova ili starosnih grupa, ali su one bile značajne među trenerima u različitim gradovima. Zaposleni koji su nameravali da promene svoju profesiju ili organizaciju imali su niže nivoe ukupnog zadovoljstva poslom, internog zadovoljstva poslom i eksternog zadovoljstva poslom. Studija je takođe otkrila srednje negativne korelacije između ukupnog zadovoljstva poslom, internog zadovoljstva poslom, eksternog zadovoljstva poslom i namere da se promeni profesija i organizacija. Zaključci. Studija naglašava važnost rešavanja spoljnih faktora za poboljšanje zadovoljstva i zadržavanja zaposlenih. Fokusirajući se na oblasti kao što su plate, beneficije i uslovi rada, organizacije mogu povećati zadovoljstvo zaposlenih i smanjiti fluktuaciju, što na kraju dovodi do uspešnijeg poslovanja u sportskim organizacijama u javnom sektoru.

Ključne reči: *zadovoljstvo poslom, namera o odlasku, namera o promeni posla, sportske organizacije, sportski trener visokih performansi*

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SOCIAL ENTERPRISES CAN HELP THE WELL-BEING OF SOCIETY BY INCREASING IMMIGRANTS' STANDARD OF LIVING THROUGH EMPLOYMENT AND EDUCATION ABOUT NATIONAL AND INTERNATIONAL MARKETS*

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Abstract

Social enterprises can play an important role in increasing the quality of life and well-being of the environment and the country's development. This essay examines in what ways the Netherlands can immigrants to adapt to the new society, what steps to take, and what type of agencies and help to look for. This essay will discuss how immigrants who come to the Netherlands can seek help in order to adapt to a new environment, what kind of help is potentially offered to them, and how they can get that help. Namely, the essay will also cover topics such as defining social entrepreneurship, social enterprises, and the contribution of social enterprises to improving the development of the country and the economy. In the essay, it will be possible to see quantitative data on the frequency of migration in the world, the inequality in challenges between migrants who come from the countries of the European Union and those who do not come from the European Union. The essay will provide the benefits and disadvantages of migration, the most common reasons for migration, the challenges migrants face, and the Netherlands and in general. The essay will also show what are the advantages and disadvantages of migrating to the Netherlands, and where most people immigrate to the Netherlands from. In the end four different examples of social enterprises in the Netherlands that help immigrants in different ways will be presented.

Keywords: *Social enterprises, migrants, The Netherlands*

1. INTRODUCTION: SOCIAL ENTERPRISES

Social enterprises are business entities whose primary purpose is to help the environment and the well-being of society. Social enterprises tend to solve social problems as well as, to make equal all sensitive groups and provide them with a chance to be included in contributions to society. The main goal of social enterprises is to have a social impact rather than make a profit for owners or shareholders (Denny & Sheldon, 2013). Social enterprises are business entities that help socially sensitive and marginalized groups, one of them being migrants. Migration is a habitual, common phenomenon in today's world. The following essay will evaluate the reasons why people may choose to immigrate to the Netherlands, identify possible limitations and discuss how social enterprises can help the well-being of society on a global scale by aiding immigrants in job finding, consulting

* *This paper is presented at „19th Students symposium on strategic management“*

services and education about local and global markets. Initiatives taken by social enterprises ultimately motivate the workforce to more effectively contribute to society, and inadvertently raise global living standards. The trend of rapid globalization is one of the primary drivers and enablers of migration. Globalization makes it easier for people to connect and thus provides the opportunity for people to move to foreign environments. Today, the politics of the countries of the world are mostly outward-oriented and open to foreigners, which additionally eases migration in comparison to the middle of the last century.

2. MIGRATIONS

According to the Migration Policy Institute (MPI), "an immigrant is a person living in a country other than that of his or her birth" (Bolter, 2019). The MPI indicates that there are 258 million migrants in the world right now, which is 3.4% of the global population (Bolter, 2019; UN, n.d.). Female migrants constituted 48% of international migrants; there were an estimated 38 million migrant children; and three out of four international migrants were of working age, meaning between 20 and 64 years old (Global Migration Data Portal, n.d.; UN, n.d.). A high percentage of immigrants are from least-developed countries that are deemed highly disadvantaged in their development process for structural, historical and geographical reasons, which additionally increases their proneness to migration (UNCTAD, n.d.).

However, local underdevelopment is not the only driver of migration. People are emigrating for different reasons which are primarily dependent on an individual's country of origin. There is a possibility that people are immigrating to escape conflict zones (e.g., escaping war or financial crises of the state), to escape poverty, to gain better education, to find a job, to get better healthcare or for political reasons such as voting rights. An individual must not exclusively be considered relatively disadvantaged to global standards (e.g., as is the case with LDCs) to choose to immigrate; some immigrants make this choice out of personal preferences, or due to higher living standards in relation to their local communities. Human migrations have been present throughout human history since any ecological, demographic, cultural, religious, socio-political or economic problem arose, as people were forced to move from one place to another (Levitt & Jaworsky, 2007). Despite different reasons for emigrating, they all have the same goal: to raise their living standards.

2.1. Migrants' position in the Netherlands

The Netherlands remains a frequent country of choice for raising living standards due to its strong economy, freedom of speech, great work-life balance, tolerance for differences, geographic positioning and language characteristics. This is supported by the fact that in 2021, 252,528 persons immigrated to the Netherlands, which was 31,675 more than the figure for 2020. Net migration amounted to 107,198 persons; therefore, in 2021, more people migrated to the Netherlands than emigrated (Netherlands, 2022). According to the World Bank and the International Monetary Fund, the economy of the Netherlands was the 17th largest in the world in 2021 in terms of GDP. Stability, low unemployment and low inflation are advantageous for persons guided by career-related motives. The proximity of other developed countries such as Germany and Belgium also make the Netherlands attractive to migrants, and approximately 91% of Dutch people speak English.

Unfortunately, migration also constitutes a large number of adaptation issues. The most prominent challenges faced by migrants include language barriers, a lack of employment opportunities, discrimination, racism, marginalization, cultural differences, prejudices and finding affordable housing. Understanding the role and relationship between increasing cultural diversity and historically restrictive immigration laws is crucial for identifying possible obstacles and the importance of social enterprises in alleviating these inequalities. It is easy to conclude that people who move from one place to another inevitably face situations very different from those they are used to in their country of origin. Sometimes they have to speak a different language, adapt to different cultural identity and a number of different customs and traditions. These factors characterize migration as a risk with potentially difficult and complex processes. Unfortunately, some nationalities are more restricted by law than others, especially regarding employment; this further highlights the importance of social enterprises in easing immigration processes. Namely, according to the Central Bureau voor de Statistiek in 2020, labor was the most common motive for 35.040 immigrants from within the EU/EFTA. Immigrants from within the EU/EFTA had more benefits compared to non-EU citizens because, under EU legalization, all EU/EFTA citizens can start working in any other EU country without a work permit. Contrastingly, people who are not from the EU face a plethora of administrative issues to be able to start working. In addition to work permits, obtaining residence is difficult as it is first mandatory to obtain a temporary residence permit and live in the Netherlands for five years, after which there is a possibility to ask for permanent residency (Government of Netherlands, n.d.). Despite their origin and nationality immigrants face numerous problems in terms of administration, health insurance, housing, education and utilities. Due to the existence of language and cultural barriers, they are often unable to overcome problems on their own. In that case, they turn to agencies in charge of assistance. In the Netherlands, there are a large number of social companies, agencies and foundations that support migrants in their relocation. Those organizations can be profitable or non-profitable, but they all have the same goal, which is to solve social problems, increase social cohesion and create social value.

There are different types of help that an immigrant can get from social enterprises in the Netherlands. Primarily, the immigrant can contact a company that helps when going through the complicated administrative adjustment process, and there are other ways of help such as a direct job offer from certain social enterprises or help with understanding the legal framework and restrictions when doing business or setting up a company in the Netherlands in order to . encouragement of entrepreneurship.

3. EXAMPLES OF SOCIAL ENTERPRISES IN THE NETHERLANDS

The following section will analyze the role of two specific social enterprises that aid migrants in this process: I am expat and Expat Center Rotterdam. These companies specialize in providing information to immigrants regarding administrative and formal matters, housing, work, health insurance, education, careers, transportation and social life.

Rotterdam Expat Centre is a specialized, non-profit organization for international businesses and expats who are looking for services and information about working and living in Rotterdam. They are familiar with all requirements and procedures that come with wanting to settle in Rotterdam. They ease immigrants' arrival to Rotterdam by advising them on legal aspects such as taxes, opening a bank account, and other diverse aspects such as housing, healthcare, education and careers. Additionally, all services of Rotterdam Expat Centre are free (Rotterdam Expat Centre, n.d.).

IamExpatMedia is the leading English-language media platform for internationals in the Netherlands, Germany and Switzerland. It provides information, news, job listings, housing services, events and lifestyle advice. Addressing the needs and improving the lives of modern expats is their mission. The company is funded through its partners and also offers advertising for other companies on its platform. IamExpat has helped hundreds of companies from various industries to raise awareness and target potential customers for their products and services. Companies can advertise directly to their target group through advertisements for apartments, jobs, festivals and fairs, advertisements and banners or email marketing, all through the IamExpat platform (IamExpat, n.d.).

These companies help their clients with administration and required documents. Knowledge about what questions immigrants may have and what challenges they may face has enabled them to keep their clients informed and make the application process for any type of permit or registration much easier. The services they provide save time for clients and allow them to avoid exhausting formal procedures. Due to the lack of knowledge of foreign legal regulations, such services are important for immigrants in the process of moving and adaptation.

As mentioned above, there are also different types of services that individuals might search for. There are also possibilities to get job offer from social enterprise or get help for legal framework. Some of the most common problems that person can face in the Netherlands are finding a job and housing, which is where the role and aid of social enterprises come into place. Namely, immigrants may struggle with discrimination and it is not easy for them to find a job; social enterprises combine economic and social value creation to impact immigrants' employment status, and thus increase public value and help in resolving this issue (Karré, 2018). Social enterprises are businesses with special social objectives that serve their primary purpose, and one of their main objectives is to increase social cohesion. Increased social cohesion is enabled through the investment of social enterprises' profits into socially sensitive groups (Thompson & Scott, 2013). Besides helping immigrants, they aid marginalized groups with employment to further enhance cohesion. Marginalized groups include, but are not limited to: persons with disabilities, young people, women, the elderly, uneducated persons, refugees and the population living in rural areas.

Social enterprises tend to help socially sensitive groups in diverse ways. Two ways in which social enterprises can help immigrants are by listing a job offer or providing consulting services related to market adaptation upon starting a business. The following section will discuss two examples of social enterprises and projects helping immigrants and their adaptation to new environments. By helping immigrants, they increase the overall good for the entire community and strengthen their country's economy by creating new jobs.

The first social enterprise that helps immigrants which will be discussed is sMaak catering service. sMaak is a student-led social enterprise that exists to serve its primary purpose, to help immigrants integrate into Dutch society. According to their website, sMaak started spontaneously at a primary school in Schiedam, where mothers who migrated from the Middle East to the Netherlands in the hope of achieving a better life, cooked together for different school events (sMaak, 2022). The idea to help migrants coming to the Netherlands in this social enterprise is based on applications from immigrants who want to cook for certain events and thus join the social enterprise. Their main goal is to help immigrants to adapt to the way of doing business here, to help them get a job by employing them and thus enable them to adapt to life in the Netherlands more easily.

The Rotterdam Business Case also provides help to immigrants and immigrant entrepreneurs who are struggling due to a lack of knowledge of the market. Their main goal is different from the previous example because their focus is primarily on helping immigrants who want to start their businesses in the Netherlands and who are struggling because of differences between markets. The Rotterdam Business Case provides help in adapting to doing business here with the idea that retired entrepreneurs who know a certain market, as well as young students of applied sciences will be coaches and advisors to migrant entrepreneurs in helping them to do business or to start a business. One of the main goals is to better understand the market and introduce migrants to their market for the purpose of creating a stable economy. This project deems that the contribution to the stability of the economy is equally distributed to immigrants and domestic citizens. By assigning mentors who are already familiar with the market, immigrant entrepreneurs will more often venture into the risks of starting their own business and will get to know the advantages and disadvantages of the Dutch market more quickly, which will help them overcome challenges and differences at least at the business level.

4. CONCLUSION

Conclusively, several benefits and drawbacks of migration to the Netherlands may be emphasized. The Netherlands belongs to one of the most culturally diverse, richest countries in the world, where success can be achieved with a good knowledge of the English language, which is spoken by 90% of the population. However, limitations such as difficult conditions for obtaining papers, complicated and stressful administration and the oversaturated real estate market that makes it difficult to find housing must not be neglected. Despite differences in reasons for migration, all migrants share the common goal of increasing their living standards; this process is undoubtedly aided by social enterprises such as sMaak or The Rotterdam Business Case. Social enterprises are empathetic to the difficult circumstances and obstacles that migrants might face, and their ability to ease the process of employment and create opportunities upon arrival in the Netherlands is a noble characteristic. The complexity of the labor market and the housing market can also be combated with the assistance of social enterprises. Partnerships between social companies and employers or landlords benefit all three parties: the company, partners and clients. Therefore, supply and demand meet directly, and communication is effectively facilitated due to the mediating role of social enterprises. Helping migrants is thus extremely important to achieve harmony in society and increase the overall well-being of society, especially considering the constant rise in globalization and increased frequency of international exchanges. By helping migrants, countries are also able to learn about diverse cultures and create environments in which cultural diversity is more effectively welcomed.

SOCIJALNA PREDUZEĆA MOGU POMOĆI BLAGOSTANJU DRUŠTVA POVEĆANJEM ŽIVOTNOG STANDARDA IMIGRANTIMA ZAPOŠLJAVANJEM I OBRAZOVANJEM O NACIONALNOM I MEĐUNARODNOM TRŽIŠTU

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Izvod

Socijalna preduzeća mogu igrati važnu ulogu u povećanju kvaliteta života i blagostanja životne sredine i razvoja zemlje. Ovaj rad ispituje na koje načine Holandija može pomoći imigrantima da se prilagode novom društvu, koje korake da preduzmu i koje vrste agencija i pomoći da traže. Ovaj rad govori o tome kako imigranti koji dolaze u Holandiju mogu da potraže pomoć kako bi se prilagodili novoj sredini, kakva im se pomoć potencijalno nudi i kako tu pomoć mogu dobiti. Naime, rad će obuhvatiti i teme kao što su definisanje socijalnog preduzetništva, socijalnih preduzeća, doprinos socijalnih preduzeća unapređenju razvoja zemlje i privrede. U radu moguće je videti kvantitativne podatke o učestalosti migracija u svetu, nejednakosti u izazovima između migranata koji dolaze iz zemalja Evropske unije i onih koji ne dolaze iz Evropske unije. Ovaj rad će dati uvid u prednosti i nedostatke migracije, najčešće razloge za migraciju, izazove sa kojima se migranti suočavaju, Holandija i uopšte izazovi. Rad će takođe pokazati koje su prednosti i mane migracije u Holandiju i odakle se većina ljudi useljava u Holandiju. Na kraju će biti predstavljena četiri različita primera društvenih preduzeća u Holandiji koja pomažu imigrantima na različite načine.

Ključne reči: *socijalna preduzeća, migranti, Holandija*

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INFLUENTIAL FACTORS FOR HIGH RATINGS OF EDUCATIONAL APPS*

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Abstract

Mobile applications are an integral part of our lives. As mobile applications proliferate, so do the number of categories and their functionalities to meet different needs. Increasingly, people are turning to mobile apps to help them learn things. The chosen data set for the study contains data on downloads, reviews, and ratings of educational apps. Data was analyzed by using Microsoft Power BI tool, charts was created to better understand the popularity of the educational mobile applications. Analyzing the data and looking at ratings, scores and downloads of the mobile apps, it was found that language learning apps are more popular and have more reviews or better ratings than other types of educational apps. And, according to the theory, the choice of apps is determined by their appeal and rating, which is how users choose their mobile apps. A high rating indicates a high-quality mobile app.

Keywords: *learning tools, educational apps, e-learning, app ratings*

1. INTRODUCTION

These days, when technology has taken over the world and our daily lives, touchscreen mobile devices (eg, smartphones, tablets) have become ubiquitous for young children (Griffith et al., 2020), of course, such devices are used not only by children, but also by adults. As the popularity of smart devices continues to grow, the usage of mobile apps also sees a significant rise. In today's world, people rely on a multitude of apps for various purposes, such as ordering services, shopping, communication, and even learning. This rise in learning apps popularity can be attributed to the numerous features that make them attractive, including their portability, affordability, and ease of use. In this article, we will explore key features that determine high rating educational apps and whether app categories have an influence of app ratings.

1.1. App categories

There are two main operation systems for most portable and probably most used devices, such as tablets and smartphones. These two operation systems are Android and iOS. Both operation systems have their own app stores. Android operations system has Google Play, iOS has App Store. In Google Play app store, apps can have categories and tags that help search for and discover the most relevant apps (Google Play Console Help, 2023). According to Google Play Console Help, there are 33 categories in Google Play store. According to App Store information, they have less categories that have broader descriptions, but it’s possible for app publishers to add two categories for an app. At the

* *This paper is presented at „19th Students symposium on strategic management“*

moment they state that there 27 categories. A lot of people also have laptops that are easy to carry anywhere, and they can have one popular operation system that wasn't mentioned – Windows. However, phones are tablet are easier to pull out in any situation, anywhere.
Even though there are a lot of app categories, not all of them get the same kind of attention from users. According to Statista 3rd quarter of 2022 data on Google Play app categories, 5 most popular app categories are: games, education, business, tools and entertainment. Furthermore, app categories can be decomposed into sub-categories. Focusing on the Education category, education apps can have lots of features, but it is common to divide them by the principal tuition purpose those apps are standing for: language leaning apps, corporate learning management systems, remote tuition platforms, education mobile apps for kids, learning apps for disabled people, learning apps for adults, and test prep apps (Altamira, 2020).

1.2. App ratings and review

Nowadays there are millions of apps to choose from. The variety of them might be overwhelming. There is an app for everything and that can be viewed as a good thing, cause anyone with an access to a phone or a tablet can get help on basically anything, but it might be hard to choose an app and know which one is the best for certain needs and wants. App ratings and reviews come in handy when choosing an app. Apps with positive reviews have higher visibility and sales in the app store. Reviews help users choose which app to use and express their satisfaction or dissatisfaction through free text and star ratings (Maalej et al, 2015). User involvement, such as leaving ratings and reviews, is an important way to get feedback on software quality and identifying missing features (Maalej et al., 2015). The review might be more informative and can help developer notice bugs, but ratings can be more noticeable at first glance when looking at long lists of apps. Mahmood (2019) also mentions that before downloading an app, people usually prefer to download apps with high ratings, because that indicates that apps have higher quality.

1.3. Influential factors for apps ratings

There are numerous factors that could determine why an app got a certain rating from users. Mahmood (2019) did research on factors that identify the influence of various factors of apps on Google Play app ratings. According to his research the most influential variables that also have high impact on the ratings of the apps are number of reviews, genre, character amount in the name of the app, app size. According to Mahmood (2019) research, categories also had a high impact, but didn't make it to top 5 most influential factors for app ratings, but looking at the data he had, it seems like app genre is almost the same as category – all apps, besides games, have the same name for category and genre. There are only different genres for games category apps, for example, adventure, action, arcade. Keeping that in mind, it seems that the category of the app is important and makes quite an influence.

2. RESEARCH QUESTIONS AND METHODOLOGY

This study addresses these research questions:

- What key features determine high rating for educational apps?
- Do app categories have an influence on app ratings?

In order to carry out the research, we perform literature analysis along with data analysis with Power BI. Data for analysis was taken from kaggle.com. Data set was last updated in March 2023. Kaggle is the world's largest data science community that has huge amounts of various data. This dataset, that was analysed for this article, contains all the stats of all top Education/Ed-Tech apps in Google Play Store. Data set contained the following data:

Title – mobile application titles.
Installs – how many installations the app had.
Score – is average ratings from app users on Google Play store.
Ratings – how many ratings were left for an app from users.
Reviews – the amount of textual feedback for the app from users.
Size – mobile application size.
Android Version – mobile application android version.
Developer – the developer's name of the mobile application.
Content Rating – indicators whether mobile application has any content restrictions regarding users' age.
Contains Ads – indicator of whether the mobile application contains ads.
Released – mobile application release date.
Updated – data of the last mobile application update.
Version – mobile application version.

3. RESULTS AND DISCUSIONS

As mentioned above, a Microsoft Power BI tool was chosen to analyse the dataset and run the report on various data streams. The following section will briefly discuss the results that were obtained during data analysis.
Further analysis was focused of apps with most installations, Top 5 mobile application apps with most installations were chosen in Power BI. A line chart was chosen to represent the 5 most popular mobile applications, x-axis represents installation amount, and y-axis represents the educational mobile application name. Figure 1 has more than 5 educational mobile applications, because dataset had installation numbers in thousands so the last 7 applications have the same amount of installations.
The line chart shows that there are two mobile apps that have the same amount of installations. One mobile application is for personalised study app for Math, Science and etc. the second one is for language learning.
Other popular apps are also for learning maths, science, and languages, and there are two mobile apps, one for learning to code and the other for different courses. In general, it seems like educational applications do get a lot of attention, they have a lot if installations.
To further look whether analysed literature and data that was analysed match, it was decided to look at the amount of reviews that the applications have.
Reviews can be not only good, but also bad, unfortunately that data was not available and would be too complicated to analyse. However, the amount of reviews can give us some insight too.

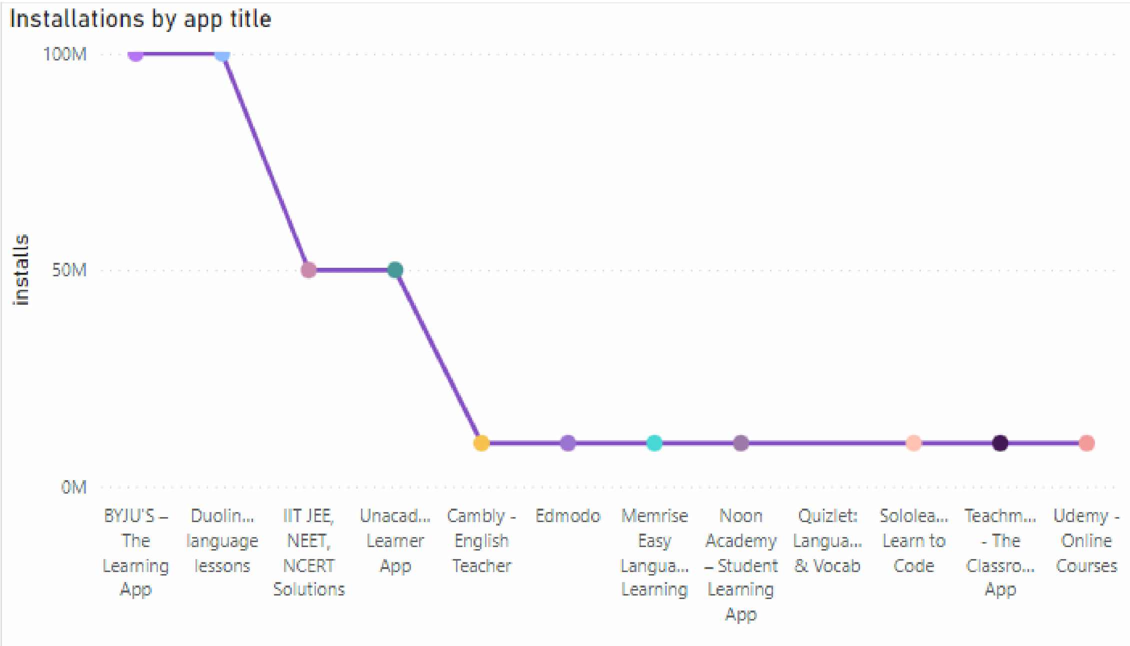

Figure 1. Line chart of mobile apps' installations

Figure 2 illustrates amount of reviews of most installed applications and it can be seen that some of the applications that had a lot of installations also had a lot of reviews (Figure 2) The app with the most reviews is the one for learning language. Not only does the Duolingo Language Lessons app have the highest number of reviews, but it also boasts the highest number of downloads. Conversely, an app for learning mathematics and other sciences has a significant number of downloads, yet relatively few reviews.

By analysing these data, an assumption of review nature can be made. In the analysed literature, it was mentioned that positive reviews make an app more visible and help users make a decision of whether it is worth installing them. In example of Duolingo app, that provides users possibility of learning languages, it can be guessed that most reviews are positive, cause not only that there are a lot of them, but the installations number supports a guess of positive feedback from the users.

Language learning apps also have pretty simple names and a short description next to the name, for example, language learning, language lessons, languages and vocab. Short, clear name and a few words about app purpose might have an influence on people installing them, choosing them from all the other and in some time maybe leaving a rating or a review. The length of the name is also mentioned in analysed literature as a factor on high ratings of apps.

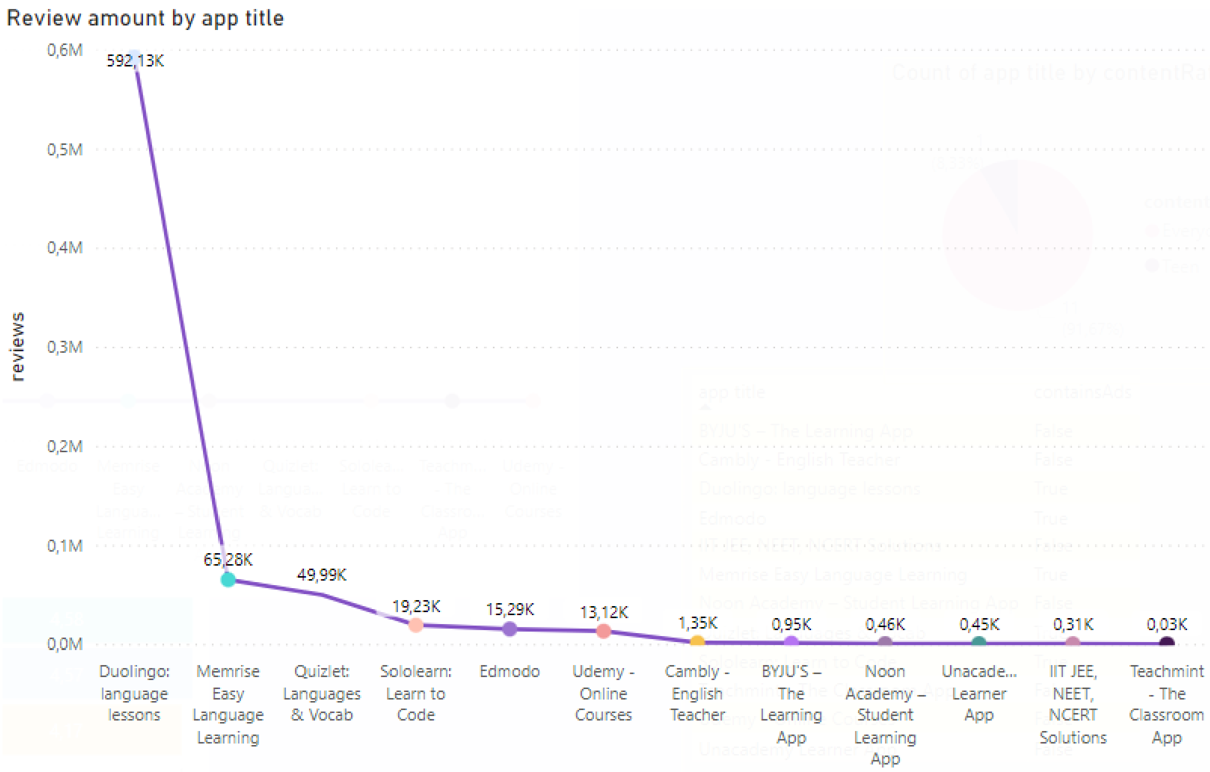

Figure 2. Line chart of mobile apps' reviews

Figure 3 illustrates ratings of most installed educational applications. The chart shows that the top three mobile apps with the highest ratings are for languages learning. Ratings are also very important, they are displayed close to the name of an app in Google Play, so people can easily assess whether an app gave good experience to other users and might help with distinction among other app.

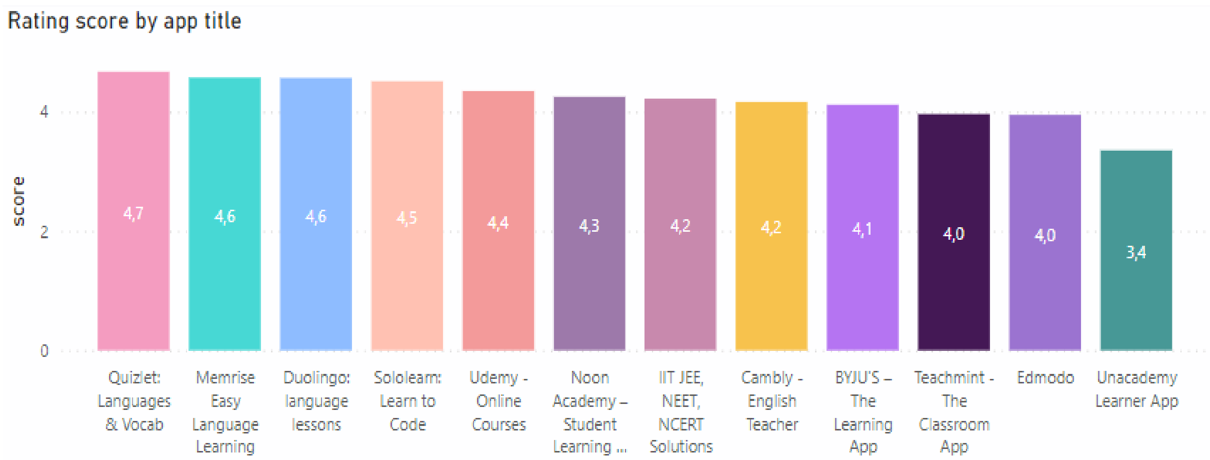

Figure 3. Stacked column house chart of the mobile apps' ratings by score

Figure 4 ratings of most installed language learning applications. Language learning applications also were among most installed and best rated among educational applications.

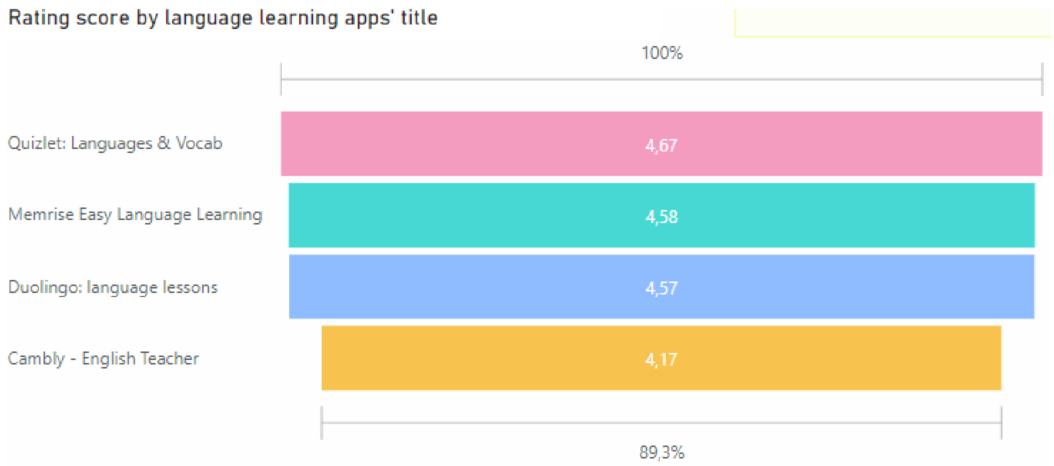

Figure 4. Funnel chart of the language learning apps

It's hard to make an assessment whether specific field learning had an impact on high installations number and also high ratings for language learning apps. Different genres for learning apps, as for games, would help to gain some insight whether some subjects of learning are more popular and favoured by users.

4. CONCLUSION

In conclusion, the use of educational mobile application is becoming popular due to their portability, affordability, and ease of use. While there are many different categories of educational apps, some are more popular than others. Based on literature analysis, app ratings, and reviews are important for users to make informed choices about which app to use, with positive reviews and ratings indicating higher quality. Our analysed data confirms that with educational apps.

According to the literature analysis, genre has a higher impact on app rating than category, but category and genre is the same as category with exception to games. Genre for educational apps would help to determine whether certain genres of educational apps are more popular and in demand, cause based on analysed data, it seems like language learning apps have higher score from users and more downloads than other educational apps. Also, an analysis of the data shows that several major language learning apps are leading everywhere, both in terms of downloads rating and views. Further research could analyse what other factors influences the choice of apps: appearance, functionality or maybe the realise date.

ACKNOWLEDGEMENT

The research is performed within the framework of the course '*Internet marketing and technologies*', supervised by prof. dr. Dalia Kriksciuniene (Vilnius University, ORCID:0000-0002-0730-3763).

UTICAJNI FAKTORI ZA VISOKE OCENE OBRAZOVNIH APLIKACIJA

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Izvod

Mobilne aplikacije su sastavni deo naših života. Kako se mobilne aplikacije šire, tako se povećava i broj kategorija i njihovih funkcionalnosti koje zadovoljavaju različite vrste potreba. Ljudi se sve više okreću mobilnim aplikacijama kao vid pomoći u učenju. Izabrani skup podataka za studiju sadrži podatke o preuzimanjima, recenzijama i ocenama obrazovnih aplikacija. Podaci su analizirani korišćenjem Microsoft Pover BI alata, grafikoni su napravljeni kako bi se bolje razumela popularnost obrazovnih mobilnih aplikacija. Analizirajući podatke i gledajući ocene, rezultate i preuzimanja mobilnih aplikacija, otkriveno je da su aplikacije za učenje jezika popularnije i da imaju više recenzija ili bolje ocene od drugih vrsta obrazovnih aplikacija. Prema teoriji, korisnici biraju svoje mobilne aplikacije na osnovu nihovog izgleda i ocena. Visoka ocena ukazuje na visokokvalitetnu mobilnu aplikaciju.

Ključne reči: *alati za učenje, obrazovne aplikacije, e-učenje, ocene aplikacija*

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COMPARATIVE ANALYSIS OF BALKAN COUNTRIES' GLOBAL HEALTH SECURITY (GHS) INDEX IN 2019 AND 2021*

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Abstract

International efforts to mitigate biological threats to international health were established in 2005 through the International Health Regulations (IHR), which require states to prevent, detect and respond to emerging infectious diseases. In accordance with this, The Global Health Security (GHS) index was created, which is a very significant indicator of the readiness of 195 countries around the world to respond to the challenges of global epidemics. In this paper, a sample of ten Balkan countries was examined to see if and what impact the COVID-19 epidemic had on the observed countries. Data from 2019 and 2021 were used. Based on the first objective of the research, a comparative analysis of the GHS index and six categories for ten Balkan countries was performed. It was determined that there is no trend of growth or decline in the performance of all countries, neither by category nor when it comes to the overall GHS score. The second objective of the research was to determine whether the epidemic of COVID-19 had an impact on the performance of readiness to respond to the challenges of global health crises, and for this purpose the T-test for dependent samples was used. It was established that there was no decline in performance.

Keywords: *Balkan countries, COVID-19, GHS index*

1. INTRODUCTION

Since the beginning of mankind, society has faced many threats and sources of risk. One of such challenges are epidemics, which in recent years have received many "open doors" due to the internationalization of many processes for the sake of the international products, services and information exchange and transport.

In order to prevent the devastating consequences of epidemics for the population, after the period of Ebola epidemic during 2014-2016, already in 2015 a composite index was created, which has been applied since 2019 (Razavi et al., 2020; Ji, et al., 2021). Namely, in 2019, the Nuclear Threat Initiative, the Johns Hopkins University Center for Health Security and The Economist Intelligence Unit (EIU) published preliminary results for the Global Health Security Index – GHS index (Cameron et al., 2019; Ravi et al., 2020; Alhassan et al., 2023).

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* *This paper is presented at „19th Students symposium on strategic management"*

This metric is intended to assess the current state and improve the ability of countries to deal with outbreaks of infectious diseases that could cause serious global damage (Kandel et al., 2020; Bell & Nuzzo, 2021) and as such, these infectious diseases represent a major risk at the international level. The GHS index provides guidelines for prevention, detection and response in international health services. The first publication on this index was published in October 2019.

The latest global epidemic is the COVID-19 virus. This infectious disease of the coronavirus variant has spread rapidly to all continents, confronting countries around the world with numerous challenges and unpreparedness for an adequate response (Lal et al., 2021). After the World Health Organization (WHO) declared the COVID-19 pandemic in March 2020, the virus has infected over 600000000 people and claimed more than 60000000 lives worldwide by 2022 (Alhassan et al., 2023). According to a certain group of authors, this pandemic highlighted the weaknesses of the health systems of countries around the world (Elnaiem et al., 2023).

Based on the literature review, which is presented in more detail in the second section of this paper, it was observed that the largest number of papers deals with the research of cause-effect relationships of the GHS index and other variables on a sample of high ranked countries on the GHS ranking list. Researchers pay less attention to countries that are not highly ranked, or that are not members of the European Union (EU). That's why the attention in this paper is focused on another group of countries that are geographically concentrated in the Western Balkans.

This paper has two main goals. The first goal is to present a comparative analysis of the GHS score of ten Balkan countries in 2019 and 2021 and the second goal is to examine whether in two consecutive reports there have been changes in the willingness of the countries to respond to the challenges and risks brought by global epidemic.

2. LITERATURE REVIEW

By reviewing the literature (Haider et al., 2020; Stribling et al., 2020; Alhassan et al., 2023) it can be seen that the research question is very often asked: Is the GHS index an adequate and representative measure of the readiness of countries around the world to respond to the challenges of epidemics? Namely, numerous studies point to the so-called the phenomenon of the COVID-19 mortality paradox.

Alhassan et al. (2023) investigated the reason why countries, in addition to high GHS index scores, also had a large number of infected with the COVID-19 virus and recorded a high mortality rate. As ta reason for the inverse correlation found between these two variables, the authors higlight insufficient compliance as well as insufficient political and internal coordination necessary for a quick response.

The research conducted by Haider et al. (2020) shows that the GHS index is not a representative indicator of the detection of cases infected with the infection of COVID-19. This study emphasized the dynamic growth in the number of patients as the reason for this, as well as the fact that the 2019 report included data related to the pre-COVID period. Mahajan (2021) also states that the index is insufficiently comprehensive in terms of the characteristics of society such as social understandings, education and understanding of the importance of health.

Stribling et al. (2020) investigated the aforementioned mortality paradox in a sample of 36 high-ranking countries according to the value of the GHS index. In this study it was found that the mortality rate was not associated with a high value of the index in the way it was expected.

In one study, the relationship between the number of people tested for the COVID-19 virus and the state's health capacity was examined. A positive, statistically significant correlation was established between these two variables. In addition to this, the conclusion states that each country has its own gaps and shortcomings when it comes to health security (Maraghi et al., 2020). Similar research was conducted by Boyd et al. (2020), and the conclusion was that investments in health systems have a positive correlation with improving the readiness of countries to respond to the challenges and risks of global pandemics. Also, the authors suggest that future research should investigate the influence of education, health beliefs and the level of well-being on the movement of the GHS index.

Leichtweis et al. (2021) investigated the relationship between recorded cases of infection with the COVID-19 virus and local temperature. It was found that a higher solar radiation index was also associated with a lower degree of spread of the virus. The variable with the greatest explanatory response in the control of COVID-19 was the GHS index, since the countries with the lowest values of this indicator also showed a greater influence of climate variables on the transmissibility of the COVID-19 virus.

Živković and Panić (2021) proposed the inclusion of new variables in the calculation of the GHS index and obtained a confirmed statistically significant new model with a coefficient of determination equal to one.

A review of the literature shows that the GHS index has certain limitations (Ji et al., 2021; Khalifa et al., 2021). Namely, research by a group of authors confirmed the hypothesis that some countries had a higher GHS score, and are struggling more difficult against the COVID-19 epidemic, which indicates that the GHS score of those countries is overestimated, while on the other hand there are countries that are underestimated (Ji et al., 2021). The positive side of this index is that it represents a comprehensive international metric.

The overall conclusion of a number of studies indicates that countries are insufficiently prepared to respond to epidemics (Boyd et al., 2020; Lal et al., 2021; Alhassan et al., 2023).

However, it can be seen that a small number of papers deal with Western Balkan countries and their comparative analysis when it comes to the GHS index. For that reason. it seems that this approach may be worthy of attention.

3. METHODOLOGY

This segment describes the process of data collection as well as the methodology of the GHS index. In order to achieve the predetermined goals of the research, comparative and T-test analysis for dependent samples were applied.

3.1. GHS index methodology

The GHS index provides a broad picture of global health and health security, highlighting where it can be improved by taking into account differences between countries, such as income and population (Razavi et al., 2020). This index is based on existing knowledge and understanding of individual countries' readiness to prevent, detect and respond to infectious disease threats. Data on this index were first published in October 2019 for 195 countries. The GHS Index 2021 is also based on a survey of 195 countries from August 2020 to June 2021. Data were collected through qualitative and quantitative approaches based on publicly available information at the country level (Boyd et al., 2020; Alhassan et al., 2023).

Data on the values of the GHS index for all countries, as well as on the values of groups of indicators and sub-indicators used to calculate the overall GHS score are publicly available data. The six categories of indicators used to measure the GHS index are (Cameron et al., 2019; Ravi et al., 2020):

- Prevention - Preventing the emergence or release of pathogens, including those that pose an exceptional risk to public health in accordance with the internationally recognized definition of a public health emergency of international importance;
- Detection and reporting - Early detection and reporting of outbreaks of potential international significance, which may spread beyond national or regional borders;
- Rapid responses - Rapid response and mitigation of the spread of the epidemic;
- Health system - Sufficient and robust health system for treating the sick and protecting health workers;
- Compliance with international norms - Obligations to improve national capacities, finance plans to eliminate gaps and adhere to global norms; and
- Environmental risk - The general risk environment and vulnerability of the country to biological threats.

Figure 1 shows the structure of the GHS index in 2019 and 2021. As it can be seen, the authors of the GHS index are working on expanding the number of questions and sub-indicators used in order to improve the relevance and precision of the GHS index. Namely, the categories of indicators have remained the same, so the emphasis in this paper is on the six categories of indicators and the overall GHS index.

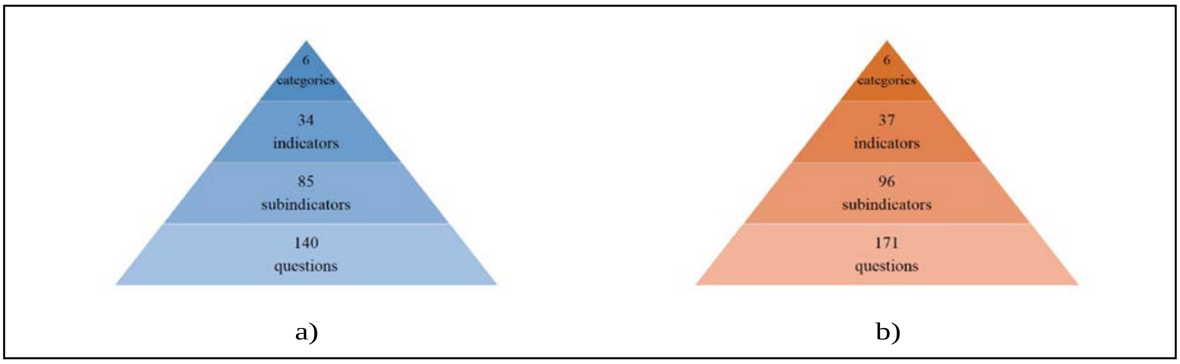

Figure 1. Comparative view of the structure of the GHS index in (a) 2019 and (b) 2021
Source: www.ghsindex.org

3.2. Data collection

Based on the available information on the GHS index of the Balkan countries in 2019 and 2021, an overview of the research data were collected. The data existing in the GHS index reports for 2019 and 2021, which are available on the official website of the GHS index (www.ghsindex.org), was used.

3.3. Comparative analysis

Comparative analysis represents the research of social phenomena using similarities and differences as research instruments (Vuković & Vuković, 2009). Comparative analysis is a methodological framework for better understanding the cause-and-effect relationships involved in the creation of events, characteristics, or relationships, usually by bringing together similar variations in a single variable.
Comparative analysis is used in many situations, such as (Pickvance, 2001):

- Research of theoretically postulated relationships in which social characteristics are the key type of independent variable;

- Examining whether the condition given or established for one company is effective or not; and
- Examining a small number of empirical cases holistically to understand the causal processes that lead to observed similarities and differences.

3.4. T-test for dependent samples

T-test for dependent samples (also known in the literature as T-test of paired samples or T-test of repeated measurements) is used when there is the same group of subjects, i.e. cases (people, companies, states etc). In the t-test for dependent samples, each subject is tested twice in relation to the same variable, ie. a common experiment includes before and after states (Manasijević, 2016). In this case, we are dealing with the GHS index in the pre-COVID period (2019) and the COVID period (2021).
To determine the size of the influence, the eta square indicator (η^2) is used, which is calculated according to the formula (1):

$$\eta^2 = \frac{t^2}{t^2+N-1} \quad (1)$$

The following interpretations are used to explain the eta squared indicator (Manasijević, 2016) 0.01 – small impact; 0.06 – moderate impact; and 0.14 – high impact.

4. RESULTS AND DISCUSSION

In this section of the paper, the results of descriptive statistics, comparative analysis and T-test results are presented.

4.1. Results of descriptive statistics

An overview of the descriptive statistics of the observed sample of ten Balkan countries is shown in Table 1.

Table 1: Descriptive statistics of the GHS score of the considered countries

Considered year	Minimum	Maximum	Average	Std. deviation
2019	35.90	68.20	49.35	12.99
2021	35.40	67.80	48.54	9.27

Based on the results shown in Table 1, it can be concluded that the average value of the GHS score in 2019 (49.35) was higher compared to 2021 (48.54), which indicates that, on average, countries had better performance in 2019.
Figure 2 shows a geographical map with the distribution of values from the lowest to the highest value of the GHS index.

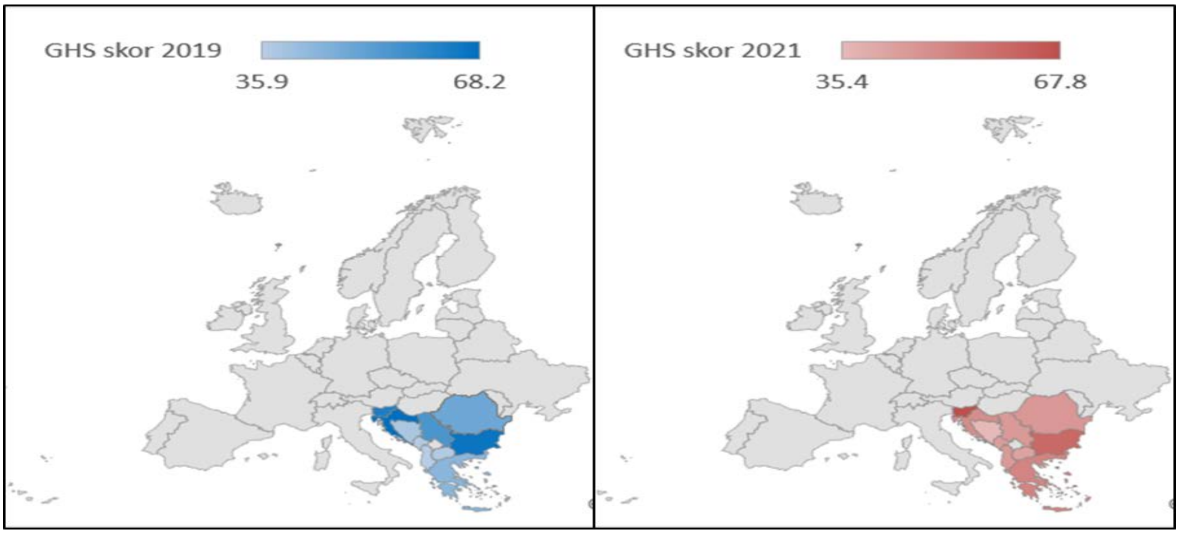

Figure 2. Geographical map with distributions of GHS index values
Source: author

In 2019, the country with the lowest GHS performance was Albania (35.90), while the best performance was achieved by Croatia (68.20). In 2021, the lowest performance of the GHS index was achieved by Bosnia and Herzegovina (35.40), and the best by Slovenia (67.80).

4.2. Comparative analysis

Figure 3 shows a comparative analysis of the overall GHS score of the Balkan countries in 2019 and 2021.

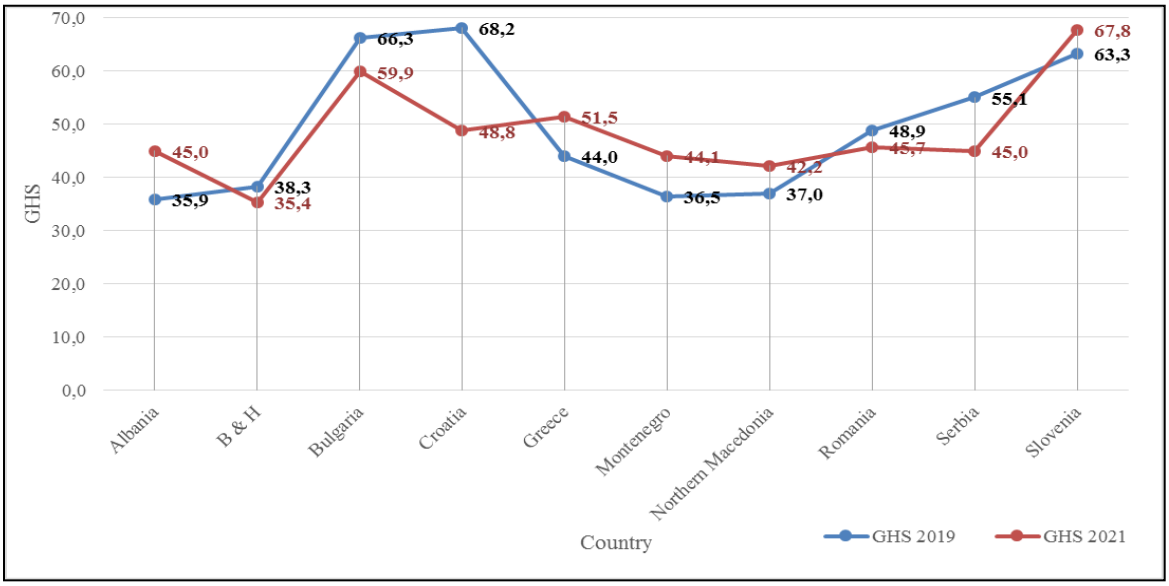

Figure 3. Comparative analysis of the GHS index of the Balkan countries
Source: author

Based on Figure 3, it can be said that there is no general conclusion that all considered countries that are the subject of interest in this paper have achieved improvement or decline in GHS performance. Some countries have improved their overall GHS performance (Albania, Greece, Montenegro, North Macedonia and Slovenia) while the remaining countries have declined (Bosnia and Herzegovina, Bulgaria, Croatia, Romania and Serbia).

4.3. T-test for dependent samples

In order to examine whether COVID-19 had an impact on the decrease or increase of the average GHS score of the Balkan countries, a t-test for dependent samples was used. The results of this test are shown in Table 2-3.

Table 2: Test of statistics

		Average value	Number of observed countries	Std. deviation	Std. error
Variable	GHS 2019	49.35	10	12.99	4.11
	GHS 2021	48.54	10	9.28	2.94

Table 3: T-test results for dependent samples

	Paired samples					t	df	Sig. (2-tailed)
		Std.		95% CI				
	Average	deviation	Std. error	Lower	Upper			
GHS 2019 – GHS 2021	0.81	9.283	2.94	-5.83	7.45	0.276	9	0.789

Based on the results shown in Table 3, it can be concluded that the calculated average value of the GHS score in 2019 (49.35) is slightly higher than the value of the GHS score in 2021 (48.54). On the other hand, based on the results shown in Table 4, it can be conclude that there is a difference in the GHS score for the two observed differences, but that this difference is not statistically significant (Sig = 0.789 > 0.05).
In accordance with this, there is no need to apply formula (1) to calculate the size of the influence of the COVID-19 virus on increasing the average value of the GHS score of the Balkan countries.
Regardless of the fact that the determined average increase in the value of the GHS index in 2021 compared to 2019 is not statistically significant, it is important that the average value is not lower, but on the contrary higher. This speaks in favor of the fact that the readiness of countries to respond to the challenges of global epidemics has not decreased despite the sharp surge of the COVID-19 virus.

5. CONCLUSION

Solutions are constantly evolving in order to resolve the different pandemics, but how countries respond to the pandemic ultimately depends on how resilient their health systems are. The GHS index with its structure can serve as an indicator on which areas of categories, indicators, sub-indicators and groups of issues that make up this index all countries should work on.
In this paper, two research objectives were set. Based on the first objective of the research, a comparative analysis of the GHS index and six categories for ten Balkan countries was performed. It was determined that there is no trend of growth or decline in the performance of all countries, neither by category nor when it comes to the overall GHS score. The second objective of the research was to determine whether the epidemic of COVID-19 had an impact on the performance of readiness to respond to the challenges of global health crises, and for this purpose the T-test for dependent samples was used. It was established

that there was no decline in performance, which is very important from a theoretical point of view.

The mean value of the GHS score in 2019 for the observed sample of countries in 2019 was 49.35, and in 2021 it was 48.54.

However, it is far below the average in both years. Bearing in mind that the highest score of the GHS score that can be achieved is 100.00, and on average in both considered years the mean value of the GHS index was below half of the maximum value (50.00), this indicates the fact that the Balkan countries really need to work on improving their readiness to respond to the risks caused by epidemics.

One of the best strategies for this is preventive planning of stocks of epidemiological equipment and materials for a certain time interval. In support of this, investments in health systems, better regulation and the existence of better legislation in certain countries that are in line with international norms and standards can be significantly beneficial (Boyd et al., 2020; Maraghi et al., 2020; Matijašević & Ditrih, 2021).

KOMPARATIVNA ANALIZA INDEKSA GLOBALNE ZDRAVSTVENE BEZBEDNOSTI (GHS) BALKANSKIH ZEMALJA U 2019. I 2021.

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Izvod

Međunarodni napori za ublažavanje bioloških pretnji međunarodnom zdravlju uspostavljeni su 2005. godine kroz Međunarodne zdravstvene propise (IHR), koji zahtevaju od država da spreče, otkriju i reaguju na nove zarazne bolesti. U skladu sa tim kreiran je Indeks globalne zdravstvene bezbednosti (GHS), koji je veoma značajan pokazatelj spremnosti 195 zemalja širom sveta da odgovore na izazove globalnih epidemija. U ovom radu je ispitan uzorak od deset balkanskih zemalja kako bi se videlo da li je i kakav uticaj epidemija COVID-19 imala na posmatrane zemlje. Korišćeni su podaci iz 2019. i 2021. godine. Na osnovu prvog cilja istraživanja urađena je komparativna analiza GHS indeksa i šest kategorija za deset balkanskih zemalja. Utvrđeno je da nema trenda rasta ili pada učinka svih zemalja, ni po kategorijama ni kada je u pitanju ukupni GHS skor. Drugi cilj istraživanja bio je da se utvrdi da li je epidemija COVID-19 uticala na performanse spremnosti da se odgovori na izazove globalnih zdravstvenih kriza, a u tu svrhu je korišćen T-test za zavisne uzorke. Utvrđeno je da nije došlo do pada performansi.

Ključne reči: *Balkanske zemlje, COVID-19, GHS indeks*

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Engineering management 9 (1) (2023) 1-49
The International Student Journal for Theory and Practice of Management Science

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