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Similar but different. The reglementation of administrative tutelage control in Romania

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Abstract

In order to meet the broad and diverse societal demands, public authorities and institutions exercise public power, but if the decision-making process is carried out with excess of discretion, significant irregularities may arise. Irregularities may also occur unintentionally, due to various human or procedural errors. Thus, the control function over the administration is among the most useful tools necessary for a well-functioning administration.

Administrative tutelage control represents a key mechanism for ensuring the legality of certain administrative acts, playing an active role in protecting the general interest. The absence of such control can potentially trigger two issues. Without the tutelage control (1) certain regulatory provisions issued by local public authorities enjoying administrative and financial autonomy under decentralisation may be contrary to the general interest and (2) infringements of civil service and civil servant legislation could go unnoticed and uncorrected.

The Romanian legislation establishes that the administrative tutelage control can be exercised both by the prefect and the National Agency of Civil Servants (NACS). The purpose of this paper is to highlight the similarities and differences between the tutelage control carried out by the two public institutions.

For this paper, we have chosen to use the comparative approach. Therefore, the research will be qualitative, based on documentary observation.

Keywords: administrative tutelage, control, National Agency of Civil Servants, prefect's institution, regulations.

The administrative tutelage control in Romania - a brief introduction

Once the communist regime collapsed in Romania, local authorities expressed a strong desire for self-governance that would enable them to choose how to satisfy their interests, as long as they did not interfere with national interests. In other words, they advocated for the application of the administrative decentralisation principle. Decentralisation is "the transfer of administrative and financial power from the central public administration to the local public administration, along with the financial resources needed to exercise it" (Government Emergency Ordinance no 57/2019). However, it is considered that in unitary states, administrative decentralisation can only exist if there is also administrative tutelage control (Mureșan, 2019).

In France, the administrative tutelage conferred by the central government to its representative in the territory, has influenced the way democratic countries have chosen to manage this mechanism (Dobritoiu, 2017). The Romanian administrative system is no exception to this. However, the French model has been adopted to a certain extent in Romania, being limited to the verification of the legality of some administrative acts, while in France the tutelage authorities have much wider material competences (Munteanu, 2006).

The purpose of the administrative tutelage is to ensure the conformity of certain acts and actions with the current legislation, so it is aimed at assessing lawfulness, not opportunity (Alexandru, Carausan & Bucur, 2005; Puie, 2016).

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A harsh but incipient version of the administrative tutelage was laid down in Law 95/1925 on administrative unification (published in 1925 in the Romanian Official Gazette no. 128), according to which the central power could order the suspension and removal of the local councils, as well as the replacing of mayors. During that period, it can be noted that administrative tutelage was not limited to merely assessing compliance with the law, but provided for other, much broader powers.

From a constitutional point of view, administrative tutelage has been recognized indirectly. The first formal recognition came with the passing of Law 554/2004 on administrative litigation (Puie, 2016). The reason for the lack of direct regulation is of political nature and is due to the fact that, after the totalitarian regimes in Romania, the aim was to assert freedom and autonomy (Puie, 2016), so the direct formulation of this type of control would have led individuals to consider administrative tutelage as an indirect way of preserving centralism (Alexandru, 2008). Regarding the indirect enshrinement of administrative tutelage in the Romanian Constitution, the language chosen by the legislators refers to the legality control. The provisions of Article 123 para. 5 stipulates that the prefect may appeal to the administrative court against certain acts which he or she considers illegal.

There are also minority views (Puie, 2016) according to which the control of administrative tutelage exercised by the prefect and the National Agency of Civil Servants (NACS) can be classified to a certain extent as a control of legality and not of tutelage, because the controllers do not have the right to modify, suspend or revoke administrative acts issued or adopted by the controlled authorities, nor do they have the right to issue administrative acts on their behalf.

Referring only to the prefect's control, some specialists (Dobritoiu, 2017) define administrative tutelage as the control activity exercised by a central public body with competences in this respect, on local public administration authorities, which benefit from autonomy and decentralisation. Within the framework of the prefect's administrative tutelage control, a legal relationship arises which has the prefect and the authority that issued or adopted the administrative act under appeal as subjects, and if there are third parties who consider themselves prejudiced, they may intervene in the dispute, but this cannot change the object or the parties of the case (LegeAZ, accessed on august 26th, 2023). In the case of the prefect, the idea of administrative tutelage is reinforced by the lack of subordination between central public authorities and local public authorities (Alexandru, 2008). Administrative tutelage control can also be interpreted as an exception to the principle of local autonomy (Puie, 2016), in the sense that, although local public administration authorities enjoy a certain autonomy, they are not exempt from any type of control. Some specialists (Voinea, 2005) consider that this type of control is necessary due to four reasons, namely establishing a mechanism by which the state ensures that the public services provided by the local public administration are carried out regularly and continuously in the best possible way; ensuring that local interests are subordinate to the general interests; ensuring that the unity of the state is preserved; ensuring that local needs are met.

With regard to NACS, it is considered that this type of control must verify compliance with the legislation on civil servants and the civil service, following all the complaints received, not only following the inspections carried out (Dobritoiu, 2016), thus creating a control of administrative tutelage characterized by strictness and objectivity.

The institution of the Prefect in the Romanian public system

The term "prefect" has Latin origins, having been originally used to designate a person "put in charge" (Puie, 2016). However, the prefect in its modern sense is considered to be a Napoleonic creation (Alexandru, Carausan & Bucur, 2005). Therefore, its French origin can be assumed. From the time this institution appeared, until the amendment of the French Constitution in 1958, the prefect had a dual role, being the representative of the executive power in the territory, more precisely of the Government, and at the same time the head of the administration of the department in which he was located (Alexandru, Carausan & Bucur, 2005). Following the administrative reform of 1982, the prefect's administrative tutelage attributions were diminished, in the sense that the prefect only exercised administrative tutelage control over the administrative acts of the local public authorities following the issuance or adoption of these acts and only aimed at their legality, unlike the period prior to the reform, when this control was carried out prior to the issuance or adoption of the acts, also aiming at their opportunity (Profiroiu & Titirisca, 2016). In fact, due to the trend of administrative decentralization, other attributions of the prefect were also diminished.

The organization and functioning of the prefect in France has significantly influenced the emergence of this institution in Romania. This can best be seen by reference to the dual role played by the prefect at the time of its establishment in both countries. Thus, in Romania, the prefect performed both the function of representative of the Government in territory and that of head of the county public administration, these functions being maintained even after the advent of certain legislative changes (Alexandru, Carausan & Bucur, 2005). There are also opinions (Dumitru, 2012) according to which maintaining this double status, political and administrative, of the prefect had another purpose than the official one, namely the creation of an "electoral agent" used by the government to monitor and influence the activities of the local public administration.

The institution of the prefect is regulated by the provisions of Article 123 of the Romanian Constitution and by the provisions of the Romanian Administrative Code. According to the Constitution, the prefect represents the Government at local level and manages the deconcentrated public services of the ministries and other central public administration bodies in the administrative-territorial units. It also verifies the legality of the acts of the county council, the local council or the mayor. What distinguishes the prefect from other

civil positions are the three qualities on the basis of which he or she acts, namely representative of the Government, head of deconcentrated public services and administrative tutelage authority (Alexandru, 2008).

In terms of status, between 2004-2020, the prefect was a high civil servant, but after the legislative changes of early 2021 (Government Emergency Ordinance no 4/2021), the prefect became a dignitary. Regarding the appointment of the prefect, Article 123 para. 1 states that "the Government appoints a prefect in each county and in the municipality of Bucharest". Relations between the prefect and local councils, mayors, county councils and their presidents are not based on subordination, the Administrative Code adding, in Article 261, that these relations are based on collaboration.

Of particular relevance to this work is the prefect's role as administrative tutelary authority. The seat of the subject matter is Article 123 para. 5 of the Romanian Constitution. In the Administrative Code, Article 255 specifies the prefect's attributions to control the legality of administrative acts of local public administration authorities. Paragraph 1 of that article lists the authorities whose administrative acts may be subject to administrative tutelage, namely the county council, the local council and the mayor, and the following paragraph states that the prefect shall challenge the acts of these authorities if he considers them illegal, before the administrative court. As a result of different interpretations of the legal norms concerning the acts that may be controlled by the prefect, the High Court of Cassation and Justice ruled in Decision No 11/2005 that only acts of an administrative nature issued by the aforementioned authorities are subject to this control, and not those of a different nature issued or adopted by them.

The Romanian Constitution, (Article 123 para. 5) and the Administrative Litigation Law (554/2004, Article 3 para. 3) stated that the appeal against these acts entails their suspension by law. This is to avoid the occurrence of irreparable damages, acting both in defense of the individual, in case of possible abuses by the authority issuing the contested act, and in defense of the general interest, in relation to the local interest (Alexandru, Carausan & Bucur, 2005). Other opinions (Puie, 2016), suggest that if the act to be challenged by the prefect has already entered the civil circuit and produced legal effects, its suspension only leads to the disruption of civil relations.

The prefect can carry out the tutelage control only after the issuing authorities have carried out the procedure of bringing administrative acts to the public knowledge and only after these acts have had legal effects (Postelnicu, 2010). In order to improve the administrative tutelage control and to prevent the occurrence of any unlawful legal consequences, scholars (Puie, 2016) suggest that the prefect should exercise this type of control prior to the entry into force of administrative acts.

National Agency of Civil Servants (NACS)

Currently, NACS is organized and operates under the Government Decision No 785/2022. It was set up to create an impartial civil service, characterized by continuity and professionalism (Alexandru, Carausan & Bucur, 2005). NACS played a major role in the process of Romania's accession to the European Union, in that it had responsibilities for the public service reform (Berceanu, 2011).

Civil service was defined in Article 5(y) of the Administrative Code and represents "the duties and responsibilities established by law for the purpose of exercising the prerogatives of public power by authorities and institutions". Certain scholars consider that the civil service can also be defined as "the totality of administrative actions and deeds exercised by an individual legally invested with public power, in order to achieve the mandate of a public authority or institution" (Alistar, 2012). The notion of civil servant is defined in the legislation in two distinct ways. In the Administrative Code, Article 371 para. 1 states that "a civil servant is a person appointed, under the law, to a public office", but the Criminal Code, in Article 175, states that a civil servant is a person who permanently or temporarily, regardless of whether there is any remuneration, holds an office of public dignity or a public office of any kind, or who exercises public powers based on the prerogatives of the three branches of government.

The management of NACS is carried out, according to Article 400 para. 2 of the Administrative Code, by a President, seconded by a Vice-President, appointed by the Prime Minister following a proposal by the Minister responsible for public administration.

Article 403 para. 1 of the Administrative Code states that the National Agency of Civil Servants has active legal capacity, as it "may refer the matter to the competent administrative court under the terms of the law on administrative litigation".

This type of control concerns administrative acts of central and local public authorities which infringe the legislation on civil service.

The wording used by the legislator in Law no. 554/2004 may create some confusion. The phrase "central and local public authorities" implies that all public authorities are concerned, without exception, i.e. also the President, the Parliament, the Government or the ministry coordinating the work of the Agency, which is impossible (Puie, 2016). Although in practice NACS can have a tutelage relationship with a limited number of public authorities, an amendment of the legislative text is considered necessary in order to provide specifically those public authorities, namely "local public administration authorities, public institutions of local or county interest, deconcentrated public services and autonomous administrative authorities" (Puie, 2016). The category of administrative acts subject to NACS's administrative tutelage also includes the unjustified refusal on the part of the public authorities and institutions to apply the legislation concerning the civil service and civil servants.

NACS does not have to carry out a preliminary procedure prior to referral to the competent administrative court, as laid down in Article 7(7). 5 of Law no. 554/2004.

Prior to 2019, Law no. 554/2004 provided in Article 7 para. 3 that the acts appealed against by NACS are also suspended automatically until the case is resolved, but this paragraph was amended by the provisions of Article 633 of the Administrative Code. In its current form, the administrative acts appealed against by the Agency are no longer suspended automatically.

Comparative analysis between the administrative tutelage control of the Prefect and that of NACS

As mentioned before, the Prefect and NACS are the only entities that can exercise administrative tutelage control in Romania. Using the documentary observation method, we were able to elaborate a graphical representation that highlights the similarities and differences between the tutelage activities of the two institutions. Thus, it can be noted that the two forms of control present nine similarities and seven differences, as shown in Table 1.

Criterion number	Comparison criterion	Prefect Institution	National Agency of Civil Servants
1	Subject matter of the administrative tutelage	Legality of the act under scrutiny	Legality of the act or the action/inaction under scrutiny
2	Need for a prior procedure	Not required	Not required
3	Nature of the action before the administrative court	Optional	Optional
4	Objective/subjective administrative litigation	Objective	Objective
5	Time limit for initiating administrative action against an individual administrative act	Six months or one year in case of serious grounds	Six months or one year in case of serious grounds
6	Time limit for initiating administrative action against a normative administrative act	The normative administrative act can be contested at any time	The normative administrative act can be contested at any time
7	Type of administrative action	Public action	Public action
8	Possibility of withdrawing the action brought before the administrative court	No, unless the action was also filed to defend the rights or legitimate interests of private legal persons	No, unless the action was also filed to defend the rights or legitimate interests of private legal persons
9	Possibility to request the annulment of the challenged act	Yes	Yes
10	Acts subject to administrative tutelage	Administrative acts originating from local public administration, more specifically from the local council, the mayor and the county council	Administrative acts originating from central and local public administration, concerning civil service and civil servant legislation
11	Possibility of challenging an unjustified refusal	No	Yes
12	Material competence	General	Specialized, limited to the area of civil service and civil servant

13	Territorial jurisdiction	Local, within the county in which it operates	General
14	Automatic suspension for disputed administrative acts	Yes	No
15	Possibility to ask the administrative court for compensation	No	Yes
16	Possibility to request the administrative court to order the defendant to issue another act or document	No	Da

Table 1: Comparison between the administrative tutelage carried out by the prefect and by the NACS.

Source: the authors, based on documentary observation of the cited bibliographic references

Conclusions

The arguments put forward underline the importance of administrative tutelage control, in the absence of which national interests could be harmed by local interests that do not comply with them, and at the same time abuses or errors in the application of civil service legislation could go unnoticed and uncorrected.

Through documentary observation, sixteen benchmarks have been identified which formed the basis for comparing the administrative tutelage exercised by the prefect and NACS. The two forms of control have nine similarities (light blue) and seven differences (light orange), as shown in Table 1.

In terms of similarities, the tutelage exercised by both public institutions:

- concerns the legality of the contested act;
- is an objective litigation;
- respect the same time period in which they may bring an action before the administrative court;
- does not imply the need for a prior procedure;
- referral to the administrative court is optional;
- is a public actions;
- is impossible to withdraw the action brought before the court;
- may lead to the annulment of the contested act by the court.

In terms of differences:

- the material competence of the prefect is general and that of NACS is specialized;
- the prefect's territorial competence is local, while that of NACS is general;
- the prefect's control only concerns administrative acts, whereas NACS can also control an unjustified refusal;
- the prefect can control only administrative acts of local public authorities, while NACS can control administrative acts of central and local public administration authorities;
- acts contested by the prefect are automatically suspended, whereas acts contested by NACS are not automatically suspended;
- NACS can also claim compensation from the court for the wronged civil servant, unlike the prefect, who can only claim the annulment of the act;
- NACS may also ask the court to order the defendant public body to issue another act or document, unlike the prefect, who does not have this possibility.

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Normative acts:

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2. Government Decision no. 785/2022;
3. Government Emergency Ordinance no. 4/2021 amending and supplementing Government Emergency Ordinance No. 57/2019 on the Administrative Code, published in the Official Gazette, Part I, no. 117 of 3 February 2021;
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7. Law no. 95/1925 on administrative unification, published in the Official Gazette No. 128 of 14 June 1925 (repealed).

Evaluating genotoxic stress via a simple effective assay

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Abstract

The genome is under constant stress from agents that alter and/or modify and damage the DNA. The level of damage or alteration in the genetic material is dependent on the three major factors: type of cell, its location and lastly, its function. At the same time, three main mechanisms of action have been shown to cause the most DNA damage: environmental agents, chemical agents and cell metabolic products and byproducts. Erythrocytes, also known as red blood cells, are responsible for the transportation of most of the compounds circulating in the organism. They take an active role as first responders against harmful external pathogens. This exposes and makes them susceptible to a variety of harmful agents, leading to short-, medium- and long- term stress, which in turn leads to the accumulation of DNA damage.

This study is focused on evaluating the damage caused to the DNA when exposed to chemical agents by using Comet assay as a genotoxicity test for *in vivo* organisms. This semi-quantitative test has the advantage of being able to detect stand damages in the cell, be they either single- (SSB) and/or double stranded (DSB). We hereby show that comet assay serves as a simple molecular method able to assess cumulative DNA damage effects in organisms living in contaminated waters.

Keywords: Comet assay, genotoxicity, DNA, strand, stress

1. Introduction

Nowadays the huge technological advances have made significant changes in our daily lives. Even though the benefits are seen with the naked eye, the consequences are rarely mentioned or taken into consideration. In the last years the ever increasing production and usage of nanoparticles has been exposing the human body to stresses unknown or that have been inconsequential before. These hazardous effects can arise from factors such as size, shape, composition, area, distribution or genotoxicity of the nanoparticles Langie S *et al* 2015).

The human genome is under constant stress from inside or outside factors able to either modify, damage our DNA, or both. Three main mechanisms of action have been shown to disrupt our DNA: environmental or chemical agents, and cell metabolic products. Our genetic material has a double helix strand, where every disruption of the strand or strands is known as single-strand and double strand break, respectively. This type of damage of the DNA is very common and can be a result of UV radiation, chemical agents etc. (Olive P.L *et al* 1998). Double strand breaks (DSBs) are more dangerous for the cell because they can lead to the development of many diseases affecting the human body. SSBs (single strand breaks) and DSBs can also occur during DNA replication (Cannan WJ *et al* 2016). SSB formation have a higher change to happen, interfering with genome stability (Hossain MA *et al* 2018).

In order to accurately assess the effects of genotoxicity in the human genome several methods and techniques have been studied and applied, but until now the most commonly used that offers the most reliability, versatility and accuracy has been the comet assay (Azqueta and Dusinska. 2015). Comet assay is a basic method to detect DNA damage in nucleated erythrocytes, but not only. In the beginning, the technique was used to identify the presence and estimate the occurrence of DSBs (Fairbairn, D.W *et al* 1995). Nowadays the original protocol has been improved a lot through the development of two types of comet assay. This kind of differentiation is based on the lysis buffer used. This motivated researchers to better understand the effect of specific treatment factors. Even though initially it was planned for the comet assay to be used to only monitor and assess for DNA damage, further applications today have made it possible to use it to also investigate the DNA-repair mechanism, cancer development as well as human and animal biomonitoring.

2. Materials and Methods

The first step was pre-coating the slides with 1% agarose high melting temperature gel. Slides were left to dry completely at room temperature before use. Normally, the pre-coating step was performed one day before the experiment. They can be stored at room temperature up to 2 weeks.

The comet assay was performed using nucleated red blood cells from amphibians and fish. Blood samples were washed three times with Ringer solution (0.1 M NaCl, 3 mM KCl, 2 mM CaCl₂, 24mM NaHCO₃) and at the end diluted with a 1:10 or 1:12 ratio, always in Ringer solution. Depending on the organism used, the osmolality of the Ringer solution was adjusted according to the specific characteristic of the blood. For comparison reasons, the comet assay was performed also by using blood cells directly, without the washing steps. The final dilution was applied in every case. Treatments were performed under the same experimental conditions in parallel with the control group (untreated samples). Once the blood samples were ready, 20µl of blood was mixed with 50µl of 1% agarose solution in order to create a sandwich structure on the slides. It is crucial for the final step that sandwich is bubble-free. In our case only the alkaline lysis buffer (100 mM Na₂EDTA, 10 mM Tris, 2.5 M NaCl, 1 % Tritoni 100x 10 % DMSO) was used while alternating the incubation time depending on the origin of the blood. This means that for the amphibians, blood samples were incubated overnight (16-18h), while fish blood samples were left for 2h only, but always at 4 degrees. Following lysis, slides were immersed in Rinse solution (2 M NaOH, 0.1 M Na₂EDTA) for 10-20min. This washing step was repeated twice. Afterwards electrophoresis was performed using an alkaline buffer (2 M NaOH, 0.1 M Na₂EDTA), at 20V and 40mA. The run was set for 45-60minutes. At the end of the electrophoresis, the slides were collected from the chamber and washed with distilled water (Olive, P. and Banáth, J. 2006). At this point, the workflow can be stopped and slides were stored at 4 degrees, in humidity for up to 48h. If not, we could proceed to the staining step. For comet staining a fluorescent die such as PI (propidium iodide) or light visible Giemsa solution was used. Slides were submerged in the stain solution for 20 minutes, at room temperature, in the dark. Images of the comet were taken using a fluorescent microscope. Each sample was randomly photographed, and all images were further analyzed using the software CometScore. This allows you to manually or automatically select each comet singularly at a later time period. We used the automatic option to minimize the human error during result analysis.

3. Results and discussions

Gel electrophoresis for DNA material was introduced for the first time in 1986, and since then and until now, the technique of comet assay has undergone a series of modifications and improvements in an attempt to increase its effectiveness and sensitivity. Over the years a large number of studies have used this technique to detect DNA damage in human and animal cells and the number of publications has been high as well. It has been used to estimate the DNA damage levels in cancer cells as well as healthy cells caused from chemotherapy sessions. Many studies following in this area have shown that the different cell profiles at the end of the chemotherapy are also due to the heterogeneity of the DNA damage accumulated from specific treatment.

Even though many new techniques have been developed over the years, comet assay is still highly used because it is very effective in identifying low level DNA damage, and to collect information from each single cell and not as a whole population. This decreases the amount of physical work because it notably reduces the size of the samples that will be analyzed. Moreover, this procedure is easily applicable on different types of cells newly extracted cells from various organisms or preserved cells. And last but not least, it is a fast and low-cost.

Among the many advantages that this techniques offer to the user, there are of course some limitations. Starting from the practical point of view, on one hand the comet assay facilitates your work on estimating if all cells of the population under analysis respond or function all in the same way or if there are some variations or alterations among them. This is due to the way of how the results are analyzed. For every test or treatment performed, the obtained comets are controlled and selected individually, which means that it can be time-consuming. Depending on the purpose of the study, the minimum number of the comets that should be analyzed can vary and exceed the total 50 comets/sample that is usually suggested.

In order to get the best out of this technique researchers are requested to make sure that all cells used are viable at the beginning of the protocol. This a critical feature since one of the limitation of the comet assay technique is to identify strand breaks in cell that are already apoptotic or necrotic. If the latter happens, it is important to first clarify what caused cells to undergo apoptosis or necrosis.

A third important limiting characteristic of this technique is the inability to determine the exact or even approximate the size of DNA “detached” from the nucleus. Instead, what we can understand from the comets obtained after specific treatments is the overall amount of DNA that has lost the tight connection with the nucleus. The electrophoresis step can be modified, set for a longer run for example to obtain a better separated tail.

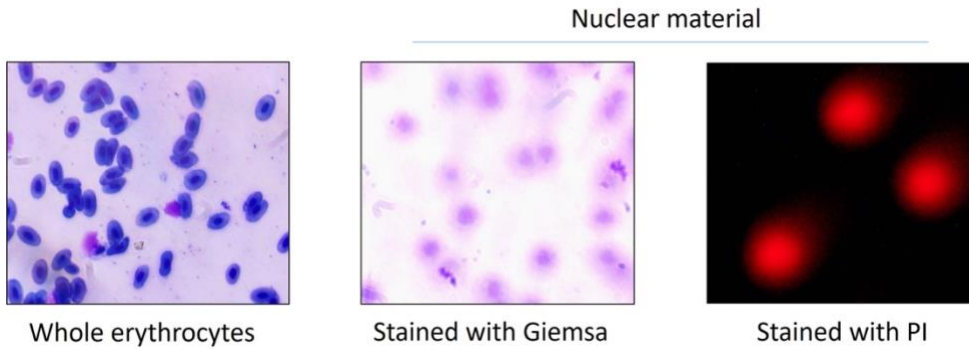


Figure 1. Erythrocyte profile

At first we checked the overall conditions of the blood cells through the blood smear test. Shortly after that, the blood sample is carefully spread on a very thin layer on the slide. After the complete drying of the sample, it is fixed with Ethanol and then stained with Giemsa for 30 min. Once the incubation is over, the slide is washed twice with distilled water and left to dry again. As a last step, the sample is analyzed under the microscope with 100x oil immersion. This technique is simple and very efficient allowing us to identify each cell individually determining whether the cell is healthy or under stress. The higher affinity of the Giemsa stain for the nucleus compared to the other parts of the cell, makes it easier to distinguish between the nucleus, cytoplasm and the cell membrane (Fig.1 a). When the red blood cells are lysed with the alkaline lysis buffer the images taken at the end of the technique look completely different. As also shown in figure 2 B and C, the nuclear material is stained, for comparison purposes, with a non-fluorescent dye (Giemsa) and fluorescent dye (PI, propidium iodide). Due to the lysis step, all the cellular membrane is dissolved and the genetic material is free in the agarose gel sandwich. A clearer information about the present and/or absence of the comet, when the staining is performed with a fluorescent dye.

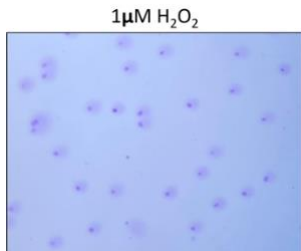


Figure 2. DNA damage in fish erythrocytes

During monitoring purpose studies, different organisms living in certain environmental conditions can be used. For this reason, we have adapted and performed the comet assay to the fish blood cell characteristic. In contrast with the frog erythrocytes where the lysis is done overnight, the fish erythrocytes with an incubation time of 2h was enough to release the genetic material from the cell structure. In this case, cells were previously treated for 30 minutes with H₂O₂ that is known as a strong genotoxic factor for cells. As expected, the comet tails gained at the end of the procedure confirmed the efficiency of the technique as well as the strong negative effect of the hydrogen peroxide on the DNA.

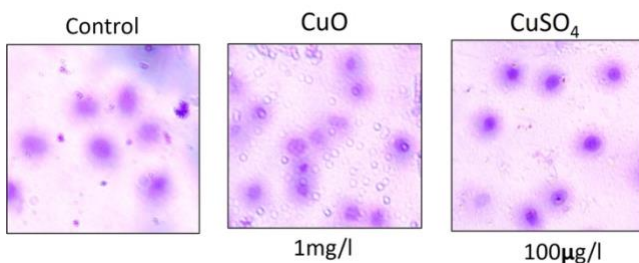


Figure 3. DNA damage induced from metal complexes.

Sula E. *et al* in 2020 demonstrated that the presence of copper either alone or in its complex structures lead to definitive and specific erythrocyte abnormalities. Under the same experimental conditions (2h of treatment and overnight lysis), frog blood samples were treated as shown in figure 2 and investigated for damages in their DNA. The obtained results confirmed that Copper was responsible

not only for erythrocyte morphological abnormalities but also DNA damage. The comet assay showed an increase in the comet tail suggesting a higher number of strand breaks upon treatment.

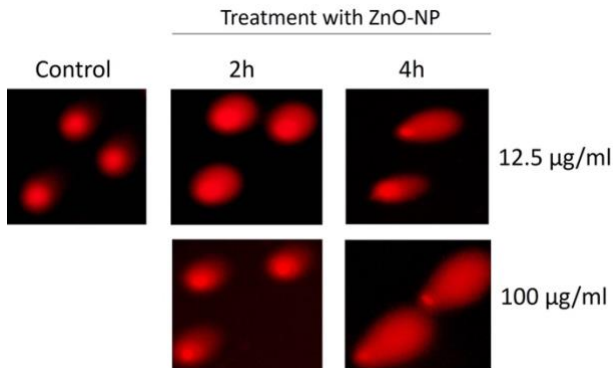


Figure 4. Genotoxic effect of metal nanoparticles

At the end, we have used comet assay to assess the DNA damage of cells induced from metal nanoparticles. Amphibian's blood samples were collected and treated with two different concentrations of the nanoparticle. The effect of the later on the genetic material was investigated at 2 different consecutive time points upon exposure. Lysis was done overnight at 4 degrees. The fluorescent staining of the DNA after electrophoresis are presented in figure 4. Higher concentrations and exposure time led to an increase of the comet tail length and consequently accumulation of multiple strand breaks.

4. Conclusions

Comet assay is a basic but a very efficient and reliable technique to determine the presence of DNA damage in the form of strand breaks, SSB and DSB. Due to its sensitivity, it can also identify low level damages and also give information about the overall amount of damages accumulated in each cell singularly. The later is one of the most important advantages of this technique and probably one of the reasons it is still widely used. In combination with its high versatility and accuracy, and also its applications in either in vivo or in vitro assays, the comet assay is still considered a great tool with high output for genotoxicity monitoring for the genome of living organisms.

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Attitudes towards Slovak and English among ethnic minority Hungarian high schoolers

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Abstract

For the Hungarian ethnic minority living in Slovakia, Slovak is commonly considered as a second language and English as a foreign language. In this paper, I present the results of a survey in which I examined and compared the Slovak and English language attitudes of 244 ethnic Hungarian high schoolers who attended secondary schools with Hungarian as the language of instruction. According to the public opinion, the level of Hungarian secondary school students' knowledge of the official language is low. Nevertheless, my research shows that the assumed lack of Slovak language proficiency is not only due to inadequate teaching-learning methods. Similarly, the main reason for increasing English-language fluency of the youth is not solely the English class at school. In the average teenager's life, English plays a vital role and holds significant social prestige, which results in predominantly positive attitudes towards English language learning, which is a key to its success. Due to the gap-filling nature of the completed survey, the results can serve as a basis for conducting larger-scale research.

Keywords: language attitudes, minority education, foreign-language acquisition

1. Introduction

Hungarians are the largest ethnic minority in Slovakia. According to the 2021 Slovak census, 8.37% of the population declared themselves Hungarian and 8.48% declared Hungarian as their mother tongue. The presence of the Hungarian minority in Slovakia has very complex historical reasons and although the number of the Hungarian population has been rapidly decreasing in the previous decades (due to the process of assimilation), in the southern part of the country they still make up a significant number of the population. In certain regions, they make up even the majority of towns and villages (see further Hunčík et al., 1994, Haight, 1997). In Slovakia, there are Hungarian schools from pre-elementary to university level in which Hungarian is the language of instruction (see further Vančo, 2020). For most ethnic Hungarians Slovak is a second language, the language of the majority that is acquired and learned at Hungarian schools and declared by law to be taught as a second language (Zákon o výchove a vzdelávaní č. 245/2008 – novela).

Although we know for sure from many studies, that for a child, especially at a young age, the best way is to learn in their mother tongue at school (Skutnabb-Kangas, 2014), there is an often cited problem in Slovakia, which is the lack of native-like Slovak-language fluency of Hungarian high school graduates, which according to the experts in the field of minority education, is due to the outdated and ineffective teaching methods used during the Slovak language and literature lessons at schools. If we are looking for reasons, we have to start from the central documents regulating the teaching of the majority language in minority Hungarian schools, since neither these nor the textbook and other aids reflect the basic strategies of teaching Slovak as a second language in addition to the mother tongue (Misad, 2014, Gadušová, 2015, Vančo, 2017). Consequently, the general public opinion often compares Hungarian students' Slovak language level to their English language level, which is claimed to be better due to the appropriate teaching approach used in the English classrooms. Also, the documents for teaching English as a foreign language seem to follow the didactics and methodology of foreign language teaching.

However, it is important to raise awareness, that students' attitudes towards Slovak and English are different, and this factor can significantly influence the effectiveness of learning and acquiring the two target languages. As a consequence, my research was based on the assumption that the increasing prestige of the English language has a positive effect on student attitudes, and as a result, students have a more positive attitude towards the language itself and school-based English lessons than towards the Slovak language and Slovak lessons, which affects the success of their language acquisition. In my opinion, the level of the students' knowledge of Slovak and English is not only a mere consequence of the application of the appropriate teaching methods but also a byproduct of their language attitudes. In my paper, I will try to prove this hypothesis.

3. Survey Methods

To achieve my goals, I conducted a questionnaire survey among Hungarian secondary school students in Slovakia, who attend schools with Hungarian as the official language of instruction. I investigated their beliefs and attitudes towards the two target languages, Slovak and English. Students from seven high schools¹ participated in the survey. I delivered an online questionnaire to them through their teachers, and through this a total of 244, both gymnasium² and secondary vocational school³ students filled it out in January of this year. The questionnaire consisted of 35 mandatory multiple-choice questions, and after 10 questions included an option for respondents to justify their answers in their own words. This way I have added qualitative evidence to quantitative data. Most of the questions were the same for the two languages, so first I asked the same question in relation to the Slovak and then to the English language. There were also three questions in which students were asked directly to compare the two languages.

4. The main results of the survey

In this paper I cannot present the survey in its entirety with all the questions and answers that the respondents gave but I will introduce some of the more important findings subdivided into six further topics according to the types of questions in the questionnaire.

4.1. Reason for language learning

The informants were asked about the reasons for learning the given target language (*Why do you learn Slovak?; Why do you learn English?*) The students could select answers from a list (1 – *because I have to*; 2 – *because I like it*; 3 – *because it is useful*; 4 – *because I consider it important to learn the official language of our country/one of the main world languages*; 5 – *because my parents want me to*), with the option to justify their answers with their own words.

The data plainly shows that students consider English more useful (65.2%) than Slovak, the official language of the country (35.7%). Together with the results of other questions, this shows that even if the two language lessons were equal in their teaching methods and approaches, they would not hold equal value in the eyes of the students.

Comparing the answers for Slovak and English, the most striking difference can be found in selecting the answer ‘*because I have to*’. I deliberately chose this wording since it shows compulsion. In the case of the Slovak language, the students apparently perceive this compulsion much more strongly (72.5%) than in the case of the English language (22.1%), even though both languages are compulsory subjects at school. Gardner believes that the answer ‘*because I have to*’ as the reason for language learning is a clear sign of the students’ lack of motivation since motivation always stems from language learning goals (Gardner, 1985). The students’ opinion can also be explained by the fact that Hungarian-speaking children usually only come into contact with the Slovak language in a school environment as a compulsory subject. This kind of mandatory nature appears in the so-called State Language Act (Zákon o štátnom jazyku Slovenskej republiky č. 270/1995 Z.z.), which requires the use of the Slovak language in all public arenas, including the field of education (Misad, 2009, Vass, 2013), while minority languages, including the use of Hungarian, only appear as an option under certain conditions. Students do not really perceive this kind of coercion in the case of the English language. It seems that the majority of informants feel that, unlike Slovak, they learn English voluntarily because of its usefulness and its position as a world language. There is also a striking difference in that half of the informants learn it, because they ‘*like*’ the English language (48%), while only a few feel the same way about Slovak (5.7%).

To further analyze students’ opinion about the usefulness of language learning, I directly compared the two languages in the following question: *Which is the more useful language?*, and offered them the following answer options: 1 – *English*; 2 – *Slovak*; 3 – *both are equally useful*. The examined belief forms one of the main motivational factors in language learning, and I assumed that most students consider both languages to be – at least approximately – equally useful. However, this assumption was confirmed by only 31.1% of the respondents, 66% of them consider the English language more useful, and only 2.9% believe that Slovak is more useful. These results can be compared with the results of a survey comparing English and Serbian language attitudes among ethnic Hungarian high schoolers in Novi Sad, Serbia. 82.2% of the Hungarian students consider English more useful, 14.7% think both are equally useful, while only 0.1% selected Serbian as more useful (Kovács-Rác–Halupka-Rešatar, 2020).

In an additional question, I was interested in which language the students prefer to learn (*Which language do you prefer to learn at school?*). The answers revealed that 71.3% of the respondents prefer to learn English, and only 11.1% prefer Slovak more. 17.6% of

¹ The term “high school” will be used in this study in its general sense meaning all types of secondary schools.

² In Slovakia, a Gymnasium is a type of secondary school that provides a comprehensive and academically focused education and prepares students for higher education, including universities.

³ Secondary vocational schools are also secondary schools that provide specialized vocational education and training to students who want to acquire practical skills and qualifications for specific trades or professions. They are not to academically focused as Gymnáziums, but students can also seek higher education after graduating this high school.

them learn both languages with similar enthusiasm. These findings confirm the conclusion formulated above, that students tend to feel that they learn English with pleasure, without coercion⁴, while in the case of Slovak, sometimes negative feelings dominate.

4.2. The “beauty” of the target languages

Next, the informants had to express their agreement or disagreement with two statements reflecting subjective, emotional attitudes. To the first question (*Do you agree with this statement: “Slovak is a beautiful language”?*) only 17.2% of the students answered yes. 25.4% of them could not decide, however, 57.4% did not agree with this statement. They needed to decide regarding the English language as well (*Do you agree with this statement: “English is a beautiful language”?*). 70.5% of the respondents agreed with the statement, 17.6% could not take a position, and only 11.9% expressed disagreement. Although there are indeed phonetic and phonological differences between languages, which manifest themselves in different acoustic characteristics, from a scientific point of view it is a myth that there are beautiful and ugly languages. Such concepts as the beauty of a language are merely a subjective impression determined by how we view a culture or an ethnic group that speaks the given language (Giles–Niedzielski, 1998). Since in previous language attitude surveys English usually achieves a medium ranking on the beauty scale (Giles–Niedzielski, *Ibid.*), I assume that generational factors play a role in the perception of the English language as beautiful. Public figures on social media are becoming increasingly popular among young people, figuring as celebrities of the modern era, kind of role models who usually use English. One can suspect that these successful, likeable people (considered also ‘*beautiful*’) are associated with the language they speak. The more recent results of the attitude survey among the Hungarian high schoolers from Serbia show that 69.7% of the students also consider English beautiful (Kovács–Rác–Halupka–Rešatar, 2020), and this ratio almost exactly coincides with the results of our survey.

With the following question, I tried to find out whether, in the opinion of the informants, a person’s popularity is related to the knowledge of a certain language. Regarding the Slovak language, I asked the following question: *Do you agree with the following statement: “Slovak language knowledge increases one’s popularity”?* About a third of the students, exactly 31.1% of them agreed with the statement, while 68.9% expressed disagreement. In the case of the English language the question was modified as follows: *Do you agree with the following statement: “English language knowledge increases one’s popularity”?* 75.4%, i.e. more than three-quarters of my respondents agreed with this statement, and only 24.6% thought that knowledge of the English language did not influence their popularity.

The results confirmed my preliminary hypothesis that the high school students participating in the questionnaire see English as more beautiful and judge the person who speaks English as more popular than the Slovak language speakers. All of these relate to the answers given to the previous question since the vast majority of Internet content and its ‘actors’ speak English.

4.3. Language proficiency and school grades

In the following passage, the informants selected the grade they got at the end of the previous school year from English and Slovak. From Slovak (the correct term of the subject is Slovak language and Slovak literature) 41% of them obtained the highest, *excellent* grade, 38.1% got the second best, *very good* grade, 17.7% of them finished with *good* and 3.3% with *sufficient* results. Nobody failed and got an *insufficient* grade.

From English (the term for the subject is English language) 67.6% of the respondents finished with an *excellent* grade, 25.8% with a *very good* grade, 6.1% of them obtained a *good* grade, and only one of them had *insufficient* as a grade at the end of the school year.

After this, I asked the students to rate their Slovak and English language knowledge. They could locate their English level on the following scale: 1 – *I do not understand nor do I speak Slovak/English*; 2 – *I understand, but can’t speak Slovak/English*; 3 – *if needed, I can make myself understood, but I am not confident*; 4 – *I can speak without major problems about casual topics*; 5 – *I am fluent in Slovak/English, I can talk about any topic in the language*. You can see the received answers in the following figures:

⁴ Adolescents are especially affected by popular culture (movies, music, games, social media), and the main medium of it is English, which in consequence is identified with their beloved free time activities (Crystal 2003).

Language learner motivation is not only affected by the fact that English is a *lingua franca*. According to Philipson English can be characterized more accurately according to the many purposes it serves in a society. We can recognize English as *lingua economica* (the language of business and corporate neoliberalism), *lingua academica* (the language of higher education and science), *lingua cultura* (as found in the literary heritage of English-speaking countries that is found in the school curriculums of the English-language classroom), *lingua emotiva* (as the medium for consumerism, the idea of Hollywood and hedonistic lifestyle) (Philipson, 2008). If we take into account all of the above mentioned, the youth who are natives of the online sphere, on a daily basis face all of the above-mentioned layers and practical, notable advantages that high level of English language proficiency brings them.

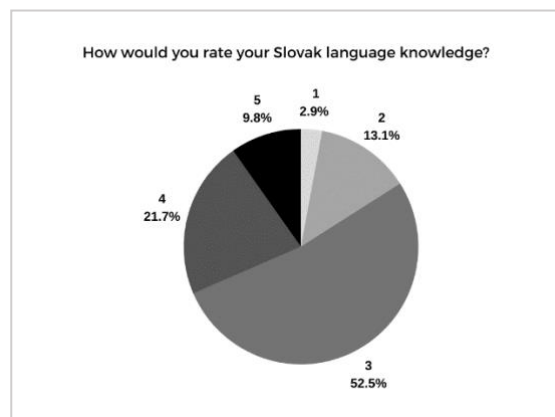


Figure 1

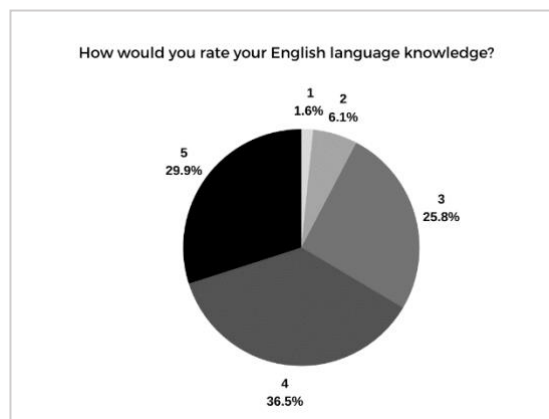


Figure 2

For more precise results I asked them to draw a parallel between their Slovak and English language skills. They had answers to select from: 1 – *I speak Slovak better*; 2 – *I speak English better*; 3 – *I speak the two languages on an equal level*; 4 – *I do not speak any of them, but I understand when they are spoken to me*.

59.8% of the informants claimed to speak English better; 23.4% of them feel that Slovak is their stronger language; 13.5% assessed their language skills on the same level; and only 2.9% of them answered that they do not speak, only understand the languages. The Serbian survey does not confirm my results, as the high schoolers from Novi Sad feel in a half-to-half ratio that they speak one of the two target languages better (Serbian or English), with slightly more respondents speaking Serbian better (Kovács-Rác-Halupka-Rešatar, 2020).

It is not unimaginable that Hungarian students are better in English than in Slovak, but the question arises whether it is not because they have Slovak literature lessons, and of course, the language used and required for reading and interpreting literary texts cannot be compared with the language used for casual, colloquial conversations. During the English lessons, without mandatory literary education, they mostly get in touch with the latter. In the field of language pedagogy, it is known that the key to language acquisition is comprehensible language input that is slightly above the current level of the student. That means that if the language learner's level is i , the optimal input would be $i+1$ that is still intelligible for them and they can focus on the content instead of the structure of the language. At this level, the learner can use the textual context and other non-verbal means to deduce the meaning of the new, unknown expressions. If there is a sufficient amount of the optimal input, the output will naturally follow (Krashen, 1989, Scrivener 2010).⁵ However, the Slovak literature of the upper primary and secondary schools in Slovakia does not seem to correspond to the $i+1$ language level of the students, and active communication does not occur if there is no comprehension (Szépe 1991).

4.4. The relationship between language improvement and school-based language lessons

It is not uncommon that young people try to improve their language skills outside the school, however, for most of them language education at school is the main location and base for language learning. With the following question (*How do you feel, how much do the school-based Slovak language lessons improve your language skills?; How do you feel, how much do the school-based English lessons improve your language skills?*) I tried to ascertain how much does their above declared language level relate to the school-based Slovak and English language education. The students could choose from these answers: 1 – *they do not improve them at all*; 2 – *they rather do not improve them*; 3 – *don't know: they might or they might not*; 4 – *they rather improve them*; 5 – *they improve them a lot*. It is important to realize that I could not and did not want to measure the real impact of the two language lessons, I wanted to see if there was a significant difference in their opinions regarding the two subjects, Slovak and English. After the question, they had the chance to further justify or expand their answer in their own words.

The results show that only 9.8% of my respondents think that Slovak lessons improve their language skills a lot (5), 30.3% feel that they rather improve them (4). The respondents who think that the Slovak lessons rather do not improve (2) their language skills make up 17.6% of my informants and 9.8% think that they do not improve them at all (1). Interestingly, 35.2% of the students could not tell (3) whether the Slovak lessons contributed to their language improvement.

Although a significant percentage of the answerers are hesitant about the effectiveness of the Slovak lessons, the majority experience the advantages of the lessons. Those who attribute their language improvement to the Slovak lessons, justify it with the fact that they mostly get in touch with the language in the school: *"I speak Slovak mostly at school, so I think I can thank my improvement to the Slovak lessons"*; *"I don't speak Slovak anywhere else"*. Some highlighted the grammatical explanations during the Slovak lesson: *"I*

⁵ In an ideal foreign (or second) language classroom this is realized the following way: the teacher teaches a new language element but they build upon the students' current knowledge, they teach it in an already familiar context, so it could be implemented into an already acquired environment.

⁶ I only present those opinions that reoccurred often.

was always unsure of the inflexions in Slovak and that's why it helps"; others attribute the growth of their vocabulary to the lessons: "I learn words that I don't usually use during my daily communication with my friends". Although there were many critical remarks too among the reactions: "There is no verbal communication"; "The Slovak lessons are weak, monotonous, the focus is on information that the students will never utilize, and not on communication and language usage". Some of the respondents say that they do not attribute their language level to the school.

Regarding the English lesson, these were the results: those, who feel that the school-based English lessons improve their English skills a lot (5) make up again 9.8% of the respondents. The ones who think that they rather improve them (4) are 39.3% of the answerers, then 13.9% of them feel that they rather do not help them (2) and 4.9% claim that they do not improve their language skills at all (1). Again, 32% of the students could not take a position (3) regarding the effectivity of the English lessons.

Those who wrote an answer in their own words emphasized the positives of the wide range of activities they do during the English lessons: "We learn based on the coursebooks, which are very well structured, we go on order and do each exercise. We often watch videos, presentations, different students are asked to do different tasks"; "We often play and act out different situations, we do listenings and analyze videos". Many of them mention that there is great emphasis on communication: "we converse a lot"; "we have a chance to actually speak in English because the teacher calls on us". Those who improve their English skills mainly outside of the school repeatedly declared the following: "It is not on the best level"; "What we learn I already know"; "the average teen already knows what is required in the materials, so everything is just a revision"; "Currently, it only helps with revision, some of us are way above the rest of the class".

If we compare the results regarding the Slovak and English lessons, we see that a significant number of the respondents (more than one-third of them) could not decide what role the two language lessons play in the improvement of their language level. Nevertheless, I evaluate it positively that around 40% of the students think that both subjects contribute to their language learning progress. As I expected, most of the informants view the English lessons more favourably than the Slovak lessons; they think that the Slovak lesson does not improve their language level sufficiently. From their answers it is clear that they appreciate the structure, the varied activities and the communicative approach of the English lessons, while they miss it from the Slovak lessons: "During the English lessons we communicate a lot, while in the Slovak lessons, we only learn literature and do not speak". At the beginning of my survey, I assumed that the English lessons would perform way above the Slovak lessons on the 'effectiveness scale', nonetheless, apart from their enjoyability⁷ there was not much difference in their assessment. This leads me to conclude, that the possible higher level of English language skills of the high schoolers is not necessarily the consequence of the effective teaching methods and approaches implemented in the English classroom, nor can I confirm based on their answers that their language level would improve more during the English lessons than the Slovak lessons.

4.5. Use of the target languages

At the next stage, I asked the informants to mark in a chart how often they use the two target languages during the listed activities and situations (*Please mark how often you use Slovak/English in these situations*). They were asked to answer on a scale of 1 to 5 (1 - never, 2 - sometimes, 3 - don't know, 4 - often, 5 - always).

A surprising finding is that more students speak English with their friends (40.2% *sometimes*; 26.6% *often*; 3.7% *always*) than Slovak (38.5% *sometimes*; 10.2% *often*; 2% *always*). The most significant difference is in terms of leisure activities – extracurricular activities, hobbies, films, games and cultural events. By their own admission, my respondents are much more likely to use English (41.4% *often*; 13.5% *always*) than Slovak (17.1% *often*; 5.3% *always*) in their leisure time, even though many extracurricular, out of school clubs are presumably in Slovak. However, the language and cultural medium of the internet is entirely English, and a large proportion of young people spend a lot of time on the computer. Despite this the proportion of students who do not or rarely use English in their free time is surprisingly high (38.5%). This shows that pupils' exposure to the two target languages outside the classroom is very different in terms of the extent and form of their exposure, with the result that in these lessons, and primarily in English classes, there is a growing gap between the language levels of individual students, which is a constant challenge for language teachers.

4.6. The relationship between foreign language knowledge and Hungarian identity

One of the fundamental reasons for minority assimilation is that the minority language is perceived as less valuable than the majority state language (Kiss, 1997). This is due to language policies and practices that want to impose a second language on the minority in such a way that it becomes the dominant language of the individuals, suppressing or replacing the minority identity that is already subordinate to the majority ethnic group or language (Lanstyák, 2011). When minority languages are discouraged or suppressed, members of minority ethnic groups may be pressured to adopt the dominant language to access education, employment, and other societal benefits (Skutnabb-Kangas, 2000). Given all this, it is no wonder that members of the minority group already perceive fluent bilingualism as a threat (Vančo, 2017, Sedláková, 2021) and consider it the first stage of assimilation.

⁷ Another question clearly shows that English classes are more popular than Slovak classes among my respondents.

In order to ascertain whether minority students still perceive the use of the majority language as a cause of oppression and repression of their mother tongue, the survey asked them to evaluate the following statement: “*If I use Slovak/English too much, I feel my Hungarian identity is threatened*”. The respondents could confirm the statement with a *yes* or refute it with a *no*.

According to the responses received, only 7% of respondents feel that frequent use of Slovak puts their Hungarian identity at risk. The vast majority (93%) think that frequent use of Slovak has no impact on their linguistic and ethnic identity.

Regarding the English language, only a minority of respondents (3.3%) confirmed that they agree with the statement; the rest (96.7%) do not think that the use of English affects their linguistic identity.

I admit that I did not expect the above results based on my prior assumptions and the existing views in the field. I thought that a much larger number of students felt their linguistic identity was threatened by the frequent use of Slovak. However, it seems that the secondary school students in the study do not share such a fear, and follow-up questions regarding their bilingual minority situation imply that they might have developed a sense of dual identity.⁸ Having said that, further research is needed to thoroughly explore the nature of this kind of Slovak-Hungarian dual identity pattern.

Conclusions

The results of the study suggest that my respondents consider the acquisition of a high level of English more useful and important than Slovak, and as a result, they are more motivated to learn the world language in and out of school. In relation to English, they are more likely to believe that they learn it of their own free will; whereas they feel compelled to learn Slovak, and therefore many have an inherent rejection of the language. The majority of respondents are uncertain about the usefulness of learning Slovak, while English is seen as a self-evident requirement. Given this, it is not surprising that learners are much more willing and eager to learn English, perceive it as “beautiful” and see it as a key to popularity and success.

The survey revealed that my respondents speak English more often than Slovak in their everyday leisure activities and in their contact with friends; therefore, English, rather than Slovak, is the second language in the lives of a significant proportion of them. As a result, it is not surprising that they feel better and more advanced in English, while less confident with Slovak. These statements are also supported by their school grades.

One result of the survey that I found interesting is that, according to the students' statements, the role of Slovak and English language classes in their language development is approximately the same, although the activities in English classes are more positively evaluated. This suggests that, although there is indeed a different approach used in English lessons than in Slovak lessons, extra-curricular factors are likely to play a greater role in students' English language development. I also think it is important to highlight the fact that my respondents do not believe that learning the majority language and developing their Slovak language skills would threaten their minority language and cultural identity. They are, however, disturbed when others question their identity and therefore have mixed feelings about their bilingual situation.

It is not useful to compare the success of learning the two languages since even the best and most up-to-date methodological approaches used in Slovak lessons could not compete with the increasingly positive bias of the youth towards English. Nevertheless, the survey shows that teaching Slovak as a foreign language could make language learning more successful and could also influence the Slovak language attitudes of the learners in a positive direction. Moreover, in a minority situation, the acquisition of the majority language is a completely unique and specific educational field, whose development requires special attention, thorough exploratory research and professional expertise.

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⁸ “Dual identity” is a construction of identity in which a minority living in a majority-dominated country, while preserving and representing its own historically changing ethnic identity with generational differences and validities, appropriates, internalizes and emotionally experiences the elements of the national identity of the majority ethnic group which are missing or only partially present in the set of elements of its own ethnic identity (Bindorffer, 2001).

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University of Foggia: Promoting an Interdisciplinary Path in Security Issues, from the Crime Scene to Cyber Security

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Abstract

The Department of Law of the University of Foggia is engaged in researching issues related to crime scene investigations, cyber security and digital investigations. From these researches, two unique courses in Italy were born with the objective of providing a set of interdisciplinary skills on security issues (from the crime scene to the investigations of terrorist scenarios to cybersecurity issues).

The first one, the three-year degree course in Investigative Sciences, offers a training course aimed at acquiring the basic knowledge of legal subjects related to crime scene investigations. It is combined with the knowledge of the main criminalistics techniques of intervention on the crime scene through a practical laboratory.

The aim of the course is to provide a set of specialized knowledge in the study of both physical and digital traces.

This course is completed through a two-year degree course in Legal Sciences of Security with the goal of creating professionalism that pertain to the sphere of security.

This course focuses on the fields of privacy, cyber security and their effects in the legal, economic, institutional and social fields, and aims to provide specialized knowledge in three specific fields of intervention, such as data security, safety at work, and security of the State.

The Department, through the creation of these courses, responds to the need to create the figure of the jurist of the future in an interdisciplinary perspective for understanding and combatting the most criminal phenomena in the national territory, with particular regard to organized and digital crimes.

Keywords: University, Crime Scene, Cyber Security, Criminalistics, Criminal Phenomena, Digital Forensics.

1. Introduction

The University of Foggia is located in Italy, more specifically in Puglia (Apulia), a region located in the south side of the Italian peninsula with a population of nearly four million.

The University of Foggia was officially born with the Ministerial Decree of August 5, 1999, when the University became independent after a period of twinning from the University of Bari.

The Department of Law currently has about 2,000 students and hosts five undergraduate courses, including two three-year courses (Investigative Science and Expert in Human Resource Management and Labor Consultant) and three Master's courses (Law, Legal Sciences of Security, and Law and Management of Health Services).

The department is careful to ensure a university education that increasingly corresponds to the needs of the local area and the changing society. Our educational paths aim to adequately meet these needs, providing a comprehensive and articulated preparation, on the one hand general, on the other hand specialized, through Master's degrees, professionalizing Courses, internships and apprenticeships, personal computing and foreign language teaching.

The department is in constant relationship with the job world, where professionals with technical-legal skills are increasingly required; in fact, 75 % of our graduates found an employment within a year of graduation.

On the international front, the Department is also attentive to internationalization, in which new boundaries and therefore new professions are emerging. The Department, sensitive to these changes, provides courses taught by visiting professors and also international mobility experiences through innovative community action programs.

The expansion of boundaries, including cultural ones, must not make us lose the sight of the territorial dimension. This is enhanced through educational offerings also geared to meet precise demands of the area, consultation with local social and economic partners, and the activation of contextual culture courses.

The Department is now engaged in researching issues related to crime scene investigations, cyber security and digital investigations. From these researches, two unique courses were born with the objective of providing a set of interdisciplinary skills on security issues (from the crime scene to the investigations of terrorist scenarios to cybersecurity issues).

The paper is structured as follows. In sections 2 and 3, we explain the importance of the degree course in Investigative Sciences and of the Master degree in Legal Sciences of Security. Finally, Section 4 discusses results and concludes this paper.



Figure 1. The city of Foggia

2. The Degree Course in Investigative Sciences

The three-year degree course in Investigative Sciences (Scienze Investigative) was activated in 2016 and offers a training course aimed at acquiring the basic knowledge of legal subjects related to crime scene investigations.

The activities made on the crime scene are very complicated to manage because they are a very delicate phase characterized by a great deal of chaos, both because of the conditions under which investigators operate and because of the amount of trace to be processed. In fact, a plurality of actors (rescuers, police and prosecutors) arrives at the crime scene and they potentially risk contaminating it (Curtotti Nappi, Saravo, 2011a).

Not infrequently, it may happen that these individuals can unintentionally step on a significant trace (such as a bloodstain) by imprudence.

The aim of the course is to provide a set of specialized knowledge in the study of both physical and digital traces. In fact, we realized, even by analyzing Italian case histories over the past decades, that investigative *défaillances* compromised the ascertainment of historical truth. An example of this research is the case of Meredith Kercher, an American student killed in Perugia in 2007 for which the main suspects, Amanda Knox and Raffaele Sollecito, acquitted because of a series of mistakes made during the investigations.

In this case, during the crime scene activities, personal protective equipment (such as gloves and footwear) are not changed, causing a contamination on the exhibits, and the criminalistics' operational protocols about the search and collection of traces are not followed (Curtotti, 2013; Pallante, 2023b).

The emblem of this alteration is the victim's bra hook, which it is first photographed on the carpet of the victim's bedroom and it is only collected 46 days after the first activities in a different location in the same room.

It generates an error in the identification and collection of traces, capable of undermining the credibility of the evidence (Curtotti, Saravo, 2011b; Pallante, 2023a).

These traces became evidence during the trial and initially led to the conviction of the defendants. Later, the importance of the activities at the crime scene and the mistakes made were understood, leading to the acquittal of the defendants due to a lack of evidence (Montagna, 2012).

As the Meredith Kercher's case, if the error is not well managed and highlighted, it can result in a miscarriage of justice.

Given these premises, we understand the importance of creating cross-disciplinary figures who combined technical-scientific knowledge with legal expertise to help improve the quality of investigations and its evidentiary results (Curtotti, Saravo, 2022).

These figures include lawyers, private investigators, technical consultants and police forces.

The degree course includes some technical subjects such as Criminalistics, Legal Medicine and Biochemistry. In this regard, the strength of this course is the practical component, unusual in a law department that, in the national context, is more theoretical. In fact, this course is combined with a practical laboratory.

In this lab, students can learn the main criminalistics techniques of crime scene analysis such as luminol, fingerprint powders, ninidrine, presumptive tests, swab, stub, and so on.



Figure 3-4. The Practical Lab and Its Materials

At the same time, the students of investigative sciences learn the law part to understand the legal tenor of investigative activities. For example, through the study of criminal procedure, the student can understand the weight that trial actors can give to scientific evidence within the criminal trial. This helps to provide an adequate interdisciplinary preparation that take into account an integrated approach to problems related to the analysis of the new criminal contexts.

Combining technical and legal subjects, the student has an all-round education on scientific evidence and its limits, being able to evaluate all aspects of it.

This is the key of the success of this degree course, which has been attracting students from all over Italy since 2016.

Year I			Year II			Year III		
SSD	Subject	Credits	SSD	Subject	CFU	SSD	Subject	Credits
IUS/08	Constitutional Law	9	IUS/04	Comparative Public Law	9	BIO/10	Biochemistry	6
IUS/20	General Theory of Law	9	IUS/19	History of Criminal Trial	6	IUS/16	Criminalistics and Digital Forensics - Advanced Course	6
IUS/18	Roman Law	6	IUS/16	Criminal Procedure Law	15	IUS/16	Criminal Evidence Law	9
M-PSI/01	Psychology of Cognitive and Emotional Processes	6	IUS/17	Criminal Law	9	M-PSI/07	Psychology of persuasion and decision making	6
IUS/01	Elements of Private Law	9	IUS/10	International Law	6	MED/43	Legal Medicine	6
IUS/16	Criminalistics and Digital Forensics	6	IUS/12	Implementation of taxes, powers of investigation and protection of the contributor	9	IUS/17	Criminology	9
L-LIN/12	English - Forensic Linguistics	6		Student's choice subject	6		Lab on information and security	6
INF/01	Basic Informatics	6		Lab on trace's searching and collection	6		Student's choice subject	6
	Total	57		Total	66		Final Work Project	3
							Total	57

Figures 5-6-7. The three years of the degree course

3. The Master Degree in Legal Sciences of Security

The degree course in Investigative Sciences is completed through a two-year degree course in Legal Sciences of Security (Scienze Giuridiche della Sicurezza) with the goal of creating professionalism that pertain to the sphere of security.

This course focuses on the fields of privacy, cyber security and their effects in the legal, economic, institutional and social fields.

The use of new technologies has led to a significant transformation in the types of risks present in the workplace, and the use of the Web has greatly elevated the risk factors for the safety of people and States.

The idea of a specialized course, with an international outlook, stems from an awareness of a contemporary world in which both society's risk factors and the concept of security are changing (Fattori, 2021).

The concept of Security, since the Twin Towers attack, has changed its essence by being connoted by a restrictive view of freedoms and the so-called "criminal law of enemy," in which states aim to protect the national territory from possible risks through a preventive policy that is directed toward those who are not citizens of the state (Jakobs, 1985; Levi, Wall, 2004; Manna, 2020; Nocerino, 2018).

Nowadays, in addition to state’s protection, the idea of security increasingly translates into the protection of personal data. On this front, the set of new European regulations, such as the General Data Protection Regulation (GDPR), plays an important role in regulating an area (like privacy) that is constantly evolving (Nocerino, 2023).

The course is divided into a two-year period. In the first year, common to all scholars, students have the opportunity to develop a specialized knowledge of national and international regulatory sources on security and privacy; of general and sectoral regulatory institutions; of technologies for protecting information systems and of the collection and storage of personal data.

Year I

Subject	Credits
Privacy and processing of personal data	12
International and European Union law of data	6
Computer Security	6
Economics of security and innovation	12
Protection of business secrets	6
Public regulation of privacy and Authority’s system	9
Advanced English	6
Total Credits	57

Figure 8. The first year of the Master’s degree

In the second year, however, the three specialized souls of the Course emerge. In fact, the Course is divided into three curricula, at the student's choice, such as Data Security, Safety at Work, and Security of the State.

Data Security is aimed at acquiring specialized knowledge of corporate governance models, decision-making processes and business assets, such as the protection of corporate know-how. At the same time, a space is also given to business economics knowledge in order to make entrepreneurial and market dynamics understood from the perspective of innovation processes.

The curriculum in Safety at Work aims to acquire the skills necessary for the analysis of the risks for the workers' health and safety, for the management of workers' personal data and for the proper application of regulations on prevention and safety in the workplace.

The curriculum in Security of the State, on the other hand, aims at deepening criminal and procedural criminal law knowledge on the prevention and suppression of cybercrimes and the management of risks to individual and collective security. A space is devoted to risks related to multi-religious coexistence, fundamentalisms and religiously motivated terrorism.

The three curricula also include a laboratory on Law and Policies of Cyberspace for Security, which aims to provide the main international coordinates on cyberspace management and existing problems in this new "territory".

The Course prepares students for new safety-related professions, such as the officials of ministries, government agencies and public administrations, the privacy consultants and the legal experts in the processing of occupational injury and illness data.

The uniqueness of this master’s degree is related to its high specialization in the topic of security, which remains the issue of the future that will increasingly shape society.

Year II Data Security Curriculum		Year II Safety on Work Curriculum		Year II Security of the State Curriculum	
Subject	Credits	Subject	Credits	Subject	Credits
Worker data protection	6	Worker data protection	6	Worker data protection	6
Information and financial markets	6	Hygiene and health in the workplace	6	Religious freedom and security	6
Governance and corporate accountability	9	Safety and new organizational models in the workplace	9	Individual and Collective Prevention and Security and Countering Cybercrime	9
Sociology of deviance	6	Sociology of deviance	6	Sociology of deviance	6
Criminal Law of Security	9	Criminal Law of Security	9	Criminal Law of Security	9
Laboratory on "Law and Policies of Cyberspace for Security"	6	Laboratory on "Law and Policies of Cyberspace for Security"	6	Laboratory on "Law and Policies of Cyberspace for Security"	6
Student's choice subject	6	Student's choice subject	6	Student's choice subject	6
Student's choice subject	6	Student's choice subject	6	Student's choice subject	6
Final Work Project	9	Final Work Project	9	Final Work Project	9
Total Credits	63	Total Credits	63	Total Credits	63

Figure 9-10-11. The three curricula of the second year of the Master’s degree

4. The Department's other educational offerings

The Department's educational offerings include, in addition to these previous degree and master's courses, the Master's degree in law the degree course in Expert in Human Resource Management and Labor Consultant, and the Master's degree in Law and Management of Health Services.

The Master's degree in Law offers a training aimed at the acquisition and autonomous development of basic knowledge in fundamental legal subjects, as well as knowledge in-depth in selected areas of law and the acquisition of the most relevant transversal and applications required in the performance of work, facilitating entry into the world of work employment.

In recent times, this course underwent a reform that divided it into four curricula, such as legal professions, international relations, expert in green evolution, and mediation and teaching. Each curriculum has specific subjects.

In this manner, the course enables the graduate to practice the traditional legal professions (such as lawyer, magistrate or notary) in a renewed and changing legal, economic and social environment. It also enables him or her to become legal expert in specific areas of law in order to intercept important offers of employment in the private and public sectors (like administrative manager or school teacher), in national and supranational organizations.

The Degree course in Expert in Human Resource Management and Labor Consultant, on the other hand, aims to provide a focused preparation on the labor sector to enable a higher qualification of professionals that already working as consultants and specialists in human resources management. The training course is aimed at fostering a multidisciplinary culture, characterized by basic legal training and specialized training in labor law skills, through in-depth knowledge of disciplines related to the labor market, individual and collective labor relations, industrial relations, social security, as well as the ability to plan and manage labor services. In addition, there is a mandatory internship at public and private institutions.

During this year, the Master's degree in Law and Management of Health Services is born. This two-year course aims to provide the cultural and methodological foundations essential for knowing and managing the administrative activities, the implementation of laws and regulations, the management compliance, the organizational and decision-making processes, and the procedures for defining and implementing public planning acts and corporate strategies, which govern the health care system.

In this course, there are also laboratory activities in health data management and an internship training at professional bodies and public and private health care facilities.

The need of a highly specialized course stems from the fact that the health sector is particularly complex, both because of the sensitivity of the goods, values and interests that it involves, and because of the accentuated technicality and specificity of the legal and regulatory framework of reference, as well as its articulation, at times contradictory, confusing or even conflicting, in planning and decision-making levels (State, regional, territorial and corporate level).

In conclusion, an increasingly enriched educational offering becomes a key resource for growing the territory and building a bridge with foreign realities in which we can share research topics.

The Department of Law of the University of Foggia is trying to develop itself in this direction, facing more traditional challenges as well as those of the future.



Figure 12. The Department of Law of the University of Foggia

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The Girl Hero: The Hero's Journey in Robert Munsch's *The Paper Bag Princess*

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Abstract

Joseph Campbell, in his work *The Hero with a Thousand Faces*, charts the typical journey that heroes in literature take on their quests. In Robert Munsch's pivotal children's picture book, *The Paper Bag Princess*, Campbell's theories are highlighted and reinterpreted; however, there is one major difference between the stories Campbell discusses and Munsch's hero. Elizabeth is a girl who defeats a dragon to save her handsome prince who has become the gallant in distress. Elizabeth's journey resembles those taken by male characters, but this story, first published in 1980, creates a safe space for girl readers to explore their strength and ingenuity as they encounter their own dragons. Munsch delineates the heroic quests Campbell's work outlines but by using a teenage girl instead, accompanied by illustrations by Michael Martchenko. This text has become an integral introduction to feminist thought for millions of readers since its first publication.

Keywords: Children's Literature, Feminism, Hero's Journey.

1. Introduction

One of the most overtly feminist books written in the 1980s is a new take on the traditional fairy tale. *The Paper Bag Princess*, written by Robert Munsch and illustrated by Michael Martchenko, is a simple but powerful story that upends the cliché of a knight errant rescuing a damsel in distress. In this case, the princess rescues the prince; however, there is a lot more at work. The main character is Elizabeth. At the beginning of the text, she epitomizes the princess in most fairy tales: "Elizabeth was a beautiful princess. She lived in a castle and had expensive princess clothes. She was going to marry a prince named Ronald" (Munsch 1). As in most fairy tales, catastrophe hits quickly. A fire-breathing dragon destroys Elizabeth's castle and carries away Prince Ronald. In fact, everything is destroyed, including all of Elizabeth's princess clothes. She is left with nothing but a paper bag to wear. However, these events embolden Elizabeth to find the dragon and rescue Ronald. She follows the destruction to the dragon's lair. The dragon does not take Elizabeth seriously, but Elizabeth is insistent in her pursuit of the dragon. After tricking the dragon to the point of ultimate exhaustion, Elizabeth walks into the dragon's cave to rescue Ronald. Ronald, though, does not have the response that readers would expect. He says, "Elizabeth, you are a mess! You smell like ashes, your hair is all tangled and you are wearing a dirty old paper bag. Come back when you are dressed like a real princess" (21). But Elizabeth counters by saying, "Ronald, your clothes are really pretty and your hair is very neat. You look like a real prince, but you are a bum" (23). The last line of the story is, "They didn't get married after all" (23).

There are several ways of interpreting Elizabeth's actions within the story. Obviously, the first interpretation is that Elizabeth is brave for taking on the dragon. However, in his text, *The Hero With a Thousand Faces*, Joseph Campbell delineates the path the universal hero takes in his quest, which seems to be the better way to interpret the events of the children's book. Elizabeth's tale exhibits many of the elements of the hero myth. Of course, several steps are missing in *The Paper Bag Princess*, but this is a very short book compared to the epics that Campbell analyzes, but the essentials of the hero adventure are present.

2. Princesses and Heroes

Campbell identifies three distinct phases of the hero's journey, also called the monomyth, and delineates seventeen specific events within those phases. The first phase is The Departure, with the events called The Call to Adventure, Refusal of the Call, Supernatural Aid, Crossing the First Threshold, and Belly of the Whale. Campbell calls the second phase Initiation and labels those events as The Road of Trials, Meeting with the Goddess, Woman as Temptress, Atonement with the Father, and Apotheosis. The third phase is called Return. Campbell labels those events as Ultimate Boon, Refusal of the Return, The Magic Flight, Rescue from Without, Crossing the Threshold, Master of the Two World, and Freedom to Live. Not every hero story contains all seventeen events, and *The Paper Bag Princess* also cuts out some of the events and plays with the interpretation of others.

First in the hero myth in the Departure phase is The Call to Adventure. Campbell describes this step as, “This is an example of one of the ways in which the adventure can begin. A blunder – apparently the merest chance – reveals an unsuspected world, and the individual is drawn into a relationship with forces that are not rightly understood” (42). Campbell continues, “Typical of the circumstances of the call [is]...the underestimated appearance of the carrier of the power of destiny” (43). In Elizabeth’s situation, the call to adventure is the dragon’s attack on the castle. Her home has been destroyed, and her fiancé has been abducted: “Unfortunately, a dragon smashed her castle, burned all her clothes with his fiery breath, and carried off Prince Ronald” (Munsch 3). The actual call is very simple: “Elizabeth decided to chase the dragon and get Ronald back” (5). The dragon is, obviously, “the carrier of the power of destiny.” We see that this “first stage of the mythological journey signifies that destiny has summoned the hero and transferred his spiritual center of gravity from within the pale of the society to a zone unknown” (Campbell 48).

The second step in the hero’s journey is not really a step, but more of a bump, a small decision – The Refusal of the Call. The hero has the option to either head out on the adventure or to stay home. The point is that heroes make the decision to go on the quest. However, this option – refusing to chase the dragon – does not seem to enter Elizabeth’s mind. Her call to adventure is quick and decisive. Of course, her lack of clothing presents a problem, but Elizabeth solves that problem by donning a paper bag. Ironically, her clothes burn in the fire, but the paper bag survives, which leads us to the stage call Supernatural Aid.

According to Campbell, “For those who have not refused the call, the first encounter of the hero journey is with a protective figure who provides the adventurer with amulets against the dragon forces he is about to pass” (57). In European fairy tales, the supernatural is represented by the fairy godmother, while the aid in Christian moral tales, is provided by a virgin saint (59). However, in *The Paper Bag Princess*, Elizabeth is utterly alone. No one is left in the castle since there isn’t a castle left. The text is silent about other people, but we assume there is no one to help Elizabeth, and readers assume that she is a virgin. But nevertheless, the paper bag does appear miraculously. We don’t know where it comes from, but it makes a significant appearance, and as the amulet given to the hero, the paper bag allows Elizabeth the opportunity to search for the dragon.

The fourth step of the hero’s journey is The Crossing of the First Threshold. It’s difficult to pinpoint when this even occurs in *The Paper Bag Princess*. According to Campbell, “With the personification of his destiny to guide and aid him, the hero goes forward in his adventure until he comes to the ‘threshold guardian’ at the entrance to the zone of magnified power” (64). However, these situations really don’t apply for Elizabeth. Partly because this book is so short, and partly because this book has a very Post-Modern bent to it, there is no guardian keeping Elizabeth at bay. She finds the dragon’s lair easily by following the “trail of burnt forests and horses’ bones” (Munsch 5). But the door to the dragon’s lair could also be the threshold. Munsch describes the entrance to the dragon’s cave as “a large door that had a huge knocker on it” (7).

In the illustration opposite the text, we see a large and thick wooden door. The illustration on page 10 shows the door better. Even the knocker seems to be barely within Elizabeth’s grasp. The dragon could be the guardian, but this interpretation gets messy because he is also the beast that Elizabeth is hunting. However, he does act like the threshold guardian because he refuses Elizabeth entry: “He slammed the door so fast that Elizabeth almost got her nose caught” (7). However, Elizabeth does not give up.

The next step for the mythical hero is The Belly of the Whale. According to Campbell, “The hero, instead of conquering or conciliating the power of the threshold, is swallowed into the unknown, and would appear to have died” (74). Campbell also claims that this part of the threshold is a form of self-annihilation, that the hero willingly goes into the unknown even if it means death. Elizabeth certainly pursues the dragon even though she knows first-hand the destruction he has wrought.

The hero’s journey then enters its second phase– Initiation. This phase includes The Road of Trials, Meeting with the Goddess, Woman as Temptress, Atonement with the Father, and the Apotheosis. *The Paper Bag Princess* skims past several of these steps; however, this second part of the hero’s journey is still vital for the framework of the action in *The Paper Bag Princess*. Campbell describes the Road of Trials as, “Once having traversed the threshold, the hero moves in a dream landscape of curiously fluid, ambiguous forms, where he must survive a succession of trials” (81). It’s difficult to know exactly where this step begins in *The Paper Bag Princess*, but Elizabeth follows “a trail of burnt forests and horses’ bones” (Munsch 5) left by the dragon. Campbell continues to describe this step as, “This is a favorite phase of the myth-adventure. It has produced a world literature of miraculous tests and ordeals. The hero is covertly aided by the advice, amulets, and secret agents of the supernatural helper whom he met before his entrance into the region” (81). Elizabeth moves from her known world of the castle which is now destroyed into the unknown world of the dragon’s lair, and it would be a surreal experience to find burned forests and the bones of dead horses along the road. We can also conclude that Elizabeth’s magical amulet is her paper bag since it arrives suddenly and without explanation, and it’s the only paper thing not burned in the dragon’s attack on the castle.

The next step in Campbell’s myth-adventure is Meeting with the Goddess. “The ultimate adventure, when all the barriers and ogres have been overcome, is commonly represented as a mystical marriage of the triumphant hero-soul with the Queen Goddess of the World. This is the crisis at the nadir, at the zenith, or at the uttermost edge of the earth, at the central point of the cosmos, in the tabernacle of the temple or within the darkness of the deepest chamber of the heart” (Campbell 91). It’s debatable whether this phase is found in *The Paper Bag Princess*. Elizabeth doesn’t meet anyone on her path to the dragon’s lair. There are only three characters in the entire book – Elizabeth, Ronald, and the Dragon – so readers are left to conjecture whether Elizabeth meets with a supernatural power during her quest. Along with the lack of the Meeting with the Goddess, *The Paper Bag Princess* seems to elide on the next phase of the Hero’s Journey, Woman as the Temptress.

Campbell describes the Woman as the Temptress step as, “The mystical marriage with the queen goddess of the world represents the hero’s totally mastery of life; for the woman is life, the hero its knower and master. And the testings of the hero, which were preliminary to his ultimate experience and deed, were symbolical of the crises of realization by means of which his consciousness came to be amplified and made capable of enduring the full possession of the mother-destroyer, his inevitable bride” (101). Since the hero of *The Paper Bag Princess* is a woman, and a heterosexual woman at that, there is no way that she could be tempted by another woman, even a supernatural being. However, Munsch might be playing with the idea of a woman tempting the hero because Elizabeth uses her sense of cunning to slyly defeat the dragon. She tempts him out of his lair with taunts about his strength and ferocity. But the dragon is not the main character, and Elizabeth uses her best skills in fighting her foe. She is not a temptress, but a formidable enemy dressed in vulnerable clothing.

The next step, Atonement with the Father, is completely missing from *The Paper Bag Princess*. Once again, the short scope and sequence of the book and the few characters makes this part of the journey obsolete. Munsch gives no evidence of Elizabeth’s father. We know he is royalty and presumably a king since her title is princess, but he does not appear in the story at all. Therefore, Elizabeth does not seem to have issues with her father or his overbearing treatment of her. Campbell’s idea of a wrath-full father with whom the hero needs to make peace has no place in Elizabeth’s story.

Even though Munsch skips a few of Campbell’s steps in the second phase of the hero’s journey, he obviously includes the most important step – The Apotheosis. This step is the reason for the entire story. It is the climax and highest point of action. In The Apotheosis, the hero shows himself to be a true hero and not just the main character of a story. In this chapter, Campbell focuses on the redemptive work of the hero as he defeats the evil in the world and ushers in a new era of peace. Elizabeth, as the hero of *The Paper Bag Princess*, brings peace to the kingdom when she finally defeats the dragon through her cunning in two challenges to the dragon. Not only does Elizabeth save Prince Ronald, but she avenges the destruction the dragon wrought on her kingdom.

The last step in the Initiation phase of the hero’s journey is The Ultimate Boon. Campbell introduces this section by writing, “The ease with which the adventure is here accomplished signifies that the hero is a superior man, a born king” (148). He adds later in the chapter, “The agony of breaking through personal limitations is the agony of spiritual growth. Art, literature, myth and cult, philosophy, and ascetic disciplines are instruments to help the individual past his limiting horizons into spheres of ever-expanding realization. As he crosses threshold after threshold, conquering dragon after dragon, the stature of the divinity that he summons to his highest wish increases, until it subsumes the cosmos” (163). Irony abounds when comparing Campbell’s heights of prose and his definite gendering of the hero as male when looking at *The Paper Bag Princess*. Elizabeth has legitimately and thoroughly defeated a fire-breathing dragon who ravaged her castle single-handedly. She is the epitome of a hero, but she is also very much a teenage girl. She has done what Campbell seems to assume only men can do.

Campbell calls his third and last phase of the hero myth Return. This section contains the steps Refusal of the Return, The Magic Flight, Rescue from Without, The Crossing of the Return Threshold, Master of Two Worlds, and Freedom to Live. Once again, because of length and audience, Munsch neglects to include several of these phases in *The Paper Bag Princess*. Also, since *The Paper Bag Princess* is a work of feminism, Elizabeth’s defeat of the dragon leads to a very different ending. Her story deviates vastly from Campbell’s patriarchal heavy cycle, but it should.

In his discussion of The Refusal of the Return, Campbell writes, “When the hero-quest has been accomplished, through penetration to the source, or through the grace of some male or female human or animal personification, the adventurer still must return with his life-transmuting trophy” (167). However, he begins the next paragraph with, “But the responsibility has been frequently refused” (167). Elizabeth refuses to go home, and that is the end of the story. After she defeats the dragon, her encounter leaves her with a freedom and confidence that she has never had before. Ronald chastises her: “There was Prince Ronald. He looked at her and said, ‘Elizabeth, you are a mess! You smell like ashes, your hair is all tangled and you are wearing a dirty old paper bag. Come back when you are dressed like a real princess’” (21). Elizabeth responds, “‘Ronald,’ said Elizabeth, ‘your clothes are really pretty and your hair is very neat. You look like a real prince, but you are a bum’” (23). The story ends with the line, “They didn’t get married after all” (23). The illustration on page 24 shows Elizabeth with her hands spread out, doing a side kick of happiness as she goes into the sunset. Readers don’t know for sure if she travels through the remaining steps of the Return portion of the hero’s journey; however, it seems that she doesn’t. It seems as though her life is happy and complete at this moment.

Campbell’s next step in Return is The Magic Flight. The author describes this step as,

If the hero in his triumph wins the blessing of the goddess or the god and is then explicitly commissioned to return to the world with some elixir for the restoration of society, the final stage of his adventure is supported by all the powers of his supernatural patron. On the other hand, if the trophy has been attained against the opposition of its guardian, or if the hero’s wish to return to the world has been resented by the gods or demons, then the last stage of the mythological round becomes a lively, almost comical pursuit. This flight may be complicated by marvels of magical obstruction and evasion. (170).

In relation to *The Paper Bag Princess*, Elizabeth’s return home is joyful for Elizabeth. She has restored society and made it safe from the dragon. It appears the supernatural has smiled on her, if there were any supernatural powers at work in her favor. There is no farcical chase. She merely leaves Ronald in the cave. She still wears her paper bag and doesn’t seem to be in a hurry to change clothes. She is

very content with her being at this point in the story. Elizabeth does not need to be removed from the situation magically because she simply walks into her future.

In the step Rescue from Without, the hero must sometimes be saved from some other entity because his magical flight has become too tricky for him to manage alone. Campbell states, “The hero may have to be brought back from his supernatural adventure by assistance from without. That is to say, the world may have to come and get him” (178). Nothing like this phase happens in *The Paper Bag Princess* because Elizabeth knows that she will not return to the world. There is nothing for her in her old kingdom. Neither will she Cross the Return Threshold, which Campbell describes as, “The two worlds, the divine and the human, can be pictured only as distinct from each other – different as life and death, as day and night. The hero adventures out of the land we know into darkness; there accomplishes his adventure, or again is simply lost to us, imprisoned, or in danger, and his return is described as a coming back out of that yonder zone” (188). Elizabeth does not cross the threshold because she never returns to the world of patriarchal dominance. However, in a sense, Elizabeth fulfills Campbell’s next phase.

In The Master of Two Worlds, the hero is able to negotiate both realms of reality – the magical and the real world. As Campbell writes, “Freedom to pass back and forth across the world divisions from the perspective of the apparitions for time to that of the casual deep and back – not contaminating the principles of the one with those of the other, yet permitting the mind to know the one by virtue of the other – is the talent of the master” (196). Elizabeth seems to have this ability. Her cunning and wit would come in handy for her in the real world and these skills would also serve her well in the supernatural world if she even needed to fight another enemy. However, the reader does not know where Elizabeth is. She has walked, or rather leapt, into the sunset, and since the book ends at this point, readers cannot justify assuming that Elizabeth is the master of the worlds, but we hope she is.

The last step in the entire hero journey is Freedom to Live. Simply put, the hero can now live his life in the way he sees is best for him, “Man in the world of action loses his centering in the principle of eternity if he is anxious for the outcome of his deed, but resting them and their fruits on the knees of the Living God he is released by them, as by a sacrifice, from the bondages of the sea of death” (Campbell 206). We can see this sense happening with Elizabeth in *The Paper Bag Princess*. We assume that she must have been anxious at the beginning of her quest since she is a vulnerable girl dressed in a paper bag attempting to fight a dragon to save her fiancé prince. However, after she outwits the dragon and is shunned by her prince, she no longer has any fear about her abilities. She is free to live in whatever way she wants. She is free to be herself and not conform to the wishes of the men around her.

3. Princesses Alone

The second and best interpretation for Elizabeth’s bravery is that she, a mere woman, is the only one who can defeat the dragon. Her love has been abducted, and she needs to rescue him because no one else is available or can. Her quest is not a quest in the grand definition, but a simple story of a woman who does what needs to be done. Her nakedness at the beginning of the story emphasizes her ordinariness and vulnerability. She is just a girl. The paper bag reinforces this idea. Without her princess clothes, Elizabeth is just like everyone else. And her decision to go after the dragon and to rescue Prince Ronald seems to be a normal reaction. A woman will go after the man she loves. And once again, her weapon is not supernatural, but commonplace. Even though the dragon is a fire-breathing reptile capable of destroying an entire castle, he really is just a guy with all the same characteristics such as vanity and a need to show off in front of women in order to impress them.

Elizabeth is definitely the main character of the story. Page one makes it clear that readers know she is the center, “Elizabeth was a beautiful princess. She lived in a castle and had expensive clothes. She was going to marry Prince Ronald.” The illustration on page 2 expresses the same sentiment as the text, but also alludes to conflict. Elizabeth and Ronald stand in the foreground. Elizabeth, dressed in a long, pink dress in which the sides are sheer gray, gazes lovingly at Prince Ronald. Hearts surround her head, and she holds her hands clasped at her heart. A single throne with an elaborate “E” sits near her in the background. Prince Ronald exudes arrogance and disdain. He stands with his back towards Elizabeth. One hand is on his hip while the other holds a tennis racket resting on his shoulder. He wears a large red gem necklace. Unfortunately, their supposed happiness cannot last.

According to page 3, “A dragon smashed her castle, burned all her clothes with his fiery breath, and carried off Prince Ronald.” The illustration on the next page is a bit risqué, but cements Elizabeth’s youth and vulnerability for the reader. Elizabeth is in the foreground. Smoke clouds cover her genitals, but she is most assuredly naked, and her breasts are uncovered. She is flat chested, which reminds the readers that she is young and probably pre-pubescent. In the background, the dragon flies away while holding Prince Ronald by the seat of his pants. Ronald is upside down but still holds his tennis racket. The dragon’s expression is best described as being a smirk as he looks at Elizabeth and savors his destruction of the castle. At this point in the story, Elizabeth is helpless. She is literally naked and without any hope.

Elizabeth, though, proves to be brave. The text tells us that she decides to get Ronald back. Unfortunately, she has some obstacles, “She looked everywhere for something to wear, but the only thing she could find that was not burnt was a paper bag. So she put on the paper bag and followed the dragon” (5). The illustration on page 6 shows Elizabeth dressed in the paper bag, which looks like a mini tank dress. Her face is screwed up in anger and her arms are held out in frustration. Astute readers would acknowledge the irony that her clothes have all burned in the fire, but a paper bag survives the conflagration, and a paper bag is even less secure than a beautiful floor-length dress made of cloth. Elizabeth really has nothing to protect her as she goes into battle, but she does not take heed of the

danger ahead of her. She does not notice the peril she is in. She believes that she can save her prince as men save their damsels in distress in other fairy tales.

All Elizabeth needs to do to defeat the dragon is to play to his vanity. And as many men treat women poorly, the dragon treats Elizabeth with disdain. He doesn't treat her with respect. He assumes his hegemony because he is a male. His first comments to her prove this fact: "Well a princess! I love to eat princesses, but I have already eaten a whole castle today. I'm a very busy dragon. Come back tomorrow" (7). First, the dragon assumes that Elizabeth has come to offer herself to him. There is a sexual implication at play here, which makes the dragon more despicable and predatory. However, in any case, the dragon is dismissive of Elizabeth because she is female.

The dragon also assumes a power role because he says he is busy, assuming that his time is more important than Elizabeth's, either because she is young or a girl or both. Even the act of slamming the door so quickly that he almost hurts her illustrates his lack of respect for Elizabeth. The illustration on page 8, which is also the cover art for the book, shows the dragon stooping his head through the door. There are puffs of smoke around him, and his eye is half closed. The expression created by his half open eye and the squiggle mouth could either express disdain, exhaustion, or both. In any case, the reader knows that the dragon is not afraid of Elizabeth. The next scene begins exactly the same way on page 9. Elizabeth bangs on the door with the knocker. The dragon replies in the same way. However, Elizabeth begins to use her agency and to assert herself: "'Wait,' shouted Elizabeth, 'Is it true that you are the smartest and fiercest dragon in the whole world?'" Elizabeth begins her battle with the dragon, but it is not a battle of physical strength. Elizabeth appeals to the dragon's vanity.

Elizabeth begins her fight with the dragon not by sparring with him in open warfare. Instead, she asks, "Is it true that you are the smartest and fiercest dragon in the whole world?" (10). She begins her destruction of the dragon through manipulation. She forces the dragon to prove himself, but not in the way that a traditional hero would. The illustration accompanying this text shows the dragon standing on his hind legs. His tail wraps itself behind him. One front foot leans against the door while he admires the talons on his other foot. There are puffs of smoke swirling around his head, and it seems as though the dragon has a self-satisfied smirk on his face. He simply replies, "Yes." (10). Elizabeth's manipulation of the dragon's hubris continues on the next page: "Is it true, ...that you can burn up ten forests with your fiery breath?" (11). The dragon readily reacts to this dare to show off, "...he took a huge, deep breath and breathed out so much fire that he burnt up fifty forests." (11). In this illustration, the dragon breathes fire, and the left side of the illustration is a mass of yellow and red with a few brownish tree-like images. Elizabeth stands next to the dragon with her back to the flames and her hands cover her ears. Her onslaught continues on the next page:

"'Fantastic,' said Elizabeth, and the dragon took another huge breath and breathed out so much fire that he burnt up one hundred forests.

"'Magnificent,' said Elizabeth, and the dragon took another huge breath, but this time nothing came out. The dragon didn't even have enough fire left to cook a meatball." (13). This page's illustration depicts the dragon's cheeks puffed out and his eyes are bulging, seemingly trying to blow very hard. There is a small puff of smoke coming from his mouth. Elizabeth stands next to him. She faces the audience. Her right hand is raised to her mouth like she is trying to cover a giggle.

For her next barrage on the dragon, Elizabeth continues to play to his vanity, but this time, she focuses on speed and strength. She says, "Dragon, is it true that you can fly around the world in just ten seconds?" (15). Obviously, the dragon flies around the world in ten seconds, and Elizabeth continues her attack: "He was very tired when he got back, but Elizabeth shouted, 'Fantastic, do it again!'" (15). The illustration shows Elizabeth standing amid bones laying on the grass. She is waving goodbye and smiling. There are puffs of smoke in the air in an arc pattern, representing that the dragon has taken off and has disappeared already. The text on the following page says, "So the dragon jumped up and flew around the whole world in just twenty seconds. When he got back he was too tired to talk, and he lay down and went straight to sleep." (17). In the illustration, the dragon lays on his back on the ground. His tail lies limply. One of his feet covers his chest. His tongue hangs from his mouth while puffs of smoke encircle his head, as if he is panting from loss of breath. Elizabeth stands behind the dragon. Her hands are behind her back, and she is smiling. (18).

On the following page, we see Elizabeth's total victory over the dragon as she also inflicts one more wound. "Elizabeth whispered, very softly, 'Hey, dragon.' The dragon didn't move at all. She lifted up the dragon's ear and put her head right inside. She shouted as loud as she could, 'Hey, dragon!' The dragon was so tired he didn't even move." (19). In the illustration, the dragon's face and neck are shown, but lifelessly. Elizabeth stands behind the dragon's head. Her attention is directed at the dragon's cave where Prince Ronald is shown waving from a barred window. Elizabeth seems to be smiling. Elizabeth has soundly defeated this terrible dragon. However, she uses critical thinking skills instead of brawn. And although she hasn't slain the dragon as most heroes would have done, she has still defeated him and proven her heroic qualities.

However, unlike other fairy tales in which the hero saves the damsel in distress and they ride away into the sunset to live happily ever after, Ronald rejects Elizabeth's attempt to save him. Munsch writes, "There was Prince Ronald. He looked at her and said, 'Elizabeth, you are a mess! You smell like ashes, your hair is all tangled and you are wearing a dirty old paper bag. Come back when you are dressed like a real princess'" (21). The illustration on page 22 shows Ronald, still holding his tennis racket and wearing his necklace, looking at Elizabeth and pointing his finger at her. His face is stern. Elizabeth looks at the ground strewn with bones. She frowns. Her hair is messy, and she seems to be covered in dirt. Elizabeth now has a decision to make since her entrance is so unappealing to Ronald. She says, "Ronald...your clothes are really pretty and your hair is very neat. You look like a real prince, but you are a bum"

(23). Just as with the dragon, Elizabeth is rejected and demeaned by a male character for the way she looks and because she does not fit the mold of the feminine girl. Ronald proves to be just as shallow and vain as the dragon. Even though she has done the impossible in rescuing him, he cannot see Elizabeth's power and her value as a hero. Since she is a girl, she should always be beautiful. Her victory over the dragon should be celebrated, but instead, she is reduced to a body who must appeal to men. At this point, Munsch turns the hero myth upside down. Obviously, Elizabeth and Ronald cannot be together. He cannot appreciate her and her wit and cunning. The last line of the book reads, "They didn't get married after all" (23). The facing illustration shows Elizabeth kicking her heels in joy with her arms spread out in front of her as she goes into the sunset by herself. She still wears the paper bag. Despite the male responses to her in the book, Elizabeth understands her power and value and knows that she no longer needs a man's approval to be happy. She will live for herself.

4. Conclusions

As short as Robert Munsch and Michael Martchenko's enormously popular children's book *The Paper Bag Princess* is, the story proves to be a thoughtful and an apt criticism of patriarchal tropes in the hero myth, especially the hero adventure delineated in Joseph Campbell's groundbreaking work *The Hero with a Thousand Faces*. The main character Elizabeth moves smoothly through the three stages and most of the phases of Campbell's theory; however, she uses her vulnerability and femininity to battle a dragon and save her prince. Although she does not slay the dragon as per the tropes, she ultimately defeats him thoroughly, but eventually rejects much of the traditional male return stage of the myth cycle. Instead, Elizabeth creates a new life on her own without a prince and seemingly creating a life for herself away from the male gaze.

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Technological scheme of two-phase separator

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Abstract

When oil is lifted from the wells, the pressure gradually decreases, as a result of which gas begins to be released from the oil. The more the pressure decreases, the more the gas volume increases and the oil flow becomes two-phase. In case of stratification of water and oil, the flow can be three-phase. The volume of gas under normal conditions is usually several tens of times greater than the volume of liquid, so it is economically feasible to separate gas from oil and transport them separately. The process of separating gas from oil is called separation. The apparatus in which this occurs is called an oil and gas separator or a two-phase separator. So, separation is the first processing after extraction, which consists in the separation of products: gas, oil and water. Types of oil separators: vertical installation, horizontal installation.

Keywords: Separation, wells, two-phase, extraction.

1. Introduction

Oil and gas separators or two-phase separators are designed to separate liquids and gases. Oil and gas separators or two-phase separators are used to degas the oil stream during extraction and remove associated gas from it. Oil and gas separator or two-phase separator also provides oil purification in various industrial installations. A distinctive feature of such devices is that they are designed to work with liquids containing a small part of the gas.

Separation of oil from gas and water in various separators is carried out with the aim of:

- Production of petroleum gas, which is used as a chemical raw material or as a fuel;
- Reducing the mixing of the oil and gas flow and reducing due to this hydraulic resistance;
- Reducing foaming (it is enhanced by emerging gas bubbles);
- Reducing pressure pulsations in pipelines during further oil transportation from the first stage separators to the oil treatment unit.

The movement of the gas-oil mixture along the pipeline is accompanied by pressure pulsations, for example, if the flow has a plug structure, then oil plugs and gas plugs alternately pass. The resulting loads on the pipeline lead to cracks and destruction of the pipeline.

2. Oil and Gas separator

The two-phase separator has become very popular. The final product after its use is gas from oil and crude oil. In addition, three-phase separators are also used, which also separate water. Both types of structures can be both vertical and horizontal.

Requirements for oil and gas separators:

- separate a significant part of the liquid after the primary separation;
- further separation is carried out by removing the dissolved gas from the accumulated liquid;
- the resulting gas and liquid is released from the vessels to prevent remixing;
- dissipate the energy of gas and liquids;
- contribute to the regulation of the flow rate of the product to ensure segregation and equilibrium between liquids and gas;
- reduce turbulence in the gas section;
- accumulate foam;
- relieve excess pressure in the event of a malfunction;
- have the necessary equipment to control the process;
- removes solids: sand, dirt.

Separation of well production (into oil and gas) is usually carried out in separators.

As separators, containers are used in which a certain temperature and pressure are maintained. The temperature is maintained at a given level either due to the heat of the incoming well production and the environment, or by introducing heat or cold from outside. The pressure in the separator is usually maintained by a pressure regulator installed in the gas line.

The output of oil and gas is carried out separately. Separation is carried out in several successively connected stages. The reservoir is used as the last stage. For example, with a three-stage separation, at the first two stages, separation is carried out in two separators, and at the last one – in the reservoir.

Separation efficiency is influenced by the following factors:

- Separation pressure. The volume of oil, which consists mainly of pentanes and heavier hydrocarbons, increases with increasing pressure up to a certain value and decreases with a further increase in pressure. The optimum separation pressure depends on the chemical and fractional composition of the product;
- Separation temperature. As the process temperature rises, the relative yield of the stable liquid decreases. However, at temperatures below -10°C , the volume of stable liquid extraction practically does not increase. Thus, it is preferable to maintain the temperature in the range of $+10$ to -10°C ;
- Number of separation stages. If the number of separation stages is more than two, the production of stable oil is improved, but the total volume of recoverable liquid is reduced. Oil losses in open reservoirs due to evaporation will be less with multistage separation. With an increase in the number of separation stages from two to three, the volume of stable reservoir oil increases by an average of 8%. With an increase in the number of separation stages from three to four, the oil yield increases slightly. Therefore, the use of a four-stage separation is uneconomical in most cases.

In most gas-liquid separators, the main elements that provide separation can be divided into three groups:

- elements, providing rough separation of oil from gas;
- drip eliminators;
- oil accumulators.

Elements of the first group provide the primary separation of oil from gas through the use of centrifugal or gravitational force. They consist of a separating element at the inlet, shelves, fluid passages and a part of the separator located between the liquid surface and the inlet pipe (in vertical separators) or above the liquid surface of the separators (in horizontal separators).

Drip eliminators are installed in the path of the gas flow in order to separate liquid droplets. They are in the form of coalescing packs, as well as paddle or hydrocyclone types.

The oil accumulator (and also water, in the case of three-phase separators) is designed to collect in the lower part of the apparatus liquids that have separated from the flow or condensed in the separator.

To prevent gas breakthrough into the oil reservoir or the liquid level rising above the limit, and also to ensure sufficient residence time for gas bubbles to rise from the liquid, level regulators are provided in the separators.

3. Vertical Separator

The vertical separator consists of four sections: I – main separation section, II – settling section, III – oil gathering section, IV – drip removal section (figure –1).

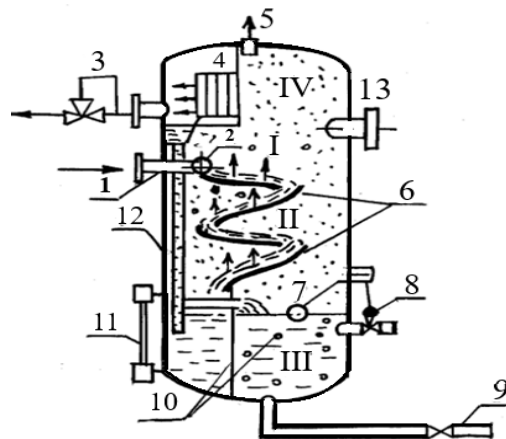


Figure 1. Vertical separator. 1 – gas-liquid mixture inlet pipe; 2 – distributing manifold with a slotted outlet; 3 – pressure regulator; 4 – louvered drip eliminator; 5 – safety valve; 6 – inclined shelves; 7 – float; 8 – level regulator and oil withdrawal lines; 9 – sludge collection line; 10 – partitions; 11 – level measuring glass; 12 – drainage pipe; 13 – purified gas.

Section-I – this is a section of intensive gas extraction from oil. The gas-water-oil mixture under high pressure through the mixture inlet pipe (1) enters the working space of the separator with an increased volume. Due to a sharp decrease in the flow rate, water and gas are separated from the oil. Then water enters the lower sections, and the gas is removed from the separator through the upper pipe. An increased separation effect is provided with a tangential gas supply to the separator. In this case, the flow of the gas-water-oil mixture enters the working space of the cylindrical separator housing tangentially and moves by rotation along the walls of the housing, which creates optimal conditions for the separation of water and gas. Oil separated from gas and water enters the section – II of the separator, where it flows under the action of gravity down the inclined shelves in a thin layer. This creates better conditions for the release of gas from oil by reducing the thickness of its layer and increasing the residence time of the mixture in section-II. After section-II, oil enters section-III – oil gathering. Here the oil level rises, and at a certain position of the float (7), the damper on the gas line (3) of the gas separator is closed. The pressure in the gas separator rises and oil begins to flow through the oil withdrawal line (8). After that, the liquid level in the lower tank decreases, the float drops with the opening of the gas line damper. After some time, the process is repeated.

In section - III, oil is cleaned from mechanical impurities (sludge). The sludge settles to the bottom and is removed through the sludge collection line (9). Section-IV – drop removal is designed to capture liquid drops entrained by the outgoing gas flow. Drops of water settle on the louvered drip eliminator and flow down. The partially purified gas enters through the outlet (13).

Further, the oil from the gas separators enters the settling tanks, from which it is sent to the oil treatment unit, which includes the processes of its dehydration, desalting and stabilization.

4. Horizontal Separator

The principle of operation of horizontal separators is similar to vertical separators (figure-2). But in horizontal separators, liquid droplets fall perpendicular to the gas flow, and not towards it, as in vertical separators.

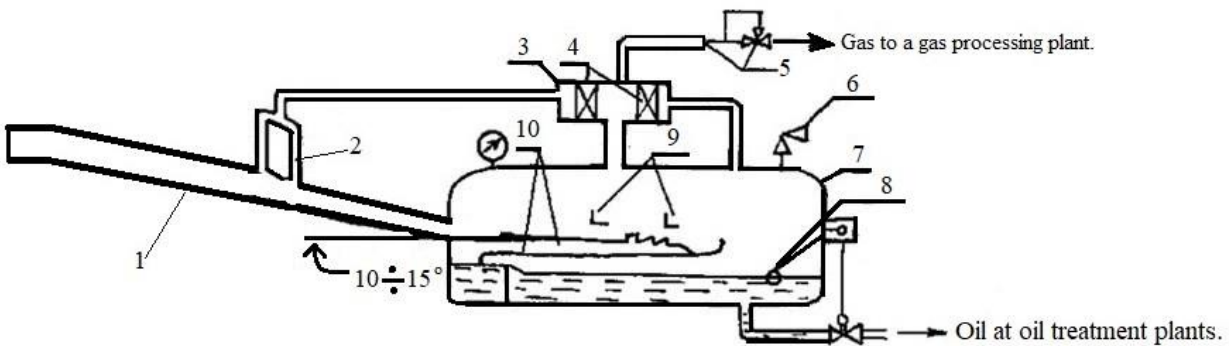


Figure 2. Horizontal separator. 1 – inlet pipeline; 2 – fork for preliminary selection of gas; 3 – drop catcher; 4 – louvre nozzles; 5 – gas pipeline with pressure regulator; 6 – safety valve; 7 – separator housing; 8 – float; 9 – defoamers; 10 – inclined shelves.

For increase the efficiency of the separation process in horizontal separators, hydrocyclone devices and preliminary gas extraction are used before entering the separator through the fork (2). In a hydrocyclone, the incoming gas-liquid flow is driven into rotational motion. Drops of oil, as heavier, under the pressure of centrifugal force, are thrown onto the pipe walls, and the gas jet moves in the separator housing. The horizontal separator with preliminary gas extraction is characterized by the fact that the oil-gas mixture is introduced into the separator housing along inclined sections of the pipeline.

The slope of the inlet pipeline (1) is small and amounts to 10-15° degrees. During the ascent and subsequent descent along the inlet pipeline (1), the liquid and gas are separated at the fork (2). Then the gas is discharged through the gas outlet pipes to the drop catcher (3), part of the water drops settle on the louver nozzles (4) and flow into the separator itself. After that, the gas is sent to the gas conduit, together with the gas separated in the separator housing, is sent to the gas processing plant through the outlet (5).

For a more intensive release of dissolved gas, oil is directed in a thin layer along inclined planes – shelves (10). The purified oil accumulates in the lower part of the separator and is removed, as in the case of a vertical separator, at a certain position of the float (8) under the action of gas pressure. Further, the oil enters the oil treatment plant through the line.

5. Conclusions

In the field, separators are used to separate gas from liquid or one liquid (for example, condensate) from another (for example, water). In the oil industry, the most common horizontal and vertical separators.

The separator usually separates two or three liquids. If two liquids are separated, for example, a gas and a liquid, the separator is considered to be two-phase. If three liquids are separated, for example, gas, oil and water, the separator is considered to be three-phase.

The number of phase corresponds to the amount of liquids coming out of the separator, not the amount of liquids entering the separator. For example, gas, oil and water enter separators used in well operations, but only gas and liquid are separated. The liquid flows to another separator where the oil is separated from the water. Therefore, a two-phase separator is one in which the incoming liquid is separated into two different liquids, while a three-phase separator provides separation into three products.

Some well fluids may contain sand or solids that are filtered in the separator. Special internal filters trap and collect solids. But according to the classification of separators, this is not an additional phase.

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The role of Industry 4.0 on manufacturing sustainability

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Abstract

The Covid-19 pandemic has determined a reconfiguration of the way business work, and digitalization is playing an important role in enhancing the firm's internationalization process and in particular for firms that operate in manufacturing industry. In particular, firms have shown an acceleration of their internal and external operations. This study aims to investigate the role of Industry 4.0 in accelerating sustainability in manufacturing industry. Albanian firms that operate in manufacturing industry are investigated. The results indicate that firms that do engage in sustainable business practice can increase growth and global competitiveness through operating more efficiently, enhancing productivity and saving cost. Moreover, the results indicate that firms that do engage in sustainability show high level of firm's performance rather than firms that do not engage in sustainability. This study contributes to international business literature with a particular focus on internationalization process through sustainability.

Keywords: Sustainability, Industry 4.0, Internationalization, Manufacturing, Albanian Firms, Innovation

1. Introduction

Recent studies investigate the important role of Industry 4.0 in accelerating sustainability in manufacturing industry. In particular, this phenomenon has been noticed during the Covid-19 pandemic while most of the firms that operate in particular in manufacturing industry have implemented and put in practice the Industry 4.0. Industry 4.0 is important because helps firms not only to engage in sustainability in order to meet their Sustainable Development Goals (SDGs), but also to be more competitive in the market increasing profit and market share. According to recent studies, it refers to internet of things (IoT), new technologies, cloud computing, additive manufacturing, big data, 3D printing and artificial intelligence (AI) (Bettiol, Capestro, & Di Maria, 2022; Bettiol, Capestro, De Marchi, et al., 2021; Bettiol, Capestro, Di Maria, et al., 2022; Bettiol et al., 2017, 2020a; Di Maria et al., 2022; García & Landeros, 2020; Hannibal, 2020; Jankowska et al., 2021; Mubarak & Petraite, 2020; Naem & Di Maria, 2020).

Nowadays globalization has played an important role in order for firms to be more innovative and competitive in the market. This requires firms to implement new technologies and to deal with big data that are generated from supply chain operations (Fantazy & Tipu, 2023). For instance, most of manufacturing firms implement new technologies in order to benefit from cost-saving and efficiency seeking with the aim of improving production activities and firm's competitiveness (Bettiol, Capestro, & Di Maria, 2022). In this regard, Industry 4.0 plays an important role for manufacturing firms in order to be more sustainable through implementing economically technologies that determine low impact of negative environmental and in the same time conserving energy and natural resources (Stefanini & Vignali, 2023).

The aim of this research is to analyze the role of Industry 4.0 in enhancing sustainability in manufacturing firms. While most of the studies focus on analyzing manufacturing firms originated from developed countries, this study will have a focus on developing countries and in particular on Albanian manufacturing firms.

2. Literature review

2.1 Industry 4.0

Known as the fourth industrial revolution, Industry 4.0 refers to digitization of products and services, new market models, internet of things (IoT), big data, blockchains, collaborative robots, digitization and network integration, digitized systems, augmented reality, 3D printers, and radio frequency identification technologies used with the aim to influence business performance and sustainability (Agostini & Filippini, 2019; Bettiol, Capestro, & Di Maria, 2022; Bettiol, Capestro, Di, et al., 2021; Bettiol, Capestro, Di Maria, et al., 2022; Bettiol et al., 2017, 2020a, 2020b; Demirkesen & Tezel, 2022; Di Maria et al., 2022; Fratocchi & Di Stefano, 2020; Grzybowska

& Łupicka, 2017; Jankowska et al., 2021; Luu et al., 2023; Majumdar et al., 2021; Mubarak & Petraite, 2020; Naeem & Di Maria, 2020; Stefanini & Vignali, 2023; Unterberger & Müller, 2021).

The concept of Industry 4.0 has been widely used in 2011 by Government of Germany referring to a high-tech strategy for 2020. Industry 4.0 is considered as a tool that generates improvement to production processes and environmental protection (Kiani & Andalib Ardakani, 2023); influences positively the sustainable development of manufacturing sector, improves productivity and reduce costs (Stefanini & Vignali, 2023).

2.2 Sustainability dimensions

Sustainability has been considered as the balance of three dimensions (see Figure 1) (Adams, 2006):

- **Social sustainability:** it refers to condition guarantee of human well-being distributed equally in a specific country or group (such as occupational health and safety, democracy, justice, education, transparency and information disclosure, human rights and customer satisfaction) (Ayazi et al., 2023; Çiçek & Turan, 2023; Stefanini & Vignali, 2023).
- **Economic sustainability:** it refers to manufacturing under favorable condition enhancing economic growth within a specific area through the exploitation of resources in the most effective way (examples are profitability, marketing investment, and greening expenses) (Ayazi et al., 2023; Çiçek & Turan, 2023; Stefanini & Vignali, 2023).
- **Environmental sustainability:** it refers to effective use of natural resources (examples are packaging management & waste, pollution level and environmental hazard) (Ayazi et al., 2023; Çiçek & Turan, 2023; Santos et al., 2022; Stefanini & Vignali, 2023).

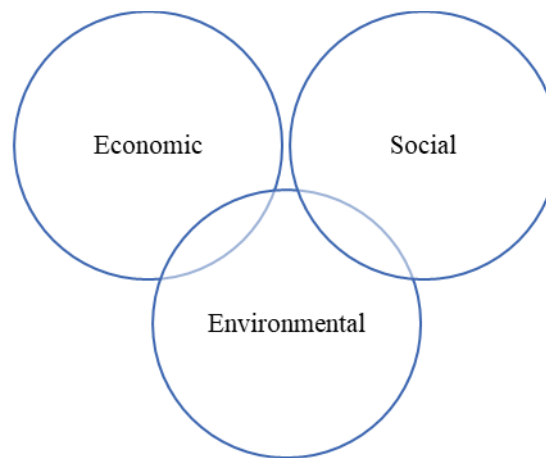


Figure 1. Sustainability dimensions (Adams, 2006)

Luu et al., (2023) find a direct link between Industry 4.0 and implementing a circular economy for green logistics and a sustainable supply chain. Moreover, recent study argues that Industry 4.0 is considered as a way to reach sustainable development and motivate firms to meet their Sustainable Development Goals (SDGs) (Stefanini & Vignali, 2023). For instance, it is used by manufacturing firms due to the increasing future competitiveness and sustainability (Kiani & Andalib Ardakani, 2023). Sustainability is considered also as a tool to improve organizational performance (Fantazy & Tipu, 2023) and to increases the effectiveness of supply chain management in terms of money and time savings (Çiçek & Turan, 2023).

2.3 Sustainability practices from Albanian manufacturing firms and the role of Industry 4.0

Albania started to adopt Sustainable Development Goals (SDGs) in September 2015 as a country with an EU candidacy status (Government of Albania and United Nations, 2017). However, some factors result to act as barriers on enabling sustainability of Albanian firms such as corruption, informality, tax issues, informal competition and skills and training (BiznesAlbania, 2017; United Nations, 2018). Blau and Janssen (2020) find that the lack of information and mechanisms for firms on environmental issues represent a barrier for the implementation of environmentally friendly practices. In the study conducted by Icka et al.,(2021) regarding the

sustainability practices adopted by Albanian SMEs, 9 of investigated firms show lack of sustainability requirements. However, many of these firms know the importance of sustainability practices such as the opportunity to engage in internationalization process.

Figure 2 represents the main indicators structure by economic activities for goods producers for the year 2021 elaborated by INSTAT (2023). According to this study, manufacturing sector results to be the main sector with the largest impact on turnover (12%), producers of goods for the number of active enterprises (7%) and the number of employees (19.4%). Albanian manufacturing sector has recently changed its philosophy of operating since it is not limited only on producing for international brands but it shows an engagement on the promotion the brand Made in Albania giving the possibility to compete globally (Republic of Albania. Council of Ministers, 2022).

In this regard, the investment on new technology has played an important role contributing on the reconfiguration of the business operating in a more sustainable way. Moreover, sustainable manufacturing plays an important role in this regard, since it is focused on the development of manufactured products through economically process that contribute to lower the negative environmental impact through energy conservation and natural resources (International Labour Organization, 2023). For instance, it is considered as a tool used to enhance the circular performance of manufacturing firms (Luu et al., 2023). Industry 4.0 helps manufacturing firms in order to achieve quickly their sustainable goals through cost optimization, operating efficiently and implementing safe working conditions.

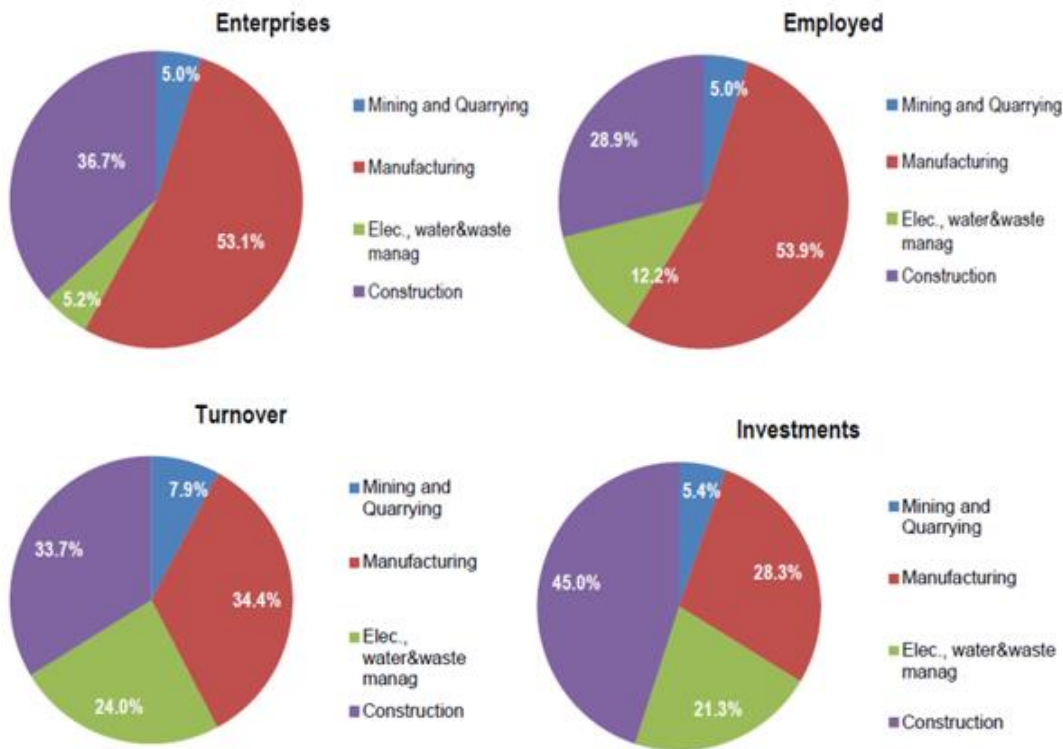


Figure 2. Main indicators structure by economic activities for goods producers, 2021 (INSTAT, 2023)

Figure 3 shows data on environmental performance index score for Eastern Europe for the year 2022. Albania shows progress in terms of environmental protection (score 47.1 out of 100) however, the national strategy for green growth should be improved since there is no national policy document dedicated to the green economy as an objective to be reached (European Commission, 2022; The World Bank, 2021; United Nations, 2018).

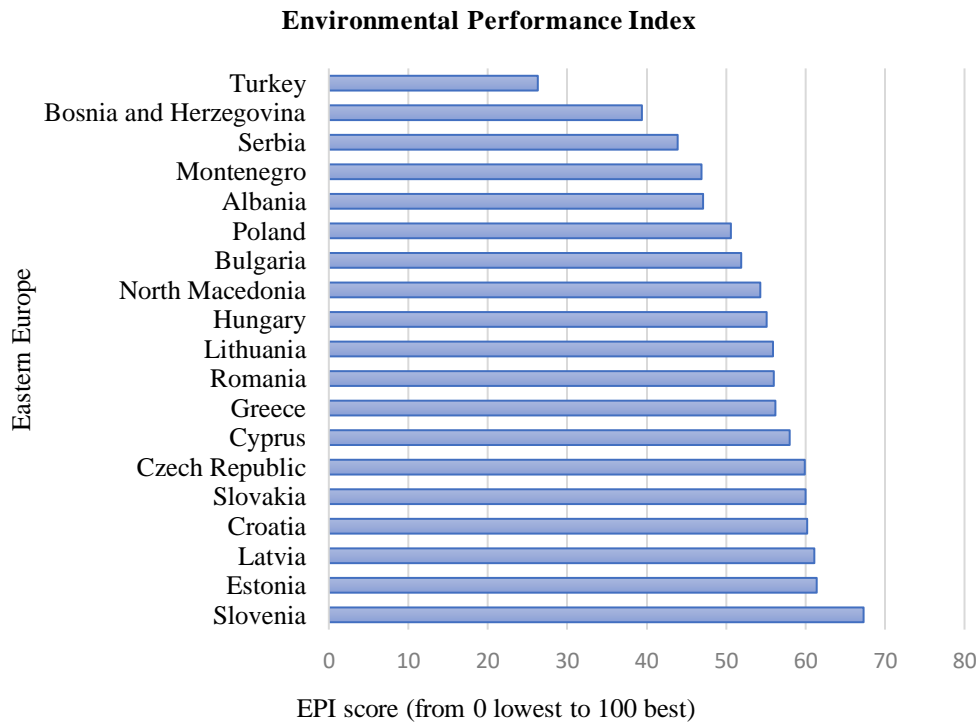


Figure 3. Environmental Performance Index score 2022 for Eastern Europe (Wolf et al., 2022)

Figure 4 represents greenhouse gas intensity growth rate for the years 2010-2019, where in particular greenhouse gas in Albania intensity (score 49.6 out of 100) is caused by energy consumption and more in specific used in transport and manufacturing industry (European Commission, 2022; The World Bank, 2021; United Nations, 2018).

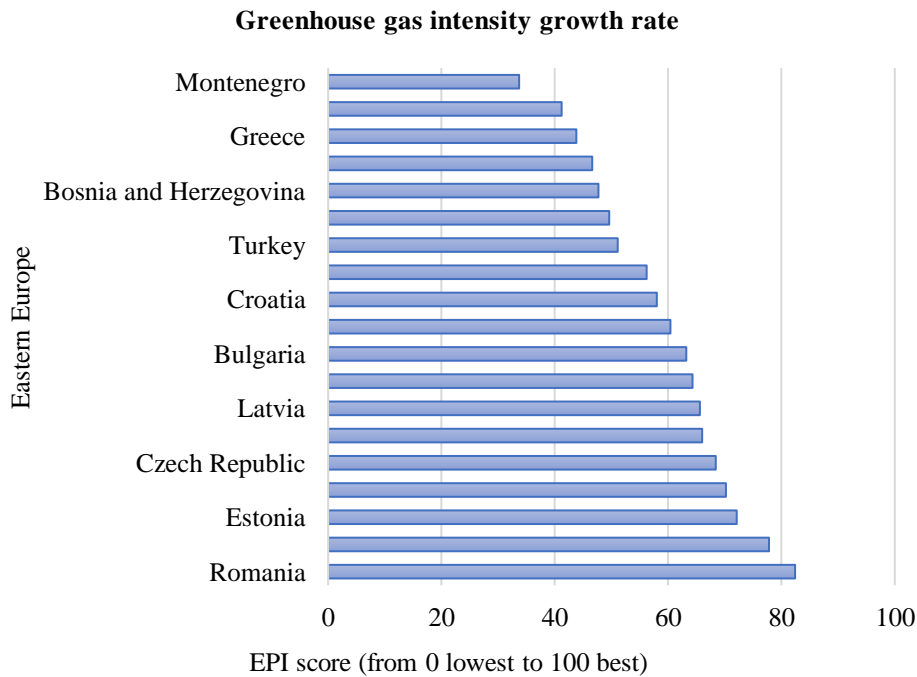


Figure 4. Greenhouse gas intensity growth rate 2010-2019 for Eastern Europe (Wolf et al., 2022)

Nevertheless, Albania recently shows progress in the business area, and more in particular in July 2021 adopted the business and investment development strategy (BIDS) that develops the strategic framework for Albania's enterprise and industrial policy focused on investment promotion, developing program for further care service, reinforcing the start-up ecosystem, entrepreneurship skills program for SMEs and improving access to finance (European Commission, 2022; Republic of Albania. Council of Ministers, 2022). Moreover, Albania has implemented a 2020-2024 programme for inclusive and sustainable industrial development (ISID) articulated in three key areas: industrial competitiveness and access to market; entrepreneurship development and productive employment; and sustainable energy for productive uses and management of environment (European Commission, 2022).

3. Discussion and conclusions

This study offers important insights of the relationship between Industry 4.0 and Sustainability. Through a literature review on Albanian manufacturing firms the results show that firms that implement sustainable business practice may profit from increasing growth and global competitiveness through operating more efficiently, enhancing productivity and saving cost. Moreover, the results indicate that those firms that do engage in sustainability show high level of firm's performance rather than firms that do not engage in sustainability. Nevertheless, there is a lot of work to in order for Albanian firms to be more sustainable starting from the developing laws and regulations in order to implement green business practices giving so the possibility to these firms to be more competitive in the domestic market as well as international one (Icka et al., 2021). Moreover, the COVID-19 pandemic shows the necessity to develop more sustainable post-crisis economy (The World Bank, 2021). In particular, there is a need to invest mostly on sustainable development, protection of the environment and climate change as well as on resource efficiency.

This study contributes to international business literature with a particular focus on internationalization process through sustainability. There are some limitations regarding the methodology used since it refers only to a literature review. Empirical studies with concrete cases on Albanian firms must be conducted in order to have a better overview of the relationship between Industry 4.0 and sustainability. For instance, there is a need to investigate also Albanian firms that operate in other industry sector rather than manufacturing. Moreover, an in-depth analysis must be carried out in order to investigate the drivers and barriers for Albanian firms to adopt industry 4.0 as well as to be more sustainable.

Finally, this study offers some managerial implications in that managers should accept the revolutionary developments in Industry 4.0 technologies in processes and operations. For instance, there is a need from managers to support the implementation of Industry 4.0 changes.

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The role of the biology laboratory, as well as experimental work, in achieving effective teaching, as well as increasing the level of student learning, in the acquisition of biological scientific concepts.

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Abstract

The subject of biology, which is dealt with in the group of subjects of the scientific field of natural sciences, deals in its subject matter with a series of concepts, where their acquisition by pupils and students is achieved only if the theory is applied in practice. Therefore, it is necessary and immediate that in the process of teaching biology, teachers, in addition to the scientific level they must have in the knowledge of biological concepts, in order to achieve the biological formation of students, it is very important that the teacher in the teaching process must use efficient methods, especially the practical ones: experiment, observation, excursions.

Purpose: Through the study, it is possible to draw the conclusion that the experimental method is used by biology teachers, in the process of teaching biology, in function of connecting theory with practice, in order to increase the level of learning of students in the subject of biology.

Methodology: The research was carried out in several high schools in Tirana. For the realization of this study, the qualitative method was applied. At the same time, observations, records and comparisons were made. The interviews of biology teachers and students of these schools were used as a research instrument.

Results: Showed that biology teachers recognize the importance of experimental work that takes place in biology laboratories, at the same time the condition of these laboratories, identifying their condition as well as the deficiencies they have in infrastructure and laboratory tools. Absence that brings a lot of damage to the teaching and learning process. At the same time, the study managed to identify the real state of these laboratories, the possibilities that these laboratories have for the development of experimental works, as well as their role in increasing the level of students as well as in connecting theory with practice.

Conclusion: The research study leads us to the conclusion that the experimental works that are carried out in the biology laboratory occupy an important place in every step of teaching, as they serve as a source for the acquisition of knowledge, theories, biological concepts by students and their application in practice. At the same time, the study highlighted that, in addition to schools that had quality laboratories, there were also schools where the situation was not good with lack of teaching aids. This has caused this process to not be evaluated properly, leading to a decrease in the effectiveness of the teaching and learning process.

Keywords: Laboratory, experiments, teaching, learning, method, concept.

1. Introduction

The subject of biology offers pupils and students skills and opportunities to create an idea and understanding of the world around us. Biology studies life and its evolution. It studies living things and organisms for processes, construction, structure and the interaction between them and the environment. One of the main methods to acquire biological scientific knowledge is the scientific investigation, which is carried out by means of experimental processes that the biology laboratory enables. theories, hypotheses, conceptual themes, concepts, are realized through experimental work, so the biology laboratory is a key component to understanding biology.

"Experience has shown that laboratory work is quite useful in helping pupils and students to understand biological scientific concepts.. (Abrahams, 2017)" Biology is a practical science, so the high quality of experiments and investigations are the key to clarifying and consolidating the theory.

"Phenomena and experiments serve as a source for the truth of ideas and theories (Berg, 2009). The experimental and practical works that take place in the biology laboratory and in the field create the opportunity for pupils and students to be inspired, engaged and to be motivated to have a greater interest in science in general and biology in particular. In teaching biology in the classroom or laboratory, it is very important to create a suitable and attractive environment for pupils and students, which can enable an effective teaching and a high level of learning.. But what is achieved through laboratory teaching:

- They get the students to better understand and retain the biological knowledge they have studied.
- The theory can be applied in practice.
- Conceptual understanding of the subject is achieved
- Reasoning skills for science increase
- Laboratory manipulative skills increase.
- Scientific research and critical thinking skills are enhanced.
- The level of teacher-student and student-student cooperation increases.

"The investigation process is always based on the interaction of the experiment with the theoretical part (Duit & Teschi, 2010). The study was carried out in 4 high schools in the district of Tirana, 2 in the city and two in the suburbs. In order to carry out this study, a detailed plan was prepared in advance, it was focused on observations, records and interviews of the biology teachers of these high schools, where the aim was to extract from the case study a detailed information about the issue under study for these issues:

- The real state of biology laboratories in these schools from their infrastructure and effectiveness.
- What is the real engagement of teachers to the development of experimental and practical work.
- The difficulties that the students have manifested in learning biology from the lack of development at the appropriate level of experimental and practical work, or the lack of use of the biology laboratory.
- The rate of realization of experimental and practical works.
- The professional level of teachers as well as the degree of their training in terms of the implementation of the experimental scientific method. For all these issues, after the identification, interviewing and analysis of the entire research work, conclusions and recommendations will be issued.

"The mediocre teacher tells

The good teacher explains

The distinguished teacher demonstrates

A great teacher inspires. (William A. Ward)"

2. Methodology

For the realization of this research study, the relevant literature that deals with experimental and practical work in biology has been studied and summarized. At the same time, concrete observations were made and the role played by the biology laboratory for the realization of these works was identified and studied. As a method, the qualitative method was used, which in its object has as object of research the interviews conducted with the biology teachers of these high schools. Where the interview questions were focused on the issues related to the experimental work that takes place in the biology laboratory. All the data obtained through observation, recording, and interviewing were analyzed, coming up with concrete conclusions.

Research sample

As a research sample, the biology teachers of two high schools in the city of Tirana and two in the suburbs, more concretely: "Partizani", "Arben Broci" high schools, as well as the Vora and Kombinati high schools in the suburbs.

Data collection instruments

In order to reach the most accurate results in this study, the collection of data from the interviews conducted with the biology teachers of these high schools served as measuring instruments, where with the questions asked in these interviews, we aimed to we extracted what was the challenge of these teachers to implement the experimental work as well as the degree of utilization of the biology laboratories, to effectively implement the experimental and practical works in the school. The questions were carefully designed that addressed various issues regarding this the problem. The entire interview was focused on the degree of implementation of the experimental scientific method by these biology teachers in these schools. Based on the analysis of the answers received from the interview, observation, and recordings, conclusions and conclusions were drawn.

The theoretical part

The purpose of science and in particular the subject of biology is to develop and equip pupils and students with critical thinking skills and lifelong learning.

"Scientific process skills teach individuals to study as a scientist using the scientific research method (Kasler & Kalyon 2020). All research has shown that starting from the study unit and then applying it in the laboratory or field, enables pupils and students to take advantage of this knowledge and build new knowledge. In the implementation of the experimental scientific method, the professional development of biology teachers is very important, therefore the continuous and systematic training of teachers in the experimental field, especially in the forms and strategies to be used in laboratory and field work. Therefore, the training process should be accompanied by laboratory biology instructions. The biology laboratory should equip students with the ability to observe and explore where with living materials they can make comparisons with non-living samples or objects. Regardless of the student's level or desire to learn, every student should to know and have direct contact with the laboratory materials. Therefore, the primary duty of the teachers is that all students are activated and work in the laboratory experiencing the laboratory experience regardless of their desire.

"Scientific learning involves putting pupils and students into action where they can see things for themselves (Millar & Abrahams, 2009). The scientific laboratory enables pupils and students to use knowledge, develop general competences, identify new problems, explain an observation and make decisions. This is why the experimental activities in the biology laboratory affect the pupils and students in terms of: the level of reasoning, critical thinking, understanding of science, physical skills, processing skills.

"It is very important to know what the teacher should achieve in the experimental work in the laboratory, and in particular how the students will be able to perform (Ohander & Grayson). The scientific method that is carried out during experimentation, through the process of obtaining information is very important for the study of biology.

"Experiment is of fundamental importance to science instruction, as well as to science learning and content, and to the processes that occur in nature (Duit & Tesoh, 2010)

"Laboratories are intended to promote a number of goals for pupils and students, most of which are also goals of science education in general (Hafstem & Lunetta, 2004).

"Teachers agree that laboratory work is an important part of biology and science in general (Ottander & Grenon 2006). The productive results of the biology curriculum are determined by the inclusion of active learning, which is carried out with experimental activities in the laboratory and with practical activities carried out in the field, where, relying on this learning, the teacher can use indirect methods of learning such as: discussion, lecture, task. Based on the studies that have been done by various researchers, for the level of the ability to remember what has been read, explained, heard or combined with practical activities, it results:

People remember 10% of what they read, 20% of what they heard, 30% of what they saw, 50% of what they saw and heard, 80% of what they saw, heard and said, 90% of what they have seen, heard, touched and said. As seen from this proven hypothesis, it shows that remembering is related to touching and proving these that are realized through experimental work in the laboratory.

3. Results and Discussion

The purpose of this study is that, after the research done, we could conclude what is the degree of effectiveness of the students' learning, in the subject of biology, based on the application of the experimental scientific method that is applied by the teacher but that is realized in the laboratory of biology, and of the practical work that is carried out in the field. The results and discussions of this study are derived from the analysis of the case study, with the help of the interviews of the biology teachers of the high schools taken in the study. The topic of the interview was focused on main issues related to experimental and practical work, which constitutes the scientific method of learning. Among the main issues that we have focused on in the interviews are:

- What is the actual state of biology laboratories in these schools.
- How far biology laboratories go to carry out all the experimental work, covering the whole subject matter of the biology program that has to do with the implementation of the experimental work.
- What is the students' interest in experimental and practical work.
- How much do experimental and practical work affect the students' learning process
- Professional level of teachers to handle, explain, demonstrate experimental work.
- The degree of qualification and training of teachers, in the implementation of the experimental scientific method.

We are treating in a summary way, the interviews of the high school teachers in the study, expressed all these in results and discussions:

Question 1: Does the school have a biology laboratory? If yes, with the infrastructure and tools available, do they manage to fulfill the needs that biology addresses in its program to carry out experimental activities?

Answer: From the answers of the teachers as well as from the observations made in the laboratory, we drew this conclusion in a summarized form. All four high schools have a biology laboratory, naturally in terms of infrastructure and tools they are not the same. The two gymnasiums of the city have better level of laboratories. As for the degree of realization of experimental works, it appears that the lack of tools and infrastructure has made it impossible to realize all the experimental works contained in the program. Further, the teachers emphasize that these lacks have not left us passivity, as we have carried out many experimental and practical activities with our own resources provided by the teachers and students. Finally, all the teachers are of the same opinion, regarding the importance and necessity of the biology laboratory with the necessary infrastructure and tools, to realized one of the main components of teaching and learning experimental and practical work.

Question 2: Since you know the biology program well, as well as which topics or issues the experimental scientific method must be applied, could you inform us what deficiencies you have in your laboratory, which become an obstacle for the realization of experimental biology work?

Answer: All teachers prove a high level, in terms of the level of knowledge of the biology program, as well as correctly identify the topics that must be developed in the biology laboratory, applying the experimental scientific method. From their discussions as well as from the observations made, the teachers list some deficiencies of tools and preparations that are very important for the realization of the program, where the most pronounced deficiencies are in schools in the suburbs. Among the most important absences we can list:

- Laboratory spaces not sufficient for the required criteria
- Absence of light and electronic microscopes, where those that are there are not of the time, without the microscope it is impossible to talk about biology.

- The lack of ready-made preparations or didactic tools, as well as the use of the laboratory as a classroom, reducing the value of the laboratory.
- Lack of adequate means.

Question 3: What is the students' interest in the experimental work? How much does the experimental work affect the students' level of learning biology, as well as the level of their skills?

Answer: All teachers give the same answer regarding the question posed. The teachers emphasize that the experiment develops students' interest in biology and research in general. In general, the students' interest in experimental and practical works is high, it has been proven that for all those topics, which were treated with the experimental scientific method in the biology laboratory, the students' interest and knowledge acquisition rate has been higher. In conclusion, they emphasize that experimental works have superiority compared to written or oral tests because with them the acquired knowledge is tested, the students' skills and habits are also tested, as well as the highest level of the learning pyramid is proven.

Question 4: Based on the biology program that you already know well, which of the biology topics is it necessary to apply the experimental scientific method? Which ones do you develop concretely?

Answer: In their answers, as a conclusion, we come to the conclusion that biology as a science in general is an experimental science, but within the program there are topics where the use of the experimental scientific method is more than necessary. They list these topics:

- The study of the plant and animal cell.
- Anatomical construction of root, stem, leaf.
- Construction and structure of the flower.
- Study of blood cells (erythrocytes, leukocytes, thrombocytes)
- The process of osmosis. The process of photosynthesis. Macromolecular substances (proteins, sugars, fats)
- Anatomical and physiological demonstration of human organs.
- Demonstration of DNA and RNA, Protein synthesis. Etc.

So as seen in biology in its program, most of the topics should be developed using the experimental scientific method. But they further point out that the lack of material base, regardless of the fact that they are not in large quantities, affect that some of the topics are not developed using the experimental method.

Question 5: Can you give us your opinion regarding your professional level, to respond to the requirements of the application of the experimental and practical scientific method? Have you been trained in this method?

Answer: From their answers as well as the concrete situation, it shows that their professional level is high, that is, their level is not an obstacle for the progress of their work, but they express the opinion that in this field more commitment and preparation is needed. high to implement this teaching method. For this reason, they express the opinion that continuous and systematic training should be done in this direction. Regarding training, everyone is of the opinion that they should be trained. The evidence of this problem shows that there are teachers who have been trained, but there are also teachers who have not been trained at all. This is a serious problem that must be evaluated in the future. The training has influenced the training, enrichment, demonstration as well as the conclusion of the experimental work. Everyone agrees that more training and consultation is needed in this area.

4. Conclusions

Based on the studies derived from the case study, as well as the entire verification of the teaching process in the framework of the methods used, the experimental scientific method remains a very important and necessary method in the teaching and learning process of biology.

By applying this method, students will achieve:

- Increasing the level of conceptual understanding of the subject.
- Scientific reasoning skills.
- Increasing the ability of scientific research in biology.
- Laboratory manipulative skills.
- Development of competencies with experiential skills.
- Determination of the hypothesis of the study, quality of analysis, interpretation, data collection and drawing of conclusions are obtained.
- Increased interest and desire to learn, and in particular creative learning.
- It increases the degree of interaction, activation, the ability to deal with independent work, as well as the connection between theory and practice. How important is the implementation of this method, I would illustrate with the following proverb:

Tell me, I forget.

Prove it to me, I remember.

Include me, I understand.

So this shows that the two most important qualities of learning, which are memory and understanding, were realized by the experimental scientific method.

5.Recomendations

Based on the research done, on the issues arising from this study, as well as on the importance of this method, which to be implemented requires the environment that is the biology laboratory and the field, we think to put forward the following recommendations:

- It is necessary to have a biology laboratory, with all the infrastructural parameters, as well as with all the experimental and didactic material base. This will enable the realization of the entire biology program.
- All biology during its treatment should be described by the practical experimental method, especially for the topics that the teachers listed during the interviews.
- Very important is the training of teachers, especially in this field, since the lack of their training has shown deficiencies in the implementation of this method. The trainings should be different and systematic.
- Equipping schools with tools that you lack and in particular with light and electronic microscopes of the latest production.
- Teachers in their work should have experimental work in the center of attention and their motto in the teaching and learning process.

We think that in the final assessment of students, the level of engagement of students in experimental and practical work in biology should be taken as a basis.

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Student Accommodation in the City of Split: Socio-economic Aspects

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Abstract

The city of Split is a student city as well as a popular tourist destination and as such shapes specific living conditions for students. The aim of the paper is to analyze the socio-demographic and socio-economic characteristics of Split students. Also the aim is to explore experiences and attitudes about the problem of finding student accommodation in the city of Split and students' satisfaction with the quality of life in student dormitories and private accommodation. The research was conducted during July 2021 using an online survey method with 20 mostly close-ended questions. The sample included 460 students of the University of Split whose residence is outside of Split. The sample was stratified according to the available socio-demographic characteristics of students based on data from the Student Center. Results indicate that the majority of respondents who use a student dormitory do so solely because of their lower socio-economic status. More than a quarter of the respondents did not experience subsidization for private accommodation, and most of them encountered at least once the request to leave the accommodation during the summer exam period. The results indicated student dissatisfaction with the price of private accommodation in Split and general satisfaction with their own student accommodation. As the basic problems of accommodation, students cite insufficient capacity of dormitories and excessively high prices of private accommodation, as well as requests to leave from their accommodation units due to the tourist season.

Keywords: student accommodation, mass tourism, quality of life, Split, dormitories, private accommodation

1. Introduction

The social status of young people in Croatia is often described as marginal. Contemporary youth is characterized by a significantly slower take-up of permanent social roles, from professional and family to public. Voluntarily or even forcibly chosen prolongation of the status of young people, which includes later moving out of the family home and starting their own family, inevitably limits the opportunities for expressing the established effective potential of this social group, and at the same time becomes a suitable ground for the emergence of various social problems. Young people are seen both as a social problem and as a social resource (Roche et al., as cited in Ilišin, 2008: 223).

Young people are not a homogeneous social group. They are in a certain transitional period characterized by a mismatch between social and psychophysical maturity. They are no longer protected as children, but at the same time they do not yet take advantage of all the opportunities and benefits available to adults. Such a situation makes them the most vulnerable part of the population, which requires a special attitude of society towards their problems or interests, needs and lifestyles (Perajica, 2018: 30).

Previous research has shown that the life chances of young people are not primarily individually created in transitional societies (Ilišin, 2008; Ilišin, Radin, 2008; Ilišin, 2014). The longer duration of institutionalized education, unpredictable employment opportunities, especially for well-paid and safer jobs, postponement of starting their own family, difficult socio-economic independence and insufficient involvement in social decision-making processes, are all characteristics of the phenomenon known as prolonged youth. Prolonged youth results in slow social integration and keeps young people in a dependent position against the elderly (Ilišin, Radin, 2008; Ilišin, 2008). Individual life choices of young people take place within the existing social structure and are limited by the availability of necessary resources (Cote et al. as cited in Ilišin, 2008: 225). In order to achieve the desired social promotion, young people first of all rely on family resources, i.e. socio-class shaped restrictions on one hand, but also opportunities on the other hand (Ilišin, 2014: 15-30).

Most research of the youth in Croatia determined that students are of an above-average social origin, and that 50% of students live with their parents, and less than 10% in student dormitories. This is why Croatia is included in the EUROSTUDENT group of countries

with the largest share of students living with parents, and the youngest who are accommodated in student accommodation, i.e. student dormitories (Šćukanec et al., 2014: 9). With that in mind, this paper will focus on specific context of the city of Split regarding students' accommodation and its problems caused by mass tourism.

1.1. Research Review on Satisfaction with Accommodation in Student Dormitories and Private Accommodation

Accommodation is an important prerequisite for realizing a wide range of individual and social needs. This makes it one of the most complex social phenomena, the basic function of every settlement and an indicator of the quality of life of every society. At the micro level, the needs of individuals or households that are realized by having a place to live can be grouped into certain categories: shelters (elementary security, meeting basic needs), privacy (needs development), sociability (belonging to the local community), investment (a form of savings, accumulation of wealth). The efficiency of the housing system should enable the simultaneous realization of individual needs as well as the social and systemic integration of social communities (Petrović 2004: 10). Accommodation quality consists of a number of variables. Some of them are various characteristics of the space, for example: basic equipment, installations, size, the location in relation to the center and the immediate ecological situation. For adequate and comfortable accommodation, certain prerequisites must be met. People will be more inclined to be dissatisfied if one or several essential prerequisites are not met and this cannot be considered as quality or comfortable accommodation. Satisfaction is a subjective category that is influenced by the tenants' aspirations and a comparison with the current state, while the objective quality of accommodation refers to the physical characteristics of accommodation (Porkolabić, 2018: 10).

According to the international EUROSTUDENT report, adequate and acceptable accommodation is one of the important prerequisites for successful studies at faculty. Accommodation in a student dormitory offers lower costs, the possibility of more intense socializing with other students and more incentives for intellectual development. The above can contribute to a more successful social integration of students and can have a positive effect on the duration of studies and their grades (Šćukanec et al., 2014: 66). In the context of accommodation during studies, Croatia belongs to the group of countries in Southern and Southeastern Europe where the largest share of students live with their parents, together with Georgia, Malta, Armenia, Italy, Bosnia and Herzegovina, Montenegro, Serbia and Russia. Only 8% of students who responded to the EUROSTUDENT survey are housed in student dormitories. Thus, Croatia ranks among the EUROSTUDENT group of countries with the smallest share of students housed in student dormitories (Šćukanec et al., 2014: 67/68).

Student dormitories are mostly home to students studying at university, 10% of them. The number of students of public professional studies housed in dormitories is significantly smaller, i.e. 4% of them. The University of Split has the largest number of students housed in dormitories. The University of Split has three dormitories, the Bruno Bušić dorm, the Spinut Hostel, and the Dr. Franjo Tuđman on the student campus with a total of 1189 beds. Students acquire the right to accommodation in a dormitory through a public tender, i.e. the Rules prescribed by the Ministry in charge, according to the ranking list of the number of points achieved. Those who manage to realize the right to accommodation, have it in the period from October 1 to July 15 in the current academic year. The accommodation facilities are filled with students throughout the academic year, but the lack of beds is increasingly pronounced (Bogdan, 2019: 32).

Less than a third of students in Croatia are tenants, 31% of them, meaning they live in rented space. The mentioned form of accommodation is used less by students of private higher education institutions compared to other student groups. Namely, students of private higher education institutions most often live in their own apartment, i.e. 26% compared to the average of 11% for the entire sample. Students who are parents live in their own apartment more often, 65% of them, and students who enrolled at the age of 21 or older, 39% of them. These groups of students are also rarely accommodated in student dormitories (Šćukanec et al., 2014: 69/70). Students are entitled to subsidized accommodation with a private landlord according to the total number of points they have earned, as well as those students who compete for student accommodation. Quotas for the number of subsidies in a certain place are determined by the Ministry of Science and Education based on the number of students who study in that place, but whose residence is not in the place of study. The total quota for subsidized accommodation was distributed for the city of Split in such a way that the quota for accommodation with a private landlord was 403 (Ministry of Science and Education, 2019).

According to the Eurostudent report, students are mostly satisfied with student accommodation. Thus, more than half of the students are very satisfied with their accommodation, 52% of them, while only 4% of them stated that they were extremely dissatisfied. These data for the Croatian sample of students are similar to the data of the previous international survey EUROSTUDENT from 2010, which showed that in eleven countries as many as three quarters of students are extremely or mostly satisfied with their accommodation. However, although the majority of students in the Croatian sample are satisfied with their accommodation, it is interesting to note that students who live in their own homes are the most satisfied with their accommodation during their studies, while satisfaction is the lowest among students who are accommodated in student dormitories (Cvitan et al., 2011: 46). The latest available data for the Republic of Croatia indicate that the share of students studying in their own place of residence has decreased, falling from 50% in the 2018/2019 academic year to 43.3% in 2021/2022. In addition, the total number of students also decreased, which affected the reduction of competition when looking for student accommodation. Data from 2022 point out that the lowest living expenses are associated with living in a student dormitory, while they are somewhat higher if the student lives in his parents' home. At the same time, the difference

between the cheapest socially subsidized accommodation in a student dormitory and living in a rented apartment is almost 1:3, i.e. the difference is slightly more than 120 euros (Rimac, 2022: 45/46).

The research conducted by the author Živčić-Bećirević and colleagues on the quality of life of students in Croatia shows that girls have a more adequate academic and social adjustment than boys. Students who left their parents' home for studies have a weaker emotional adjustment at the beginning of their studies compared to their peers who stayed at home, while at the very end of their studies the situation is reversed. So, in their final year students who left home show significantly better emotional adjustment than their peers who stayed with their families, regardless of gender. Students who stayed with their families do not differ in social adjustment with regard to gender and year of study. In the fourth year, girls are significantly better socially adjusted than boys, although there were no gender differences at the beginning of the study (Živčić-Bećirević et al., 2007:1). In the research on the satisfaction of student users of student dormitories and living conditions, the respondents mentioned a large number of problems, as well as shortcomings, in their student settlement in Zagreb. The most frequent complaints were related to the equipment and cleanliness of the kitchen and other spaces that they had to share with other students in the dormitory, one of them being the bathroom. Most often, they are dissatisfied with the lack of gathering space, quality entertainment, social, and even educational facilities (Porkolabić, 2018, 28).

1.2. Student Accommodation During the Tourist Season

Tourism is a social, economic and cultural activity and represents one of the extremely important activities of modern society. It contributes to economic development on a global scale. As one of the most complex, massive and dynamic socio-economic phenomena of today, it has become one of the fastest growing branches of the global and Croatian economy. It includes a wide spectrum of relationships and phenomena and also significantly affects numerous aspects of life (Vuković, 2006: 37; Šuran, 2016). Tourism is significantly seasonal, littoral and sensitive to space and other phenomena of current civilization, post-industrial society and increasingly obvious globalization. In it, people are important and original agents and subjects, eternal challenges that essentially determine it, but also serve it less and less and obey its needs less and less. It passed the phase of full expansion and ascent and entered a mature age, which is characterized by full competition and struggle in the tourist market of surprise, adventure, pleasure, atmosphere, luxury and the experience itself (Jadrešić, 1999: 58; Šuran, 2016; Gržinić, Bevanda, 2014). Today it refers to the service activity that, in recent years, has seen significant growth as a result of global connectivity and technology development (Perajica 2018, 4).

Many studies have confirmed that there is a certain connection between the quality of life and tourism (Andreck, Nyaupane, 2011: 249; Gutović, Relja, Goreta, 2022: 36; Dodds, Butler, 2019: 520). Greater satisfaction with the quality of life can be seen through the development of tourist offers that can be enjoyed by residents of a certain area, as well as tourists. The development of tourism leads to the creation of jobs, and a certain investment is made in the economy and technology with an overall increase in the standard of living (Perajica, 2018: 4).

The quality of life in tourist places is affected by a large number of factors: crowding, lack of parking spaces, environmental pollution, lack of shops, pharmacies, etc (Gutović, Relja, Goreta, 2022: 99). People abroad state similar attitudes as those in Croatia. Those who work in tourism have more positive attitudes, while those who do not have such a positive opinion about tourism in their region. Young people in Split and Rovinj believe that tourism has a positive effect on the community. Although their costs have increased, there are more positive than negative effects from tourism. Faith in the future is also evident among young people who live on islands and believe in a better future, which is why they stay on the island and do not think of going anywhere else (Milošić, 2020: 26). Young people who work and earn money in tourism have a positive opinion about it, while those who do not work in tourism do not. The results indicate that there is no difference in the quality of life of young people with regard to their distance from the center of Split, where only 24% of them live in the inner city center, and as many as 76% of them live in the wider one. The quality of life differs depending on the age of the respondents, while the same cannot be said for the rest of the socio-demographic characteristics (Perajica, 2018: 48). With tourism, the crime rate and urban problems also increase, which they did not highlight as something particularly problematic (Andreck, Nyaupane, 2016: 258).

A tourist destination has certain qualities, such as the types of services, the totality of the offer, etc. By developing the quality of a certain tourist location, we contribute to the image of that destination, the influx of new tourists, and a good reputation (Pavat, 2018: 35). Skoko states that tourism is a promoter of tradition. Tourism destroys the traditional values that make certain localities special and attractive. The local population adapts to this by developing old customs and peculiarities (Skoko according to Blažević, 2019: 11-12). Tourism has an important social role in providing employment to young people entering the labor market for the first time. Tourism is labor-intensive, and because of this, with the increase in tourist activities, new jobs are directly created (Blažević, Vuković, 2001: 22).

Research conducted in June 2020 on a sample of 203 young people aged 18 to 34 in the Split area indicated that for most young people, working in tourism is their first experience on the labor market, and that most young people live out of the money earned during the tourist season during the whole year. This highlights the positive contribution of tourism in solving the financial problems of young people. In addition, young people point out that they feel exhausted from working in tourism, which points to unstable and varied working conditions. The proportion of young people who actually live the rest of the year from working in the season points to the potential problems that this social group faced as a result of the crisis caused by the COVID-19 pandemic in 2020. The survey confirmed that 71.8% of respondents expect financial difficulties due to the corona crisis. More than two-thirds of the respondents point out that

they earn more during the tourist season than in jobs outside tourism or outside the peak of the season. Considering the numerous studies that point to the problem of youth unemployment in Croatia, it is possible to conclude that tourism is certainly an area in which they find their way around and assert themselves very quickly and which undoubtedly enables them to transition to the labor market and good financial benefits (Relja, Gutović, Svalina, 2020: 21).

"Responsible tourism" means tourism that maximizes positive effects on the local community, minimizes negative social and natural effects, and helps the local population in preserving their environment and culture. This concept aims to increase the positive effects of tourism on the local community and the national economy. The share of tourism in the total GDP of Croatia for 2017 was 19.6%, and when you compare the shares of tourism in the GDP of developed countries and in Croatia, you can come to the realization that the economy of the Republic of Croatia depends too much on tourism, but that very difficult to avoid and change (Šarić, 2019: 5-7). In recent years, we can witness the transformation of the city of Split from a transit city into a desirable tourist destination.

The process of strengthening tourist capacities is followed by a number of disagreements, from the functioning of the labor market to environmental issues that public policies are unable to deal with. At the level of the Split-Dalmatia County, there was also an increase in the number of beds for private renters of 24,000 during 2012 and 2013. In the city of Split itself, the number doubled in 2014 and at the beginning of the year it amounted to 6,763 beds. In the inner part of city center in the period from 2001 to 2011, the local population was reduced by as much as half. The aforementioned situation threatens that the old city center will become a ghost town, but also a monument to itself (Lunić, 2014). According to research from 2021, residents of the inner center of Split are mostly dissatisfied with the current situation in tourism, and there has been a mass exodus of the local population from the inner center. Residents highlight the noise, lack of traffic and parking infrastructure and the sudden expansion of business in the center as the main disadvantages of mass tourism (Gutović, Relja, Goreta, 2022: 99).

Key actors in the city of Split point out that the University of Split is extremely lacking in student accommodation capacity. Almost 800 students are left without a place in the dormitory every year and decide to look for private accommodation (Dukić, 2020). During the summer, student apartments are turned into apartments, and students, who lived in them at slightly more affordable prices, are forced to move out of the apartments so they can be rented for higher prices to tourists (Kovačević, 2019).

2. Methodology

Bearing in mind previous research and the specifics of Split student accommodation in the context of mass tourism, the socio-economic aspects of Split student accommodation were set as the subject of research. The aims of the research were to determine:

- 1) socio-demographic and socio-economic characteristics of the respondents,
- 2) experiences and attitudes about the problem of finding student accommodation in the city of Split,
- 3) satisfaction with the quality of life in student dormitories and private accommodations

The research was conducted during July 2021 using an online survey method with a total of 20 closed, semi-open and open questions. The operational scheme of the research with the display of variables and indicators can be seen in Table 1. The sample included 460 respondents, all students of the University of Split whose residence is outside Split. The sample was stratified according to the available socio-demographic characteristics of students based on data from the Student Center. We approached the respondents through Facebook groups that gather students of the University of Split.

In order to achieve the research aims, the following hypotheses were set:

H1: The majority of respondents who use a student dormitory do so solely because of their lower socio-economic status.

H2: More than a quarter of respondents did not have subsidization for private accommodation.

H3: The majority of respondents encountered a request to leave their accommodation during the summer exam period at least once.

H4: The majority of respondents are dissatisfied with the price of private accommodation in Split.

H5: Female students more often than male students believe that student dormitories are insufficiently equipped for quality student life.

H6: The majority of respondents are dissatisfied with their own student accommodation in Split.

Table 1. Operational research scheme

VARIABLES	METHODOLOGICAL LEVEL	INDICATORS
STRUCTURAL CHARACTERISTICS (socio-demographic, socio-economic)	Individual	gender, age, level of study, student status, faculty, place of residence, household income, personal monthly income, securing financial resources for living, place of residence during studies
EXPERIENCES AND ATTITUDES	Individual and group/collective	reasons for choosing a particular student accommodation,

		encountering different situations in student accommodation, perspective on possible changes in student accommodation
SATISFACTION	Individual and group/collective	satisfaction with personal student accommodation and in general; satisfaction with certain aspects of their own student accommodation

3. Results and Discussion

An equal share of women (50%) and men (50%) participated in the research. Regarding the age of the respondents, the majority were between the ages of 22 and 25 (55.9%), followed by respondents aged between 18 and 21 (42.6%). Respondents aged 26 to 29 are less represented (1.3%), and there are the fewest respondents from the oldest age group (30 and over), only 0.2%, which is understandable considering that the sample includes students. 42.8% of the sample consists of undergraduate students, followed by students from integrated undergraduate and graduate studies (30.9%), and those from graduate studies 26.3%. The majority of the sample consists of full-time students, as much as 93.7%, while part-time students are only 6.3%, which is also expected considering the selected faculties. The majority of respondents study at the Faculty of Humanities and Social Sciences (17.3%), followed by the same percentage of respondents from the Faculty of Science and the School of Medicine (10.9%). In a slightly smaller but equal percentage are respondents from the Faculty of Civil Engineering, Architecture and Geodesy, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Faculty of Chemical Technology; Faculty of Law; Faculty of Economics, Business and Tourism; Faculty of Kinesiology and Catholic Faculty of Theology (8.7%) (See Table 2).

Table 2. Current faculty

	f	%
Faculty of Science	50	10.9
Faculty of Civil Engineering, Architecture and Geodesy	40	8.7
Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture	40	8.7
Faculty of Chemical Technology	40	8.7
Faculty of Law	40	8.7
Faculty of Economics, Business and Tourism	40	8.7
Faculty of Kinesiology	40	8.7
Faculty of Humanities and Social Sciences	80	17.4
Catholic Faculty of Theology	40	8.7
University of Split, School of Medicine	50	10.9
TOTAL	460	100.0

The EUROSTUDENT survey for Croatia shows that the relative majority of students (43%) self-assess their family's social status as medium, 29% as low, and 28% as high (Cvitan et al., 2011: 90). These data are confirmed with data from 2021 according to which only students whose parents did not go to faculty self-assess their financial and social status as under average (Rimac, 2022: 34/35). When asked about their place of residence, more than half of the respondents answered that they live in the city, as many as 59.8%. This is followed by respondents who live in the countryside (28%), and the least number of respondents who live in a suburban part of the city, 12.2% of them. The majority of respondents rated household income as average (64.1%), followed by respondents who rated it as above average (28.3%). There are fewer students who rated the stated income as lower than average (4.1%), followed by 3.3% of those who rated it as significantly higher than average, while the least number of those who rated their income as significantly lower than average, they only 0.2% (see Figure 1).

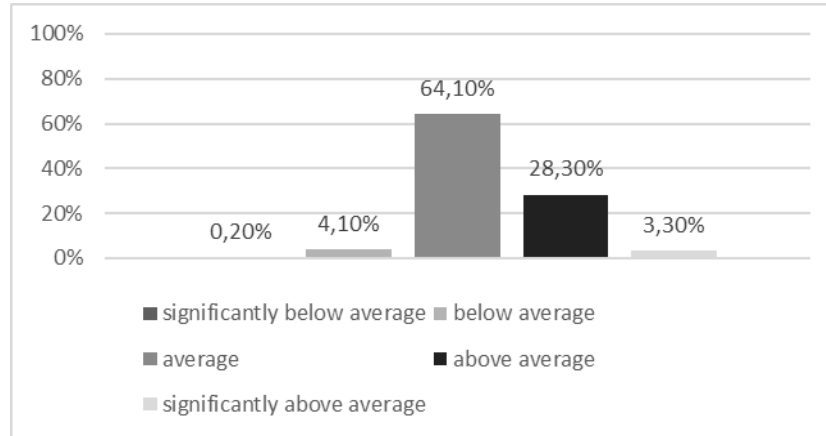


Figure 1. Assessment of household income

According to the EUROSTUDENT report, students of lower socio-economic status, older students, but also students who do not receive some form of financial aid during their studies, are included in the groups of students who most often perform paid work during their studies in most EUROSTUDENT countries, and it can be said that they are the most vulnerable group of students and thus it is much more difficult for them to successfully complete their studies (Porkolabić 2018:7). Slightly more than half of the respondents have a personal monthly income of up to HRK 1,500.00 (€200), followed by respondents with incomes from HRK 1,500.00 to HRK 2,000.00 (€200-265) per month (21.3%). The smallest share is respondents with monthly incomes higher than HRK 5,000.00 (€663). Monthly income in accordance with the status of a full-time student who does not have the opportunity to work full-time due to university obligations. According to EUROSTUDENT, the average monthly income of Croatian students is around HRK 2,181 and that the most important types of monthly income are family, work and scholarships (Ščukanec et al., 2014: 134). The majority of respondents provide most of the financial resources for life and studies by their parents financing them (55.9%). In a slightly smaller percentage, the respondents say they earn their own money (23.9%), while 17.8% point out that they receive a scholarship, and 2.4% indicated some other source of funding. However, this could be changed by the most recent changes in Croatian Labor Law according to which students who have a status of a regular, full-time student, cannot also be employed via working contract nor have a registered company. This change should lead towards an additional decrease in their monthly incomes (Kovačević, 2022).

The biggest part of respondents live in rented private accommodation (49.8%), slightly fewer respondents live in a student dormitory (47%), while only 3% of respondents live in their parents' home (see Figure 2). There are three student dormitories in the city of Split, which turned out to be insufficient considering the number of students, so more than half of the respondents stated that they do not live in a student dormitory (53%). The results showed that the biggest number of respondents live in SD Kampus (27.2%), which is expected considering that it is the largest home. Then, 13.5% of the respondents live in SD Bruno Bušić, and 5.9% of them live in SD Hostel Spinut, while 0.4% of respondents indicated something else, such as accommodation with nuns and the High School Students' Home (only male respondents).

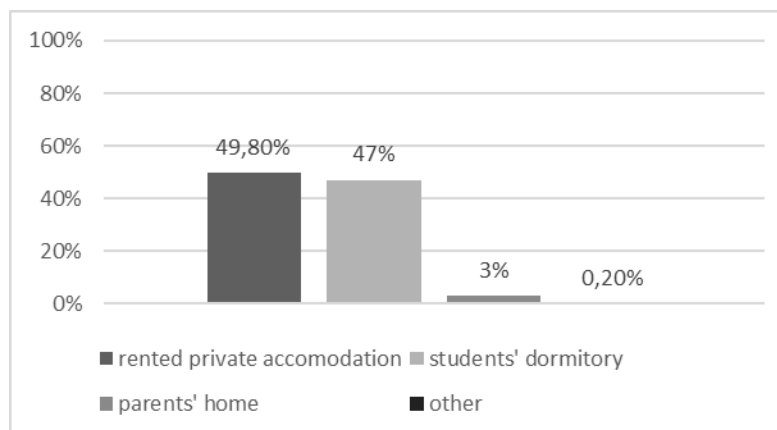


Figure 2. Place of residence during studies

Split, as a popular tourist destination, creates a lot of difficulties for students in finding accommodation. The results of the research show that the respondents mostly disagree with the statement that the reasons for choosing to live in a student dormitory are the proximity to the college (42.6%), as well as with the statement that their friends and acquaintances live in the dormitory (41.7%) and that they cannot afford to rent accommodation (41.3%). The first hypothesis (H1) tested whether the majority of respondents used the student dormitory exclusively due to their lower socio-economic status. The chi-square test revealed a statistically significant difference ($p < 0.05$) between respondents of different socioeconomic status regarding the choice of home or private accommodation. Likewise, the household income assessment variables were tested, and it was shown that there is a statistically significant difference ($p < 0.05$) between the household income assessment of residents and the choice of a student dormitory, whereby those who estimate their income to be lower live more often in student dormitories. These claims confirm the first research hypothesis (H1). In the same way, respondents disagree that the reason is being surrounded by a lot of people (41.1%) and that they like living in a student dormitory (39.6%), and that the reason is cheaper rent so you can save money (38.9 %).

Regarding the reason for staying in private accommodation, the majority of respondents do not agree with the statement that their reason for living in rented private accommodation is cohabitation with their partner (59.1%). Likewise, more than half of the respondents do not fully agree with the reason for choosing private accommodation due to cohabitation with family members or relatives in the same city (54.8%), nor with the statement that the reason for staying in private accommodation is cohabitation with friends (51.5%). Less than half of the respondents (40%) completely disagree with the statement that the reason for the above is the proximity of the location in relation to the contents they are interested in, nor the possession of many additional contents (39.8%), nor the relaxed and more intimate atmosphere (39.6%), closeness to the faculty (39.3%) or a quiet place for studying (39.1%).

The second hypothesis (H2) tested whether students received subsidies for private accommodation, and it started with the assumption that more than a quarter of respondents did not experience it. The results showed that more than a quarter of respondents did not encounter the realization of subsidies for private accommodation (83.3%), which confirms the second research hypothesis (H2). The next hypothesis (H3) tested whether the majority of respondents at least once encountered the requirement to leave the accommodation during the summer exam period. The results showed that more than half of the respondents encountered a request to leave their accommodation once or twice during the summer exam period (58%), which confirms the third research hypothesis (H3). Slightly less than half of the respondents (48%) even encountered offers of accommodation that were too expensive for their quality three or more times. Conversely, most of them did not experience eviction during the Ultra Europe Festival (84.8%), followed by eviction without prior warning (80.4%). Also, 62.6% of the respondents claimed that they did not live in overpriced private accommodation due to poor offer on the market, and 53.5% claimed that they did not live in poorly equipped private accommodation due to offer on the accommodation market (see Table 3).

Table 3. Experiences when finding student accommodation

	I have no experience		I experienced once or twice		I experienced three times or more	
	f	%	f	%	f	%
Request to leave the accommodation during the summer exam period	152	33.0	267	58.0	41	8.9
Eviction from accommodation without prior warning	370	80.4	87	18.9	3	0.7
Eviction from accommodation during the Ultra Europe Festival	390	84.8	65	14.1	5	1.1
Living in poorly equipped private accommodation due to the poor offer on the market	246	53.5	203	44.1	11	2.4
Living in overpriced private accommodation due to poor offer on the market	288	62.6	160	34.8	12	2.6
Denial of the dormitory request although they couldn't financially afford private accommodation	396	86.1	59	12.8	5	1.1
Subsidization for private accommodation	383	83.3	73	15.9	4	0.9
Overpriced accommodation offers considering their quality	60	13.0	179	38.9	221	48.0

The fourth hypothesis (H4) tested the level of dissatisfaction of students with the price of private accommodation in Split. A 5-point Likert scale was used ranging from 1 – I do not agree at all to 5 – I completely agree. The majority of respondents fully agree with the statement that seasonal income is more important to renters, so students have to manage during the summer exam periods (71.3%). 70% of students agree with the statement that mass tourism has damaged the possibility of students living in private accommodation. Also,

62% of them agree that private accommodation in Split is too expensive, and 58.3% of them agree that the price is not a measure of the quality of private accommodation in Split, which confirms the fourth research hypothesis (H4). Slightly less than half of the respondents fully agree that the offer of private accommodation for students in Split is very limited (47.8%), as well as that Split has too few student dormitories considering the number of students (43.7%). Individual respondents neither agree nor disagree with certain statements, such as that student dormitories are not equipped for adequate student life (39.6%), but neither with the statement that student dormitories are preferred by students with a lower socio-economic status (38.5%). The fifth hypothesis (H5) tested the differences between male and female students in attitudes about the equipment of student dormitories. The Mann Whitney U test did not establish a statistically significant difference ($U= 25923.500$, $Z=-0.388$, $p=0.698$), so this result rejects the fifth research hypothesis (H5).

Through an open-ended question, respondents were offered the opportunity to highlight necessary changes and recommendations related to life in student dormitories and private accommodations. Table 4 shows some of the responses, which mainly focus on financial difficulties and access possibilities during the tourist season.

Table 4. Necessary changes in student dormitories and private student accommodation

Student dormitories	Private student accommodation
<p><i>"I think it's shameful to aim for tourists in the summer period, and impatiently wait for the students to leave. (...) I must also point out the great shame that certain colleagues who come from apartments in early July to the Kampus dormitory are forced to pay HRK 50 per day for accommodation, while for example, those of us who stay longer in the dormitory pay the regular price for the dormitory."</i></p>	<p><i>"Enable communication with students of the student union and renters and thus extend the stay of students in the apartment".</i></p>
<p><i>"I live in SD Kampus and I think that the price of the monthly rent should be cheaper because I think that the room is not worth that much, considering the prices of other student dormitories in the Republic of Croatia."</i></p>	<p><i>"The possibility of staying in apartments during the summer, more affordable prices in private apartments".</i></p>
<p><i>"The most expensive homes in the Republic of Croatia definitely for no reason with the justification of the location (the only one close to the faculties) of the sports hall (which is accessible to everyone except students). It should also be noted that most of the rooms are quite damaged, and every year they try to blame it on the students who are the current occupants of the rooms and all the rooms have been checked out without notice in the last few years, the reason for this is probably the lack of financial resources due to the corona, but there is no justification for the piggy bank to be filled with students living in the dormitory, because most of us would live in private accommodation if we had that financial possibility."</i></p>	<p><i>"It is necessary to provide accommodation for students for a longer period of time so that they can stay and work in that city during the summer and that they do not have to think again about where they will live in the fall."</i></p>
<p><i>"Enable students to stay over the summer, not prioritize the season and reduce the price of washing machines."</i></p>	<p><i>"Since it is a question of student life, it is necessary to let the landlords know that it is a student, and not a person with a steady income, and thus adjust the monthly rent."</i></p>
<p><i>"When exercising the right to accommodation in a student dormitory, success in studies should be taken into account, and not mostly socioeconomic status."</i></p>	<p><i>"To create a register of private landlords who do not evict students over the summer because of the profits from the Ultra visitors who destroy half their apartment".</i></p>
<p><i>"Lower the price. Improve the tender system to make it fairer and more correct. I think the main problem is part of the income in the family. Many have undeclared</i></p>	<p><i>"Regulation of price and quality, and it is necessary to distinguish tourist rental from year-round".</i></p>
	<p><i>"Making a law in which renters will opt for year-round rental by the month or for touristic daily purposes, I think would have a significant impact on the price range of accommodation".</i></p>
	<p><i>"Ensure all the necessary conditions for more comfortable accommodation, given the high prices. Heating, cooling, moisture-free space, internet, etc."</i></p>
	<p><i>"Landlords take advantage of the fact that accommodation is not easy to find, so they often rent apartments that are not always in the "best" condition (similar with them forcing students to move out during the season, this can only be done if the student will not</i></p>

<i>income and then get a lot more points than some who have less income, but everything is reported".</i>	<i>pay for those months, and if is willing to pay, they should not throw him out, even though this is done regularly because - accommodation is not easy to find, especially students have no choice."</i>
<i>"In my opinion, three-bed rooms are dysfunctional, for example, I believe that 3 women cannot live very well with one bathroom".</i>	

According to the Eurostudent report, Croatian students are mostly satisfied with their accommodation. Thus, more than half of the students are very satisfied with their accommodation, even 52% of them, while only 4% of them stated that they were extremely dissatisfied (Eurostudent, 2011: 46). In Croatia, it has also been established that accommodation during studies is one of the most important determinants affecting the success of studies. That is, the research conducted by the authors Matković, Tomić and Vehovec in 2010 showed that students who did not live in their parents' home during their studies successfully completed their studies in greater numbers than those who traveled every day to study or lived with their parents in the city where they studied (Matković, Tomić, Vehovec, 2011: 235; Ščukanec et al., 2014: 66). The results indicate that the respondents are mostly undecided about the satisfaction of student accommodation in Split, i.e. that most of them are neither satisfied nor dissatisfied (45.9%), In a smaller percentage, 21.7% of them are dissatisfied, while 18.7% satisfied. Only 11.7% of them are completely satisfied, while only 2% are completely dissatisfied.

The sixth hypothesis (H6) assumed that students are dissatisfied with their own student accommodation in Split. In contrast to satisfaction with accommodation in general, most respondents stated that they were satisfied with their own student accommodation (45.2%). 35.9% of them do not have a clear opinion about their satisfaction with their accommodation. 15.9% of respondents are completely satisfied, only 1.7% of them are dissatisfied, and 1.3% are completely dissatisfied with their own student accommodation. The above statements reject the sixth hypothesis (H6), considering that the majority of students are satisfied with what they have chosen, in contrast to their satisfaction with the entire offer of accommodation in Split.

Regarding the specific aspects of their satisfaction, most students are satisfied with the cleanliness of the rooms (84.3%), followed by roommates (74.8%), and 68.5% of them are satisfied with the comfort of the accommodation. Also, 65.7% of them are satisfied with the Internet connection, and 60% of them with the study area, and 47.6% of them are satisfied with the canteen, cafe or restaurant, and 40.9% of them are satisfied with the dormitory staff. In the same percentage, 44.6% of them are neither satisfied nor dissatisfied, but also satisfied with the price and quality of accommodation. For the majority of respondents, sports-recreational (40.4%) and entertainment facilities (45.9%) are not applicable to their current accommodation (see Table 5). Therefore, Split students lack sports, recreational and entertainment facilities, especially during the pandemic. The chi square test was used to test the fifth hypothesis (H5). Statistically significant difference was found in the attitudes of male and female students between several aspects related to dorms and gender: that is, between the cleanliness of the rooms ($p=0.022$), Internet connection ($p=0.022$), dorm staff ($p=0.008$), roommates ($p=0.000$) and sports and recreational content ($p=0.000$). For other aspects such as accommodation comfort ($p=0.232$), study space ($p=0.163$), price and quality of accommodation ($p=0.083$), canteen/café/restaurant (0.115) and entertainment ($p=0.943$), statistically significant difference according to gender was not found. The above results partially reject the fifth research hypothesis (H5). So, in certain aspects, female students are more dissatisfied than male students when it comes to the insufficient equipment of student dormitories for quality student life.

Table 5. Satisfaction with the mentioned aspects of own student accommodation

	dissatisfied		neither satisfied nor dissatisfied		satisfied		not applicable to their current accommodation	
	f	%	f	%	f	%	f	%
Cleanliness of premises	5	1.1	55	12.0	388	84.3	12	2.6
Internet quality	46	10.0	102	22.2	302	65.7	10	2.2
Accommodation comfort (equipment, comfort)	6	1.3	133	28.9	315	68.5	6	1.3
Learning space	20	4.3	98	21.3	276	60.0	66	14.3
Dormitory staff	5	1.1	83	18.0	188	40.9	184	40.0
Owner of private accommodation	9	2.0	85	18.5	174	37.8	192	41.7
Roommates	10	2.2	72	15.7	344	74.8	34	7.4
The relationship between price and quality of accommodation	37	8.0	205	44.6	205	44.6	13	2.8
Canteen / Cafe / Restaurant	9	2.0	54	11.7	219	47.6	178	38.7
Sports and recreational facilities	15	3.3	84	18.3	175	38.0	186	40.4

Entertaining content	62	13.5	68	14.8	119	25.9	211	45.9
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4. Conclusions

Croatia is a tourist country that lives off tourism, but for years both the experts and the general public have been pointing out that certain destinations are bursting during two or three months of the summer season. In these conditions, considering the conditions of admission to faculty, finding a new place of residence where students should spend their private time and study time is the most important prerequisite for starting an independent and academic life. Many students choose tourist cities to study, such as Split. At the same time, they are faced with the problems of being kicked out of private accommodation at the beginning of the tourist season when students have exam deadlines. Likewise, the prices of private accommodation in the city of Split are high, where the price is not a measure of quality, and due to the small capacity in the dormitories, students have no choice and most often live with roommates in private accommodation. Student dormitories stand out as the cheapest option for students who come to study in a certain city, therefore the demand for rooms is greater than the accommodation capacity (Šćukanec et al., 2014, 66).

Through the research conducted during July 2021, we tried to determine the socio-demographic and socio-economic characteristics of the respondents, their experiences and attitudes about the problem of finding student accommodation in the city of Split, and their satisfaction with the quality of life in student dormitories and private accommodation. According to the research results, more than half of the respondents provide most of the financial means for living and studying by their parents (55.9%). Among the respondents, the majority (49.8%) live in rented private accommodation, while a slightly smaller number of respondents live in a student dormitory (47%), which they most often choose for socio-economic reasons. Speaking about the experiences and attitudes of the respondents, the results showed that more than a quarter of the respondents did not have the subsidization for private accommodation (83.3%) and that the majority of the respondents encountered at least once the request to leave the accommodation during the summer exam period (58%). As for the respondents' satisfaction, the results showed that the majority of the respondents are dissatisfied with the price of private accommodation in Split, but are satisfied with their own student accommodation. Thus, 62% of them agree that private accommodation in Split is too expensive, and 58.3% of them agree that the price is not a measure of the quality of private accommodation in Split. It was also established that female respondents do not think more often than male respondents that student dormitories are insufficiently equipped for quality student life.

The research revealed financial issues as well as a poor price-quality ratio as the key problems of student private accommodation. The student dormitories proved to be insufficient considering the growing number of students at the University of Split. Placing the student accommodation issue in the context of tourism, the problem of early eviction from homes and private accommodation was articulated as a factor hindering the process of regular studies.

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Comparison of the frequency of reflexive methods implementation and the importance of factors in their selection by teachers from the perspective of selected variables

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Abstract

The aim of the study was to analyze the frequency of implementation of reflexive methods by teachers and to assess the importance of determinants underlying the selection of their use from the perspective of selected variables. To monitor these aspects, a self-developed questionnaire consisting of two types of scales was used. The research took place in all regions of Slovakia. It involved 342 teachers working at the lower secondary level of education (teaching 7th-grade students). Their average length of experience was 15.76 years (SD=10.03). A statistically significant difference was demonstrated in the frequency of implementation of the reflexive method of self-observation, self-evaluation, and lesson preparation in terms of teachers' gender. Additionally, a statistically significant difference was found in the frequency of implementation of the reflexive method of pedagogical journal, teacher portfolio, studying professional pedagogical literature, and considering students' opinions on the course of teaching in relation to teachers' interest in undergoing education focused on reflective teaching. We also identified a statistically significant difference in the frequency of implementation of the reflexive method of professional standard in terms of teachers' years of experience (this difference, considering pairwise comparisons, was observed between teachers with 2 – 5 years of experience and 26 – 30 years of experience). A statistically significant difference was found in the importance of the factor of reflection goal in the selection of reflective methods in terms of teachers' gender. Additionally, a statistically significant difference was observed in the importance of the factor of material-technical equipment of the school in the selection of reflective methods in relation to teachers' completion of education focused on reflective teaching. We also identified a statistically significant difference in the importance of the factor of material-technical equipment of the school when selecting reflective methods in terms of teachers' years of experience (this difference was observed in pairwise comparisons between teachers with 21 – 25 years of experience and 31 or more years, 16 – 20 years of experience and 31 or more years, 2 – 5 years of experience and 31 or more years). The findings suggest that the frequency of implementing reflective methods and the importance of factors in selecting reflective methods may be (in some cases) influenced by teachers' personality characteristics and level of experience.

Keywords: factors, professional reflection, reflective methods, school, teacher.

1. Introduction

One of the cardinal tools for developing teaching abilities and improving educational work is professional reflection. It serves as the foundation for the effectiveness of a teacher's pedagogical and didactic activities, as it places them in the role of an interpreter who provides qualified argumentation regarding the utilization of didactic elements and the relationships between them. If a teacher distances themselves from it, they will not thoroughly understand what is happening in the teaching process and whether they are responding adequately to it (Slavík, Hajerová Müllerová, Soukupová et al., 2020).

The study by Tay et al. (2023) indicated that intentional reflection supports transformative thinking, which serves as a strong stimulus for growth in educational practice. We are referring to a mental attitude that helps individuals develop skills and enhance flexibility, enabling them to implement changes in their work as needed. However, this isn't just any change; it's a conversion that becomes the focal point of their functioning and activities.

The results of Furinova's research (2014) declare that the higher the frequency of teachers' professional reflection, the more positively students evaluated the quality of their teaching. Malmir and Mohammadi (2018), using multiple linear regression, found that self-efficacy and reflective teaching could relatively predict the professional success of EFL (English as a foreign language) teachers, with no significant difference in their predictive potential.

Reflective methods serve as incentives for teachers to consistently analyze their professional thinking and behavior in teaching, amplifying students' cognitive engagement and fulfilling their psychological needs to achieve educational goals (Orosová et al., 2018a).

In practice, teachers have access to various reflective methods, through the appropriate implementation of which they consciously contribute to their professional growth and career continuity. They determine the areas of further professional learning, from which the acquired knowledge is intended to manifest in their approach to students.

Self-observation serves as a foundational method for applying other reflective techniques. It's not just about a simple recognition of what is happening in teaching, followed by reflection in action. According to Taubman (2007), through self-observation (as part of reflection), a teacher arrives at a psychoanalytic self-diagnosis, exploring their own mental and social identity. One should understand that the subconscious of one's personality influences educational decision-making, and through introspection, they can arrive at a new perspective on perceiving students. As a result, this could lead to a change in teaching strategies.

Professional reflection is closely intertwined with a teacher's self-concept. An integral part of it is self-evaluation, which is essentially the creation of an emotional relationship of the individual with oneself (Blatný, 2003). In refining this component, the teacher naturally plays a role, but their self-perception is determined by attributions and values ascribed to them by the surroundings (students, colleagues, parents). It is pertinent for self-evaluation to be a process, implying that teachers should perceive it through the lens of autodiagnostic methods (not only as an assessment outcome), using various techniques within it. This can then be utilized as a means for discursive reflection.

A teacher's understanding of educational phenomena can equally be supported by reflective dialogue with colleagues (Dogan et al., 2018). The findings of Rarieya's study (2005) outlined that such dialogue is an alternative strategy for teachers' professional development. From the aforementioned, it's evident that this type of conversation, often conducted in a group format, should have a clearly defined agenda (defined goals) and outcomes. In practice, we encounter it through observations and discussions organized by school leadership and teachers when introducing current trends into teaching, with the intention of determining the school's cultural orientation (e.g., when implementing inclusive education philosophy principles). In this context, it's invaluable to also understand students' opinions about the course of teaching, as these serve as motivators for teachers to innovate their education. The final stage of teaching can thus become a space for mutual reflection of its participants (how well students grasped the taught material and how the teacher assisted them in the process).

The proper execution of reflection depends on its focus on specific content for the purpose of a teacher's self-development in professional competencies. In this case, a pivotal self-reflective taxonomy represents a system of criteria that guide teachers towards self-assessment and a more precise analysis of educational activities (Mareš, 1996). In practice, we commonly encounter this in the form of a professional standard. While it's a legislative norm defining the basic abilities of teachers regarding their career progression, it also serves as a source of topics for reflection, considering teachers' educational needs (Novocký, 2016). Another instance of a self-reflective taxonomy is lesson preparation, especially when conducted systematically with the intention of reconstructing educational activities. This isn't merely a fleeting description of activities carried out with students in various teaching stages but a valuable source for posing reflective questions (Hupková, 2004; Kyriacou, 2008) that contribute to the development of teachers' personal practical theories (Korthagen & Lagerwerf, 2011).

A reflective method used by teachers to record psychological phenomena, motivating them toward professional self-communication, is the pedagogical journal (Hupková, 2006). It holds a significant place for recording educational measures and their consequences for teaching. Zulfikar and Mujiburrahman (2018) explored how teachers perceive the impact of reflective journals on their teaching attitudes. Findings from interviews indicated that the majority of teachers believed these journals helped them become more reflective practitioners. The primary aim of Fatemipour's study (2013) was to examine which reflective tools provide teachers with reliable data about their educational activities. The most beneficial tool among them was the teacher's journal (diary).

Currently, considering the tension towards teachers' career advancement, the concept of the teaching portfolio is being discussed. Within it, materials and outcomes of a teacher's work are compiled for the purpose of self-evaluation (Trunda, 2012). The conclusions from Jones' long-term action research (2010) confirm that a well-designed portfolio of professional practice is stimulating for the reflective process and leads to positive outcomes. Chetcuti's study (2007) highlights that the teaching portfolio contributes to the development of professional identity among student teachers.

Professional reflection among teachers is also facilitated by studying professional pedagogical literature and applying the latest knowledge in teaching. After being confronted with current trends and research findings, teachers must make significant changes and participate in education that ensures the deepening, development, and expansion of pedagogical knowledge and skills (Petlák, 2014). Safari et al. (2020) through multiple regression highlighted that it wasn't reflective thinking that predicted teachers' professional development, but rather professional development partially predicted reflective thinking.

The effectiveness of using these methods depends, similarly to educational, didactic, and diagnostic methods, on understanding the determinants that limit their selection for reflecting on phenomena occurring in the educational process. Drawing inspiration from László and Osvaldová (2014), in the case of reflective methods, we refer to four essential factors: the goal of reflection (teachers prefer specific reflective methods based on the specific issues they are focusing on in their work), the content of information (depending on its nature and the amount teachers need to acquire, they resort to written or other forms of reflective methods), the pedagogue's capabilities (teachers consider their pedagogical and psychological knowledge when choosing the reflective methods they can use), and the material and technical equipment of the school (if not at an optimal level, the implementation of reflective methods becomes complicated; it's

not exclusively limited to audio or video recording; various methodological guides and instructional materials might be lacking in the school).

Based on the aforementioned facts, our main research objective was to map out the frequency of implementing reflective methods by teachers and to determine the significance they attribute to the factors that frame their selection and usage.

2. Research methodology

To examine the frequency of implementation of reflective methods by teachers and the importance of factors in their selection, we utilized a self-constructed scaled questionnaire. For the methods, respondents selected their usage frequency on a 7-point scale (every day – 2 or more times a week – once a week – once every two weeks – once a month – once every three months – never). Their responses were related to a specific subject and the seventh grade. This resulted in the need to recode the initial scale values to avoid discrimination against respondents who teach the chosen subject to seventh graders for fewer days. In Table 1, we present the scale adjustments based on the number of teaching days for the chosen subject by teachers of seventh graders. This step was consulted in advance with a methodologist and a statistician. The selection of a single grade to which respondents directed their answers was prompted by a pilot study conducted on a sample of 162 teachers from Slovakia. Respondents alerted us to the fact that since the research is conducted across all regions, issues with generalizing its results could arise. The solution was to specify the research sample. From all the grades of primary school, we prioritized the seventh grade. We made this decision for two reasons: (1) these teachers have known these students (seventh graders) for a longer time (having worked with them during previous years when they were in lower grades of primary school or eight-year gymnasium); (2) after the sample's specification, we obtained the highest number of respondents possible. By September 2016, among grades 7, 8, and 9, seventh-grade students were more prominently represented in schools ($n=40,673$; 8th grade – $n=38,490$; 9th grade – $n=35,126$). From this, we inferred that there should be more teachers who teach seventh grade than those who teach higher grades. The data on the number of students were obtained from the Statistical Yearbook of Education (www.cvtisr.sk). Respondents evaluated the significance of factors in the selection of reflective methods on a 5-point scale (very important – quite important – important – somewhat important – not important at all). In this case, we did not perform a scale correction. Before its distribution, the questionnaire was reviewed by experts in the field.

Table 1. Scale Adjustment

<i>Number of Teaching Days/Example Subject</i>		<i>5 days (e.g., Mathematics, Slovak Language)</i>	<i>4 days (e.g., English Language, Biology)</i>	<i>3 days (e.g., Geography, Physics)</i>	<i>2 days (e.g., History, Computer Science)</i>	<i>1 day (e.g., Religious Education, Music Education)</i>
Change alternatives	<i>Always</i>	Every day	Every day	Every day, 2 or more times a week	Every day, 2 or more times a week, once a week	Every day, 2 or more times a week, once a week
	<i>Almost always</i>	2 or more times a week	2 or more times a week	Once a week	Once every two weeks	Once every two weeks
	<i>Often</i>	Once a week	Once a week	Once every two weeks	Once a month	Once a month
	<i>Sometimes</i>	Once every two weeks, once a month	Once every two weeks, once a month	Once a month	Once every three months	Once every three months
	<i>Never</i>	Once every three months, never	Once every three months, never	Once every three months, never	Never	Never

Based on the theory and presented research, we have formulated the following research questions:

- RQ1: Is there a statistically significant difference in the frequency of implementation of reflective methods among teachers based on selected independent variables?
- RQ2: Is there a statistically significant difference in the importance attributed to factors when selecting reflective methods among teachers based on selected independent variables?

2.1 The research sample

In the research, a total of 372 teachers from across Slovakia participated at the beginning of the year 2017. After excluding respondents who were not the target audience, could not answer the majority of the questions, and duplicates, we subsequently worked with a sample size of 342 teachers. We preferred an online questionnaire format, reaching out to research participants through the email addresses of schools and principals. The research sample was created based on the available selection. A more detailed description of the sample is provided in Table 2.

Table 2. Characteristics of the Research Sample

Demographic Characteristics of the Research Sample	N	%
Gender		
<i>Female</i>	297	86.84
<i>Male</i>	45	13.16
Attainment of Teaching Qualification		
<i>Completed a university program in education</i>	260	76.02
<i>Completed additional pedagogical studies to become a teacher</i>	82	23.98
Participation in Reflective Teaching Training as Part of Continuing Education in the Last 8 Years		
<i>Yes</i>	98	28.65
<i>No</i>	244	71.35
Interest in Participating in Reflective Teaching Training		
<i>Yes</i>	269	78.65
<i>No</i>	73	21.35
Type of School		
<i>Primary Schools</i>	316	92.40
<i>Gymnasiums</i>	26	7.60
Presence of a Predominantly Roma Student Population in Teaching		
<i>Yes</i>	43	12.57
<i>No</i>	299	87.43
Years of Teaching Experience		
<i>2 – 5</i>	64	18.71
<i>6 – 10</i>	67	19.59
<i>11 – 15</i>	58	16.96
<i>16 – 20</i>	55	16.08
<i>21 – 25</i>	33	9.65
<i>26 – 30</i>	32	9.36
<i>31 and more</i>	33	9.65
Region		
<i>Bratislava Region</i>	42	12.28
<i>Trnava Region</i>	11	3.22
<i>Trenčín Region</i>	57	16.67
<i>Nitra Region</i>	23	6.73
<i>Žilina Region</i>	42	12.28
<i>Banská Bystrica Region</i>	48	14.04
<i>Prešov Region</i>	54	15.79
<i>Košice Region</i>	65	19.01

2.2 Data Analysis

To assess statistically significant differences, we employed non-parametric tests (Mann-Whitney U test, Kruskal-Wallis test, Dunn-Bonferroni post hoc test) as we were working with ordinal variables. The chosen significance level was 0.05. Descriptive statistics included the arithmetic mean (AM) and median (Me). Statistical data analysis was conducted using SPSS 27.0 software.

3. Results of the research

From Table 3, it is evident that statistically significant difference was observed in the frequency of implementation of reflective methods based on the gender of teachers *Self-Observation* (Mann-Whitney U test=5427.500; $p=0.026$; AM=4.01; Me=5.00; AM=3.64; Me=4.00), *Self-Evaluation* (Mann-Whitney U test=5027.500; $p=0.003$; AM=4.20; Me=5.00; AM=3.62; Me=4.00) and *Lesson Preparation* (Mann-Whitney U test=5348.500; $p=0.000$; AM=4.85; Me=5.00; AM=4.40; Me=5.00). In all three cases, female respondents scored higher.

Additionally, statistically significant difference was observed in the frequency of implementing the following reflective methods based on teachers' interest in participating in reflective teaching training *Pedagogical Journal* (Mann-Whitney U test=7982.000; $p=0.009$; AM=2.58; Me=2.00; AM=2.01; Me=1.00), *Teacher Portfolio* (Mann-Whitney U test=8263.000; $p=0.031$; AM=2.66; Me=2.00; AM=2.26; Me=1.00), *Study of Pedagogical Literature* (Mann-Whitney U test=7734.500; $p=0.004$; AM=3.33; Me=3.00; AM=2.78; Me=3.00) and *Student Opinions on Teaching Process (in the form of end-of-lesson interviews)* (Mann-Whitney U test=8030.500; $p=0.013$; AM=3.85; Me=4.00; AM=3.44; Me=4.00). In all cases, respondents who were interested in completing education focused on reflective teaching scored higher.

Furthermore, a statistically significant difference in the frequency of implementing the reflective method of professional standard was identified based on teachers' years of teaching experience (Kruskal-Wallis test=14.153; $p=0.028$). In pairwise comparisons, a statistically significant difference was found (Dunn-Bonferroni post hoc test=-3.369; $p=0.016$; AM=2.94; Me=3.00; AM=4.00; Me=4.50) between teachers with 2 – 5 years of experience and those with 26 – 30 years of experience. Respondents with more experience scored higher in implementing this reflective method.

From Table 4, it is evident that statistically significant difference was observed in the importance of reflection goal when selecting reflective methods based on the gender of teachers (Mann-Whitney U test=5035.000; $p=0.005$; AM=3.92; Me=4.00; AM=3.49; Me=3.00). In this case, female respondents rated the importance of reflection goal more highly when selecting reflective methods compared to male respondents.

Additionally, statistically significant difference was observed in the importance of material-technical equipment of the school when selecting reflective methods based on whether teachers had completed training in reflective teaching (Mann-Whitney U test=10064.500; $p=0.016$; AM=3.86; Me=4.00; AM=3.56; Me=4.00). Respondents who had undergone training in reflective teaching considered the material-technical equipment of the school to be more important when choosing reflective methods.

Furthermore, a statistically significant difference was found in the importance of the material-technical equipment of the school when selecting reflective methods based on teachers' years of teaching experience (Kruskal-Wallis test=17.806; $p=0.007$). Pairwise comparisons identified statistically significant difference in the importance of this factor when selecting reflective methods between teachers with 21 – 25 years of experience those with 31 or more years of experience (Dunn-Bonferroni post hoc test=-3.706; $p=0.004$; AM=3.42; Me=3.00; AM=4.24; Me=4.00), 16 – 20 years of experience and those with 31 or more years of experience (Dunn-Bonferroni post hoc test=-3.551; $p=0.008$; AM=3.47; Me=3.00; AM=4.24; Me=4.00), 2 – 5 years of experience and those with 31 or more years of experience (Dunn-Bonferroni post hoc test=-3.320; $p=0.019$; AM=3.55; Me=4.00; AM=4.24; Me=4.00). In all cases, respondents with 31 or more years of experience rated the importance of school material-technical equipment more highly when selecting reflective methods.

Table 3. Frequency of implementation of reflective methods by teachers
in relation to selected independent variables

Variables	Independent Variables	Gender		Attainment of teaching qualification		Completion of education focused on reflective		Interest in completing education focused on		Type of school		Predominance of Roma students in teaching		Length of teaching experience	
		Mann-Whitney U test		Mann-Whitney U test		Mann-Whitney U test		Mann-Whitney U test		Mann-Whitney U test		Mann-Whitney U test		Kruskal-Wallis test	
Dependent Variables	Self-observation	Mann-Whitney U test	5427.500	Mann-Whitney U test	10386.000	Mann-Whitney U test	11735.500	Mann-Whitney U test	9406.500	Mann-Whitney U test	3923.000	Mann-Whitney U test	5824.500	Kruskal-Wallis test	7.986
		p-value	0.026*	p-value	0.701	p-value	0.770	p-value	0.547	p-value	0.676	p-value	0.275	p-value	0.239
	Reflective conversation with a colleague	Mann-Whitney U test	5949.500	Mann-Whitney U test	10226.500	Mann-Whitney U test	10528.000	Mann-Whitney U test	9765.000	Mann-Whitney U test	3972.500	Mann-Whitney U test	5750.500	Kruskal-Wallis test	4.299
		p-value	0.222	p-value	0.568	p-value	0.075	p-value	0.941	p-value	0.774	p-value	0.250	p-value	0.636
	Self-evaluation	Mann-Whitney U test	5027.500	Mann-Whitney U test	10520.000	Mann-Whitney U test	11775.000	Mann-Whitney U test	9174.500	Mann-Whitney U test	3924.000	Mann-Whitney U test	6381.000	Kruskal-Wallis test	8.560
		p-value	0.003**	p-value	0.842	p-value	0.807	p-value	0.338	p-value	0.672	p-value	0.930	p-value	0.200
	Professional standard	Mann-Whitney U test	6290.500	Mann-Whitney U test	10564.500	Mann-Whitney U test	10713.500	Mann-Whitney U test	9642.500	Mann-Whitney U test	3824.500	Mann-Whitney U test	5630.000	Kruskal-Wallis test	14.153
		p-value	0.514	p-value	0.900	p-value	0.122	p-value	0.809	p-value	0.548	p-value	0.176	p-value	0.028*
	Lesson preparation	Mann-Whitney U test	5348.500	Mann-Whitney U test	10513.500	Mann-Whitney U test	11782.000	Mann-Whitney U test	9756.000	Mann-Whitney U test	3736.000	Mann-Whitney U test	6118.000	Kruskal-Wallis test	11.641
		p-value	0.000***	p-value	0.739	p-value	0.709	p-value	0.882	p-value	0.173	p-value	0.364	p-value	0.070
	Pedagogical journal	Mann-Whitney U test	6352.500	Mann-Whitney U test	10331.500	Mann-Whitney U test	11406.500	Mann-Whitney U test	7982.000	Mann-Whitney U test	3876.500	Mann-Whitney U test	5882.500	Kruskal-Wallis test	6.743
		p-value	0.567	p-value	0.651	p-value	0.476	p-value	0.009**	p-value	0.608	p-value	0.334	p-value	0.345
	Teacher portfolio	Mann-Whitney U test	6496.000	Mann-Whitney U test	10642.000	Mann-Whitney U test	10534.000	Mann-Whitney U test	8263.000	Mann-Whitney U test	3675.000	Mann-Whitney U test	6282.500	Kruskal-Wallis test	8.736
		p-value	0.754	p-value	0.981	p-value	0.074	p-value	0.031*	p-value	0.354	p-value	0.803	p-value	0.189
	Studying professional pedagogical literature	Mann-Whitney U test	6655.000	Mann-Whitney U test	10532.500	Mann-Whitney U test	11407.500	Mann-Whitney U test	7734.500	Mann-Whitney U test	3608.500	Mann-Whitney U test	6094.500	Kruskal-Wallis test	12.107
		p-value	0.964	p-value	0.867	p-value	0.495	p-value	0.004**	p-value	0.289	p-value	0.571	p-value	0.060
Students' opinions on the course of teaching (in the form of a conversation at the end of the lesson)	Mann-Whitney U test	6334.500	Mann-Whitney U test	9330.000	Mann-Whitney U test	11808.000	Mann-Whitney U test	8030.500	Mann-Whitney U test	3946.000	Mann-Whitney U test	6010.500	Kruskal-Wallis test	6.239	
	p-value	0.556	p-value	0.075	p-value	0.852	p-value	0.013*	p-value	0.727	p-value	0.471	p-value	0.397	

Table 4. The importance of factors in the selection of reflective methods by teachers

Variables	Dependent Variables							
	<i>Goal of reflection</i>		<i>Content of information to be obtained</i>		<i>Teacher's conditions (teacher's capabilities, colleague willingness, student cooperation)</i>		<i>Material and technical equipment of the school</i>	
Independent Variables	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value	Mann-Whitney U test	p-value
<i>Gender</i>	5035.000	0.005**	6007.500	0.246	6382.500	0.605	6365.500	0.590
<i>Attainment of teaching qualification</i>	10463.500	0.790	10524.000	0.853	10486.000	0.812	9295.000	0.066
<i>Completion of education focused on reflective teaching</i>	11175.500	0.319	10720.500	0.113	11160.000	0.304	10064.500	0.016*
<i>Interest in completing education focused on reflective teaching</i>	9250.500	0.423	9483.500	0.635	9101.500	0.307	9030.000	0.269
<i>Type of school</i>	3935.500	0.707	3984.500	0.787	3920.000	0.679	3853.000	0.581
<i>Predominance of Roma students in teaching</i>	6101.500	0.569	6274.500	0.787	5949.500	0.399	6084.000	0.551

in selected	<i>Length of teaching experience</i>	Kruskal- Wallis test	p-value	Kruskal- Wallis test	p-value	Kruskal- Wallis test	p-value	Kruskal- Wallis test	p-value	relation to
		7.681	0.262	6.010	0.422	8.129	0.229	17.806	0.007**	
independent variables										

4. Discussion

Selmo and Orsenigo (2014), in line with Mezirow's assertion, emphasize that professional reflection plays a central role in learning, making us aware of how we strive to understand the educational reality and give meaning to our actions in teaching. Teachers engage in the reflection of the educational process to enhance their expertise. This process can be accelerated by implementing reflective teaching strategies and methods (Wahyuni, 2023). In Orosova et al.'s (2018b) study, practicing teachers recommended the use of various reflective methods in the practical professional preparation of teacher students. In this context, it is essential to observe the factors that cause changes in the frequency of teachers' implementation of reflective methods and changes in the importance of determinants in their selection.

Regarding RQ1, we can conclude that among the independent variables, gender of teachers (self-observation, self-evaluation, lesson preparation), teachers' interest in participating in reflective teaching training (pedagogical journal, teacher portfolio, study of pedagogical literature, student opinions on the teaching process), and teachers' years of teaching experience (professional standard) had an impact on the existence of statistically significant difference in scores for the frequency of implementing reflective methods. Female respondents, respondents interested in participating in reflective teaching training, and respondents with longer experience (26 – 30 years vs. 2 – 5 years) reported a higher average frequency of implementing these reflective methods.

The research results from Bawaneh et al. (2020) indicate the existence of a statistically significant difference in the level of reflective teaching (employment of reflective teaching practices) concerning the gender of teachers. In the study by Almusharraf and Almusharraf (2021), which involved post-secondary instructors, women achieved statistically significantly higher scores than men across the entire research tool, ELTRI (The English Language Teaching Reflection Inventory), as well as for practical, cognitive, and metacognitive reflection. Metacognitive reflection, which focuses on teachers' personality and their view of the profession, cognitive reflection, which involves a deliberate effort towards professional development, and practical reflection, which deals with the natural act of reflection, are dependent on the teachers' analysis of their educational motivations and expectations.

Ostatníková et al. (2022), respecting Baron-Cohen's theory, point out that women and men generally exhibit different cognitive styles that are reflected in their attitudes, thinking, and behavior. Women tend to have a higher average tendency to empathize, verbally identify the thoughts and feelings of others during communication, and subject them to reflection. On the other hand, men tend to have a higher average inclination to systematize, analyze, and construct systems based on laws.

Dewey (1933) writes about the fundamental conditions that empower reflective teaching, placing enthusiasm among them. This signifies that when a teacher finds their educational activities interesting, they are more inclined to experiment with didactic elements (goals, principles, methods, procedures). A teacher who is interested in implementing reflective teaching (or learning how to implement it effectively in their educational practice), as noted by Pollard et al. (2008), engages with the consequences of the educational process, verifies and revises their teaching methods and educational impact, and, importantly, is not hesitant to use various reflective methods with the intention of developing diagnostic competence. Professional development through dialogue and collaboration with colleagues also continues to hold a significant place. These findings support why teachers in the research sample who express interest in participating in reflective teaching education more frequently put reflective methods into practice. These methods not only demand time but also require the ability for long-term and goal-oriented self-observation, which they continuously revisit, utilizing gathered and evaluated feedback information.

Based on the research results discussed by Kariková (2011) regarding Poliach's work, it can be inferred that older teachers tend to be more open to seeking help (involving others in problem-solving) and consider various possibilities when addressing educational situations. They find themselves in a stage of stability and identification with the teaching profession. Unlike teachers with less experience, who are still forming certain fixed approaches to students, older teachers can apply a more holistic perspective to school activities, connecting teaching activities with school policies and integrating them into the broader context of school life.

In conclusion, the research conducted by Kavoshian et al. (2017), which was supported by video recording, suggests that teachers with more experience tend to focus more explicitly on innovative teaching strategies, student characteristics, classroom interactions, teaching organization, and assessment in their reflections. Beginning teachers, on the other hand, tend to prioritize reflections on classroom management, questioning techniques, technological resources, peer collaboration, and similar aspects. Therefore, the professional standard as a self-reflective taxonomy can play a significant role in the reflection of experienced teachers. Pavlov (2012) speaks of the graduated function of the professional standard, which serves as a tool for verifying teachers' competencies at various career levels and when finalizing the types of education chosen by teachers.

Regarding RQ2, it can be concluded that among the independent variables, gender of teachers (reflection goal), completion of education focused on reflective teaching (school material-technical equipment), and years of teaching experience (school material-technical equipment) had a significant impact on the importance score assigned to factors when selecting reflective methods. Female respondents, those who completed education focused on reflective teaching, and respondents with longer teaching experience (31 years or more vs. 2 – 5, 16 – 20, 21 – 25 years) assigned a higher level of importance to these factors when selecting reflective methods.

Čerešník (2011), presenting findings from Hřebíčková's research on intersexual differences between men and women, enumerates characteristics typical for women, including responsibility and discipline. Men tend to prioritize determination (associated more with assertiveness). This could be one reason why female teachers in our research sample attributed greater importance to the goal of reflection when selecting reflective methods (compared to men, they likely implement reflection in a more structured manner, following certain rules). Research by Mareš et al. (1994) emphasized that female teachers exhibit a higher subjective responsibility for students' school success compared to male teachers. However, when students fail, male teachers are more willing to admit their contribution to the failure, while female teachers tend to react differently, possibly fearing that acknowledging their role in the teaching process may negatively impact their self-image (they might be concerned about damaging their self-esteem by admitting that they did not always exert sufficient effort in their teaching).

Education focused on reflective teaching undoubtedly highlights the possibilities teachers have for implementing reflective teaching, the material and technical resources that facilitate it, and how to work with them. It's important to consider which resources are readily available in schools and whether teachers need to acquire them themselves (e.g., information and communication technologies, teaching aids). Teachers also require space and support for professional reflection, experimentation, and finding a suitable model for implementing it into practice.

In a qualitatively oriented study by Yu (2018), which used critical incident stories, journals, and interviews with teachers, it was found that after engaging in reflection exercises, teachers started using their previous experiences to bring about changes in their classrooms. The study by Aslan et al. (2022), based on the relationship between learning and change, describes how cyclic engagement in reflective practice affects the development of teachers. The findings demonstrated that collaborative involvement in reflective practice contributed to changes in their views on reflexivity, attitudes toward collaboration, and pedagogical knowledge.

Especially among teachers with the longest experience (31 years or more), there is an increasing demand for professional competencies with the intention of maintaining them at an appropriate level and acquiring new skills in the field of digitalization. This also has implications for the implementation of non-traditional methods of working with feedback and information processing. In recent years, the use of e-portfolios (Chye et al., 2021; Slepcevic-Zach & Stock, 2018) and digital reflective writing through blog posts (Birello & Font, 2020) has come to the forefront.

Instead of making declarative recommendations for practice, based on the discussion, we suggest that further research focus on analyzing the frequency of using reflective methods and the importance of factors in their selection, taking into account the personal characteristics of teachers (level of intrapersonal intelligence) and the nature of their professional reflection (technical, contextual, dialectical levels) in relation to years of experience. The conducted descriptive research has its limitations, making it difficult to generalize its results to the population of lower secondary education teachers working with 7th-grade students. Firstly, this concerns how teachers were included in the research sample, and secondly, the use of a research tool whose validity and reliability are questionable (in our case, we might consider referring to questionnaire items).

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Worth a Risk? A Study on Thai People's Attitudes Toward Invasive BCIs for Recovering Permanent Vegetative State Patients' Awareness and Consciousness

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Abstract

Invasive brain-computer interfaces (BCIs) were widely recognized for their remarkable ability to directly interface with regions of the brain, making them a potent tool for detecting and interpreting brain signals. This state-of-the-art neurotechnology had been the focus of extensive research and development over several decades. Nevertheless, in an age marked by rapid technological advancement, a significant concern arose: the possibility that the pace of innovation might outstrip our collective comprehension of how to ensure the ethical and responsible development and application of brain-computer interfaces. In this study, we discussed the societal perspectives and attitudes regarding the application of invasive brain-computer interfaces in patients with a permanent vegetative state (PVS). Through the presentation of hypothetical scenarios to survey participants, we encouraged deep contemplation on whether they would support the use of invasive BCIs, specifically for individuals trapped in the challenging condition of PVS. It was crucial to note that PVS was characterized by a widely accepted belief in its irreversibility, which left many patients unable to provide consent. Consequently, the significant responsibility of decision-making often fell on their closest family members. Our objective was to unravel the complex web of public opinion and ethical considerations by offering insights into the perspectives of our participants, primarily consisting of Thai youths.

Keywords: invasive brain-computer interfaces, permanent vegetative state, societal attitude

1. Introduction

Brain-computer interfaces (BCIs) have continued to expand in their potential significantly, with notable progress achieved from 2006, people with paralysis were moving computer mice, and by 2012, this has advanced to the control of robot arms. This trajectory underscores the continuous advancements in neurotechnologies. Among these advancements, invasive brain-computer interfaces stand out, the technologies that enable machines to directly interface with regions of the brain. While invasive BCIs hold promise to alleviate disabilities in individuals with neurologic injury, with fully implantable brain-computer interface systems expected to reach the clinic in the upcoming decade, their direct contact with the inner layers of the brain can be daunting. Moreover, like other BCIs, they raise concerns related to privacy, autonomy, self-identity, and various aspects of personal and social value.

Despite these concerns, advanced brain-computer interfaces provide potentially transformative approaches to treating a broad range of neurological diseases, disorders, or injuries. In which this study will focus on one such condition known as unresponsive wakefulness syndrome, formerly referred to as the vegetative state. To be precise, we center our attention on the “permanent vegetative state” (abbreviated as PVS in this paper), a condition characterized by an extremely high degree of certainty that the condition is irreversible. Noted that this condition differs from the persistent vegetative state, which is limited to patients in a vegetative state lasting at least one month.

Our deliberate choice to concentrate on the permanent form of this disorder emerges from the profound ethical conundrum it poses. The seemingly insurmountable nature of PVS challenges us to contemplate a question of paramount significance: Should we consider the use of invasive BCIs to rekindle awareness and consciousness in these patients? However, the peculiarity lies in the fact that those in the permanent vegetative state often cannot voice their consent, placing the decision-making responsibility in the hands of their closest relatives.

2. Methodology

Sampling and Data Collection:

We collected data from a sample of 130 participants, primarily comprised of Thai youths, to investigate the key issues associated with brain-computer interfaces (BCIs) usage. Participants were recruited through various social media platforms due to the COVID-19 situation, with data collection taking place between September 2022 to July 2023. To ensure a diverse representation, flyers were distributed across online platforms, including Line OpenChat, Discord, and Instagram. We aimed to gauge not only the perspectives of specific patient groups but also the attitudes of the general society. The sampling method employed convenience sampling, as it was necessary to reach participants during the ongoing pandemic. We ensured that participants received introductory information about BCIs and PVS (Permanent Vegetative State) at the outset of the form, prior to allowing them to proceed with the subsequent questionnaire.

Questionnaire Design:

Our questionnaire consisted of four significant questions. While we did request certain personal information, including gender, age, and participants' experiences with permanent vegetative state, we decided to incorporate only age and gender in our data analysis. This decision stemmed from the limited number of participants with relevant experiences concerning permanent vegetative state. To ensure anonymity and data privacy, we took great care in handling these anonymous personal details. To maintain clarity and precision, we primarily employed closed-ended questions with predefined choices, predominantly consisting of 'Yes' and 'No' responses. This approach allowed us to convert participants' responses into quantitative data, suitable for later statistical analysis.

The questions were as follows:

- I. If you had to experience a permanent vegetative state yourself, will you willingly take the risk of using an invasive brain-computer interface to recover your consciousness?
- II. If your close relatives had to experience a permanent vegetative state, will you willingly let them take the risk of using an invasive brain-computer interface to recover their consciousness?
- III. What is your feeling towards using an invasive brain-computer interface for recovering permanent vegetative state patients' consciousness? (Measured using a 5-Point Likert Scale)
- IV. Explain why you have this way of feeling... (optional).

Translation and Language Considerations:

Responses to questions I., II., III., and IV. in the Google Form were provided in both Thai and English languages to accommodate participants' language preferences. However, since question IV. specifically involved written answers, meticulous translation was essential to ensure cultural and linguistic accuracy, especially regarding metaphors and phrases. Notably, participants had the option to choose between an English and a Thai version of the form, with the majority (92.3%) opting for the Thai version.

Data Analysis:

For data analysis, Microsoft Excel served as our primary tool. We employed descriptive statistics to compile fundamental demographic data, which encompassed participants' attitudes toward invasive BCIs, ranging from strongly negative to strongly positive. This comprehensive analysis considered their responses to questions I. and II., as well as their age and gender. To facilitate a more detailed examination of the data, we utilized tables to present our findings visually. Additionally, we conducted inferential statistical analyses to explore potential correlations within this dataset. Furthermore, we delved into the written responses provided by participants, using these insights to enrich our understanding of the reasons behind their attitudes.

Limitations and Future Directions:

It's important to acknowledge that this study utilized convenience sampling, which may introduce potential sampling bias. Future research could employ more diverse and representative sampling methods to enhance the generalizability of findings. Additionally, further investigations could delve deeper into the ethical considerations surrounding invasive BCIs and explore the broader societal implications.

3. Results

Our findings provide valuable insights into participants' attitudes and considerations regarding the utilization of invasive Brain-Computer Interfaces (BCIs) for the recovery of consciousness in permanent vegetative states (PVS). The results are presented through two key elements: Table 1 offers an overview of participants' attitudes, while Table 2 provides anonymized samples of their opinions and perspectives.

Table 1. Overview of Participants' Attitudes Toward Invasive BCIs

	Self & Relatives	Self Only	Relatives Only	Neither	Total (Row Sum)
(5) Strongly Positive	35	1	2	0	38
(4) Positive	56	6	3	1	66
(3) Neutral	12	3	2	5	22
(2) Negative	1	0	0	3	4
(1) Strongly Negative	0	0	0	0	0
Total (Column Sum)	104	10	7	9	130

Table 1 offers a straightforward presentation of numerical data, providing an overview of participant trends and preferences. It focuses on quantifying attitudes and choices related to invasive Brain-Computer Interfaces (BCIs) for recovering consciousness in permanent vegetative states. This concise format simplifies the complex landscape of participant attitudes, revealing popular choices and sentiments within the study population.

In this study, we assessed participants' attitudes toward the use of Invasive Brain-Computer Interfaces (BCIs) for individuals in a permanent vegetative state. To provide clarity and insight into the response patterns related to this topic, we employed a four-category response system. Here, we offer a comprehensive explanation of these response categories:

1. **Self & Relatives:** Participants are open to invasive BCIs for both themselves and their close family members or relatives.
2. **Self Only:** Participants consider invasive BCIs for themselves only, not their close relatives.
3. **Relatives Only:** Participants are open to invasive BCIs for their close relatives but not for themselves.
4. **Neither:** Participants are unwilling to consider invasive BCIs for both themselves or their close family members or relatives.

Attitude Assessment and Utilization of Invasive BCIs:

- A significant proportion of participants (43%) displayed a positive attitude (score 4) towards the use of invasive BCIs for recovering consciousness in both themselves and their relatives. This suggests a favorable disposition towards embracing this technology as a potential solution.
- Notably, no participant selected the lowest score of 1 (Strongly Negative), indicating that no one held an extremely negative attitude toward invasive BCIs. This might imply that even those who had reservations did not completely reject the idea.
- An intriguing observation is that a substantial majority (80%) of all participants were willing to utilize invasive BCIs for themselves and their relatives. This suggests a high degree of acceptance and openness to considering this technology as a viable option.

Implications:

- The dominance of positive attitudes and the high willingness to utilize invasive BCIs may indicate that participants see potential benefits in this technology for patients in permanent vegetative states. It's essential to explore further what specific factors or reasons contribute to these positive attitudes.
- The absence of strongly negative attitudes suggests that, even among those who may have concerns, there is some level of receptiveness to the idea of using invasive BCIs.
- The substantial consensus in favor of using invasive BCIs on both themselves and their relatives underscores the perceived importance of this technology in the context of permanent vegetative states.

These insights provide a deeper understanding of participant attitudes and preferences, highlighting the potential acceptability of invasive BCIs in the study population. It is important to note that our dataset represents a limited sample size, and while it offers valuable insights, it may not fully capture the broader perspectives of society, considering factors such as gender and age diversity. Further qualitative analysis could delve into the reasons behind these attitudes to inform future research and development in the field.

Table 2. Anonymized Sample of Participants' Attitudes

Code	Gender	Age	If you have to experience a permanent vegetative state yourself, will you willingly take the risk of using an invasive brain-computer interface to recover your consciousness?	If your close relatives have to experience a permanent vegetative state, will you willingly let them take the risk of using an invasive brain-computer interface to recover their consciousness?	What is your feeling toward using invasive brain-computer interface for recovering permanent vegetative state patients' consciousness?	Explain why you have this way of feeling.
F1	Female	25-44	Yes	Yes	5	I think that if we have the choice and the opportunity to make the patient recover or improve more than before, we should try it. Because letting the patient remain bedridden with no significant improvement is almost like having no chance for improvement at all.
F2	Female	25-44	Yes	Yes	5	Due to the difficulty in communicating with patients because of their physical condition, if there is any means of communication or treatment that stimulates awareness, it is considered an innovative and positive treatment option for patients.
M1	Male	15-24	Yes	Yes	4	If alternative forms of treatment are insufficient to recovering the consciousness of individuals in a vegetative state, and the invasive procedure is incapable of doing damage that exceeds that of the illness, it should be used as a treatment.
M2	Male	15-24	Yes	Yes	4	This technology is still developing. It sure has some risk but that why the doctors who in authority is probably aware of it and make sure to use it as careful as possible. And I trust those doctors. It sound efficient to put it simply, low risk high return.
L1	LGBTQ+	15-24	Yes	Yes	4	I think it's a good option for for someone that are in this state it may be risky but it still better than losing consciousness for a long time.
F3	Female	15-24	Yes	Yes	3	The utilization of invasive brain-computer interface technology for the rehabilitation of patients in a permanent vegetative state is considered a promising treatment method. However, it is not without risks. Despite the relatively low chances of encountering risks, the occurrence of errors could potentially pose a danger to the patients themselves.
P1	Prefer not to say	14 or below	No	No	3	There could be potential risks to patients if the technology's development is not sufficiently effective.
M4	Male	45 or above	No	No	3	Everything has its time.
M5	Male	15-24	Yes	Yes	2	There are no clear examples at that scale yet. What you're presenting is a conceptual approach. I'd like to see the real thing first. If it proves to be effective, I'm willing to take the risk. Being in a permanent vegetative state leaves no room for action, so the risk is worth taking for the chance of improvement.
F4	Female	25-44	No	No	2	Using technology to assist is undoubtedly a positive development. However, every human body is unique. If a patient can respond positively to such technology, it's a tremendous opportunity. But ultimately, the chance remains uncertain. If the outcomes don't align with expectations, it could seem like false hope to the family, potentially causing more pain. However, if the likelihood of effectiveness is significantly high, it becomes a crucial technological advancement.

Table 2 offers a comprehensive overview of participants' demographics and their attitudes towards invasive Brain-Computer Interfaces (BCIs) for the recovery of consciousness in permanent vegetative state patients. This table includes data on participants' gender, age groups, and their responses regarding their willingness to use invasive BCIs for themselves and their close relatives. It provides valuable insights into how different demographic groups perceive this technology, shedding light on potential trends and variations in attitudes.

Risks and Benefits Consideration:

Several participants mentioned that they perceive invasive BCIs as a potentially positive and innovative treatment option, albeit with associated risks. They emphasized the importance of careful medical supervision and trust in healthcare professionals.

Uncertainty and Innovation:

Some participants acknowledged the uncertainty surrounding the effectiveness of invasive BCIs due to the technology's ongoing development. However, they expressed a willingness to consider the technology as a promising and innovative approach.

Variability in Perspectives:

It's evident that participants have diverse viewpoints on the topic, considering factors like potential risks, potential benefits, and the stage of technological development.

The data from Table 2 reflects a diverse set of opinions and considerations about the use of invasive BCIs for recovering consciousness in permanent vegetative state patients. While there is openness to the technology, participants also acknowledge associated risks and the need for careful implementation and monitoring. These findings highlight the complex and nuanced nature of public attitudes toward this emerging medical technology. Further analysis could involve quantifying specific responses to provide a more comprehensive understanding of participant attitudes.

4. Conclusions

In conclusion, this study sheds light on the attitudes of Thai individuals toward the utilization of invasive Brain-Computer Interfaces (BCIs) as a potential avenue for recovering consciousness in permanent vegetative state (PVS) patients. Our findings have revealed insights into the perspectives of our participants, primarily consisting of Thai youths, on this emerging medical technology.

Restating our primary discovery, a significant proportion of participants (43%) displayed a positive attitude towards the use of invasive BCIs for both themselves and their close family members or relatives. This favorable disposition suggests that there is a readiness to embrace this technology as a potential solution for individuals in PVS. Notably, we observed that no participant selected the lowest score (Strongly Negative), indicating a lack of extreme negative attitudes toward invasive BCIs. This implies that even among those who may have reservations, there exists some level of receptiveness to the idea.

Recapping the significance of these findings, the dominance of positive attitudes and the high willingness to utilize invasive BCIs may indicate that participants recognize potential benefits in this technology for patients in PVS. This study contributes to the ongoing discourse surrounding the use of BCIs for consciousness recovery in challenging medical conditions, especially those perceived as irreversible.

Moreover, our research transcends the mere quantification of attitudes. It opens the door to larger implications and discussions on the ethical and practical considerations surrounding invasive BCIs. The nuanced perspectives of participants, which we have uncovered, provide a deeper understanding of the multifaceted nature of public attitudes toward this emerging medical technology.

Looking forward, this study recommends further exploration into the specific factors and reasons that contribute to these positive attitudes. It also encourages future research and development in the field to address potential concerns and challenges associated with invasive BCIs. As technology advances and our understanding of brain-computer interfaces grows, the implications for individuals with conditions like PVS become increasingly important.

To conclude, our research underscores the potential acceptability of invasive BCIs in the Thai society, highlighting the importance of continued investigation and discussion in this rapidly evolving field. As we move forward, it is essential to strike a balance between technological innovation and ethical considerations to ensure that emerging medical technologies like invasive BCIs can benefit those in need while upholding individual autonomy and societal values.

Nomenclature

BCIs Brain-computer interfaces
PVS Permanent vegetative state

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Albania towards European Union. An analysis of the conditionality of the Justice Reform

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Abstract

The fall of the Berlin Wall initiated the collapse of the communist regime in Albania. Through the last three decades the country has gone under numerous reforms, determined in the political agenda towards the European Union. The paper analyzes progress reports of the European Commission addressing issues regarding the judiciary and the measures that should have been implemented. In 2016, the justice reform was publicly discussed and imposed to the Albanian state to be initiated. The political actors that embraced the reform were European Union as well as United States of America. The mixed methodology of the paper includes qualitative analysis of European Union official documents and US State Department, and the indexes measuring the democracy and the rule of law in Albania. The contribution of the study will determine if the conditionality of the Justice Reform has contributed to the integration process. The case of Albania can highlight which is the reform process that other countries can implement to establish an impartial and uncorrupted judicial system.

Keywords: rule of law, democracy, integration, European Union, judiciary system.

1. Introduction

The European Union has been on the political agenda of Albania since the fall of the communist regime in 1990. The European culture has always been embraced and admired from the Albanian citizens. The former regime is known as one of the most repressive and isolating systems known, keeping the state far behind the evolvement in the standard of the European countries. The protest that led to the fall of the communist regime continuously used the phrase “We want Albania in Europe”, reflecting the desire of the citizens to become EU members in the future. The year 2009 marked the application of Albania for EU membership. The integration process of Albania has been slow, challenging and through several setback decisions by EU. The EU criteria of integrating a state are strict and requires a high level of democracy and stability. The transition Albania has been going through have been economical, political, social, and judicial. The aim of the paper is a content analysis of the judicial transformation of Albania since 1990, the fulfillment or the failures these last three decades. Exploring which are the factors that have affected the long stalling integration process of Albania. The focus of the paper is the judicial system and all its transformation from 1990 and until these last few years. The justice reform of Albania has one of the highest budget reforms compared to other reforms conducted by the government throughout these democratic years. As well, the justice reform is still an ongoing reform since 2016.

2. Historical background of post-communist Albania towards EU

The transition from the dictatorship regime towards consolidation of a democratic has been complex, challenging but as well many positive objectives have been achieved. The adoption of the first democratic constitution of Albania, marked the beginning of the democratization of the country. Liberal principles were legally implemented in the jurisdiction of the country. The Democratization process included the adoption of the European legislation in the country. *Acquis Communautaire* was on top of the political agenda in the 90s, and still nowadays Albania is constantly adopting EU legislation. European values have been fully integrated in the state system, though one of the main challenges is implementation of the *Acquis Communautaire*. After the fall of the Communist Regime, the formed head of the State, Ramiz Alia approved the multi-party system, and a new temporary Constitution was established. The transition from a communist state for forty-five years to a democratic system raised many issues for Albania. Now the transition was not only political but economic, social, and judicial (Panagiotou, 2011). Albania had been a state-owned state system for forty-five years. From state owned system towards a capitalist created opportunities for the citizens, though many issues were raised as well. The economy of the country was collapsed leading the Albanians immigrating towards the West. Another major issue was the privatization process of the

state-owned properties, creating confusion and social unrest. The liberal principles, rule of law, separation of powers, human rights were concepts which could not be understood by the society. In 1997, the first official Constitution was adopted by the majority Albanian parliament. After one year in 1998, the official Constitution of Albania was approved through referendum as well. Creating the first Constitution of Albania based on liberal democratic values.

These three decades Albania has positively progressed, through numerous reforms (Berdufi, 2019). The justice system reform has been one of the highest demands by EU for Albania to integrate towards EU. The 1998 Constitution of Albania defines the state as a republic, parliamentary system. The principal Separation of Powers separates the executive, the parliamentary and judiciary as independent powers that complete the democratic system of the state.

Stabilization and Association Agreement (SAA) was conducted from European Union part, to establish a relation with Western Balkans countries. In 2009, Albania signed the SAA, known as a historical event. Mostly, the agreement is beneficial by establishing a free trade area between Albania and EU, highlighting the common goals to be achieved such as political, economic, and increasing the regional cooperation between the Western Balkans countries (Rrapaj, 2015). The year 2009, initiated the implementation of the accession process of Albania towards the European Union. The agreement is complex and multi-dimensional including consolidation of democracy and the rule of law, establishing stability in political, economic, and institutional context. Increasing the political dialog between the two parties of the agreement, enquiring EU to support Albania throughout the integration process, implementation of European legislation in the country, assisting Albania in the transition to a functional economy. Albania applied for membership in 2010 but the European Commission through the report highlighted the top twelve key areas that should be fulfilled to accept the application. After two years of commitment the Commission gave Albania a green light towards accepting the application. Though still, the country had a lot of issues to deal with to get the candidate status by European Union (Kellermann, 2016). In 2014, Albania was granted the candidate status, marking the beginning of the reformation of the judiciary, as a precondition by EU. The reform was discussed in public, with professionals, surveys were conducted and in 2016 the Albanian parliament approved the Justice Reform marking a new challenge which is still ongoing for the candidate state.

3. The Constitutional Reform and the reformation of the Judiciary

The Constitutional Reform in 2016, was fully supported by the European Union as the key initiator of the reform. The country went under numerous changes. The reform contributed in the consolidation of the democracy in Albania. The first change that constitutional reform led was decentralization and increased independent of the local governance in the country, increasing the competence and inclusiveness. The second change the new constitution brought was the electoral system, improved with the main purpose of increasing transparency and fighting inclusiveness and political influence (Bogojevic, 2015). Third transformation of the constitutional reform was anti-corruption measures, a key factor that kept Albania behind in the integration process. These measures were further institutionalized in the judicial system as a separate independent institution. The fourth objective was the Judiciary system, its reformation and increased independence, transparency, and efficiency. One of the most challenging reforms which is still ongoing. Lastly, the constitutional reform highlighted the importance of human rights protection, as a backbone of the European Democracy. The constitutional changes form the basis of a deep and comprehensive, legal, and institutional reform for the reform of the justice system in Albania. The constitutional, legal, and institutional solutions offered through this reform aimed at the efficient functioning of the system, its self-regulating ability, strengthening the accountability of magistrates, mutual control between institutions, with the aim of increasing reliability, accountability, and transparency in decision-making (Hasmuça, 2017). The balancing of powers has been made possible, while the previous formula failed to work due to the lack of loyalty and cooperation between the bodies involved in the process (Bara & Bara, 2017). The intention of the constitution maker was to ensure the performance of a process of appointment of the constitutional judge separated from political influences, based only on the criteria of merit, their objective and impartial assessment (Shahu, 2019). Another challenge for the future will be the development of constitutional jurisprudence in the context of the perspective of Albania's integration into international organizations and the European Union.

4. Conclusions

The EU accession process necessitates reforms in areas such as the judiciary and legal systems. This can lead to improvements in the rule of law, the efficiency of the legal system, and the protection of human rights, fostering a more just and accountable society. It's important to note that the journey to EU integration involves challenges, and progress is contingent on the commitment of both Albania and the EU. The EU accession process requires candidate countries to strengthen democratic institutions, uphold the rule of law, and protect human rights. For Albania, this represents an opportunity to consolidate democratic practices and enhance the overall governance

framework. The accession process involves meeting specific criteria and benchmarks, and the EU provides support and guidance to candidate countries throughout the process.

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Opinions about the use of Hungarian language among secondary school students in Slovakia

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Abstract

In Slovakia, based on the 2021 census data, more than 420,000 persons declared themselves to be of Hungarian nationality and more than 460,000 persons declared themselves to be Hungarian as their mother tongue. Therefore, Hungarians constitute the largest national minority in the country. The defining element of the identity of the Hungarian minorities living outside Hungary's borders is the Hungarian language. At the same time, the minority Hungarian language varieties show differences compared to the Hungarian standard in Hungary, characterized by a greater degree of dialecticity and contact phenomena created as a result of bilingualism. In many cases, the assessment of these differences is negative, and this assessment can contribute to the loss of space for minority languages. In our questionnaire research examining Hungarian language varieties in Slovakia, we asked 793 Slovak high school students studying Hungarian about whether they had received comments about their language use. 13 educational institutions from the regions of Slovakia inhabited by Hungarians joined the research. Our results show that 56% of students have already received comments about their speech. The students' answers revealed that almost half of the comments were about the dialect they used. About 20% of the respondents reported a negative comment about their speech. Among the answers, there were also comments in which Slovak native speakers criticized the use of the Hungarian language in certain speech situations. In our presentation, we analyze the speech situations in which the informants received criticism regarding their speech.

Keywords: dialect, attitude, minority, Hungarian language

1. Introduction

According to the latest, 2021 population census in Slovakia, 422,000 people declared themselves to be of Hungarian nationality, while 460,000 declared themselves to be native Hungarian speakers. This makes Hungarians the largest national minority in Slovakia¹. The Hungarian minority has an extensive mother tongue education system in Slovakia, with Hungarian mother tongue students having the opportunity to study in primary and secondary schools with Hungarian as the language of instruction, and certain university courses are also available in Hungarian. The aim of our research is to investigate the attitudes of Hungarian secondary school students in Slovakia towards language varieties. In Slovakia, the Constitution guarantees mother tongue education for all nationalities living in the country (Vančo, 2020).

It is a basic premise of sociolinguistics that the variety of the same language spoken by people in minority situations differs from the standard variety used by people in majority situations because of different linguistic and social circumstances. The Hungarian-speaking community in Slovakia is subject to multiple linguistic influences. This is also true for Hungarian speakers in Slovakia, whose language variety differs from the standard Hungarian language at all levels of the language system (Lanstyák, 1998; Péntek, 2020). In most cases, members of the Hungarian minority living in Slovakia primarily acquire this language variety, which contains dialect features that vary from region to region (Kiss, 1996). A significant proportion of Hungarians in Slovakia are also considered dialect speakers, but their language use is influenced by their bilingualism, both at the individual and community levels. One of the aims of mother tongue education in Hungarian-medium schools is to teach the standard Hungarian language variety used in Hungary; a significant part of the speaking community is exposed to the standard Hungarian language through the Hungarian media, which is also available in Slovakia, and through their travels to Hungary. In our study, we investigate whether the students we interviewed received comments about their use of Hungarian, to what extent were these comments positive, negative or neutral, who were the ones who made the comments about their use of Hungarian, and what the comments were about. This paper presents the primary quantitative results of our research.

¹ <https://forumszemle.eu/2022/10/03/quo-vadis-a-szlovakiai-magyarsaghoz-tartozok-szama-a-2021-evi-nepszamlalas-nemzetisegi-es-anyanyelvi-adatai-alapjan/>

2. Methodology

Data collection was carried out through a questionnaire survey, which was filled out in the presence of the researchers. The questionnaire was completed by the interviewed students between May and October 2022. Our research involved 793 students from 13 Hungarian-language vocational schools and grammar schools in Slovakia, who are in the first three years of their studies and are graduating with a school-leaving examination. The students filled in the questionnaire in printed form, which contained 25 questions in total, of which 20 were closed, 4 were semi-closed and 1 was open.

For some of the questions, students had to provide their answers on a Likert scale. 46% of the students were from vocational secondary schools and 54% from high schools. When evaluating the data, the respondents were grouped into three regions based on their place of residence as indicated by the students. 49% of the respondents live in Western Slovakia and around 25-25% in Eastern and Central Slovakia. Western Slovakia includes students whose place of residence is in the Bratislava, Trnava and Nitra regions. Central Slovakia is made up of students from the Banská Bystrica region and Eastern Slovakia is made up of students from the Košice region. The three regions also correspond to three major regional dialects, with the Western Slovakia region belonging to the Danube dialect, the Central Slovakia region to the Palóc dialect and the Eastern Slovakia region to the North-Eastern dialect. The distribution of students by place of residence reflects the distribution of the Hungarian nationality population in the country.

When completing the questionnaire, students were given the opportunity to indicate more than one nationality in the question on their nationality. The largest proportion of respondents, 76.9% (610 students), identified themselves as "Hungarian", 107 (13.5%) chose "Hungarian and Slovak", 65 (8.2%) chose Slovak nationality and 11 (1.39%) chose other options. 775 students, 97.7% of students, chose "Hungarian" for the question on mother tongue. The option "Slovak" was selected by 8 students (1% of students) and "Hungarian and Slovak" by 5 students (0.6% of students). Other mother tongue was indicated by 4 students, representing 0.5% of the students.

3. Hypotheses

In our research, we formulated the following hypotheses and research question:

- a) the majority of respondents have already received positive or negative comments about their language use;
- b) the respondents have received comments on their speech because of their use of language that includes dialect features;

Research question:

To what extent do the respondents consider it important to report a comment about their language use?

4. Results

The first question analysed in our study asks whether students have received any comments on their language use in their lifetime. In the survey, respondents were asked to answer the question "*Has anyone ever commented on the way you spoke?*". Two response options were given and the results are presented in Table 1. Table 1 shows the number and proportion of students who marked each response option for the total sample.

Table 1. Number of comments students received on their speeches

	Total no. of responses	
Yes	443	55,86%
No	350	44,14%
Total	793	100,00%

The data show that more than half of the respondents have received comments about their language use in their lifetime. This data suggests that conforming to the norms of a particular group of people is a high priority in the life of any community. If the language use norms of a language user's own community differ from those of other communities, the possibility of individual accountability and thus lingvicism is still part of our communicative culture today. The previous closed question was followed by an opportunity for an explanatory answer.

The question was related to the nature of the received comments: "*If someone has ever commented on your speech, in what situation did it happen? What did they object to?*". Students were not obliged to answer the open question. This way we received 410 comments in total. Out of the 443 respondents who ticked yes in the previous question, 46 did not answer. However, the total number of comments includes the 13 who ticked no and did explain their answer. This gives a total of 410 responses, the primary analysis of which is presented below.

Table 2. Number of students responding to the question on comments on language use

	Total no. of responses	
Answered	410	50,95%
Didn't answer	383	49,05%

In general, only 10% of those who said yes did not describe the circumstances in which they received a comment on their speech. The fact that they remembered this episode in their lives and felt it important to describe it is an indication of the close emotional relationship of the speakers to the language, its variety and the way it is perceived.

The responses received were analysed using content analysis on three criteria:

- a) the value judgements of the comments,
- b) the subject of the comments,
- c) and from one-third of the responses it was also possible to identify the country of origin or the mother tongue of the person making the comments.

Based on the value judgements of the comments, three categories were established: positive, negative and neutral. The category of neutral judgements was used for comments where the attitude of the comment could not be clearly identified.

Table 3. Breakdown of comments received by students based on their assessment of the comments

	Total no. of responses	
Positive	44	10,73%
Negative	328	80,00%
Neutral	38	9,27%

The data in Table 3 show that the vast majority of comments were negative, while the number of positive and neutral comments was almost equal.

- a) Some examples of positive comments: *"They were rather positive." "By comments I mean that we were told, especially in Budapest and on Lake Balaton, that we were very interesting and that we were good to listen to."*
- b) Examples of negative comments: *"Oh my God". "They complained that my speech is not colloquial enough."*
- c) Examples of a neutral comment: *"It was not a negative comment specifically - it was more about the fact that I speak in a different way, which takes some getting used to." "Hungarians in Hungary say certain words differently"*

The primary figures for the detailed analysis of what the comments exactly referred to are given in Table 4. Not all of the responses made clearly indicated the exact subject of the comment, and responses made by students may have been classified in more than one category at a time. The categories were defined according to the subject of the comments.

Table 4. Breakdown of comments received from students by subject and value judgement

	No. of responses	
Comments about dialect use	204	49,76%
Comments about used word use	103	25,12%
Comments on used pronunciation	126	30,73%
I don't speak in dialect	2	0,49%
Sound like the Hungarian standard	26	6,34%
Speed of speech	7	1,71%
Comments on Slovak/foreign language use	38	9,27%
Comments about swearing	13	3,17%

Table 5. Some examples of comments received by the students

Comments about used dialect use	Sound like the Hungarian standard	I don't speak in dialect	Slovak persons in Slovakia
"It was at school, everyone spoke completely differently and they thought my style of speaking was weird/ridiculous. I've been paying attention to that ever since."	"field trip and school in Hungary, but they liked the way we talked"	"Rather, I've been complimented by locals on how well I speak Hungarian, much more fluently than most of the people here."	"They didn't criticise me, they praised me for speaking so nicely, without dialect, because there is none in Bratislava, so I had nowhere to learn it."
"In a shopping centre in Hungary, a customer didn't like the way we talk, he found it peasant/rural."	"the Hungarians in Hungary criticized my too Palóc dialect, the Hungarians in Slovakia criticized my too Hungarian accent"	"They didn't necessarily criticise me, they said that I hardly ever speak in dialect, but I don't do it on purpose, I'm just not used to speaking it so much."	"My Slovak family members and acquaintances. They noticed my accent when I spoke Slovak. And when I spoke Hungarian, Slovak people resented it on buses, etc."
"Yes. It was in school and they objected to my speaking like that and made me feel inferior."	"My father is from Hungary, so I speak "Hungarian", not so much "Palóc" as it is customary here. I've been made fun of for that."	"In family conversations or with people I know, they say I speak Hungarian very well. I have relatively many Hungarian friends and at first, they thought I lived in Hungary."	"In a football match against a Slovak team, me and the whole team were subjected to a lot of anti-Hungarian racist abuse. And it happened a lot."
"By comment, I mean that we were told, especially in Budapest and on Lake Balaton, that we were very interesting to talk to and that we were good to listen to."			"We were in the cafeteria talking in Hungarian and we could hear the Slovak girls telling us off for speaking Hungarian."

Table 6. Breakdown of comments received by students according to the author of the comment ~~author~~

	Total no. of responses	
Hungarians from Hungary	106	63,47%
Hungarians from Slovakia	24	14,37%
School surroundings	17	10,18%
Slovak persons in Slovakia	18	10,78%
Hungarians not from Hungary and Slovakia	2	1,20%
Total no. of responses	167	100,00%

In some of the comments made it was possible to identify the country of residence of the person making the comment, e.g. *"Friends in Hungary often do not understand simple everyday words that are taken for granted here"*, *"I was in Hungary when someone asked me if I was from Felvidék?"*

This way, we had the opportunity to group the commentators by their country of origin. Since several comments came from a school context - in all cases from a Hungarian school in Slovakia, this was indicated separately. The vast majority of the comments were from Hungarians from Hungary (106 comments), representing 63.47% of the comments. A total of 24 comments (14.37%) were from Hungarians living in Slovakia, and a total of 2 comments were from Hungarians not living in Hungary or Slovakia, both of which were neutral. The data clearly show that Hungarian speakers from Slovakia mostly encountered situations in Hungary when they received some kind of comment on their language use, which differed from that in Hungary. However, it is not only in Hungary that the use of a non-standard language variety can lead to comments, but also in the "Slovakian" Hungarian and Slovak contexts, and even in school environment-

4. Conclusions

Our first hypothesis, that respondents had already received positive or negative comments about their language use, was confirmed. More than half of the respondents had already received comments about their language use. However, this proportion is worryingly high given that it is the speakers' primary language that is being targeted. The mother tongue is the one to which the speaker has the strongest emotional attachment, and questioning it, especially in minority situations, can have negative consequences, making the speaker feel insecure in their mother tongue.

Our second hypothesis was concerned with the existence of comments on the presence of dialect features. This hypothesis was also confirmed, with two-thirds of the comments referring to the dialect of the respondents.

More than half of the respondents remembered well at least one situation in which they had received a comment on their use of the language and considered it important to describe it.

The results suggest that this topic is of paramount importance. We plan to further analyse our research data in terms of the content of the comments and the attitudes and language ideologies expressed in them.

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