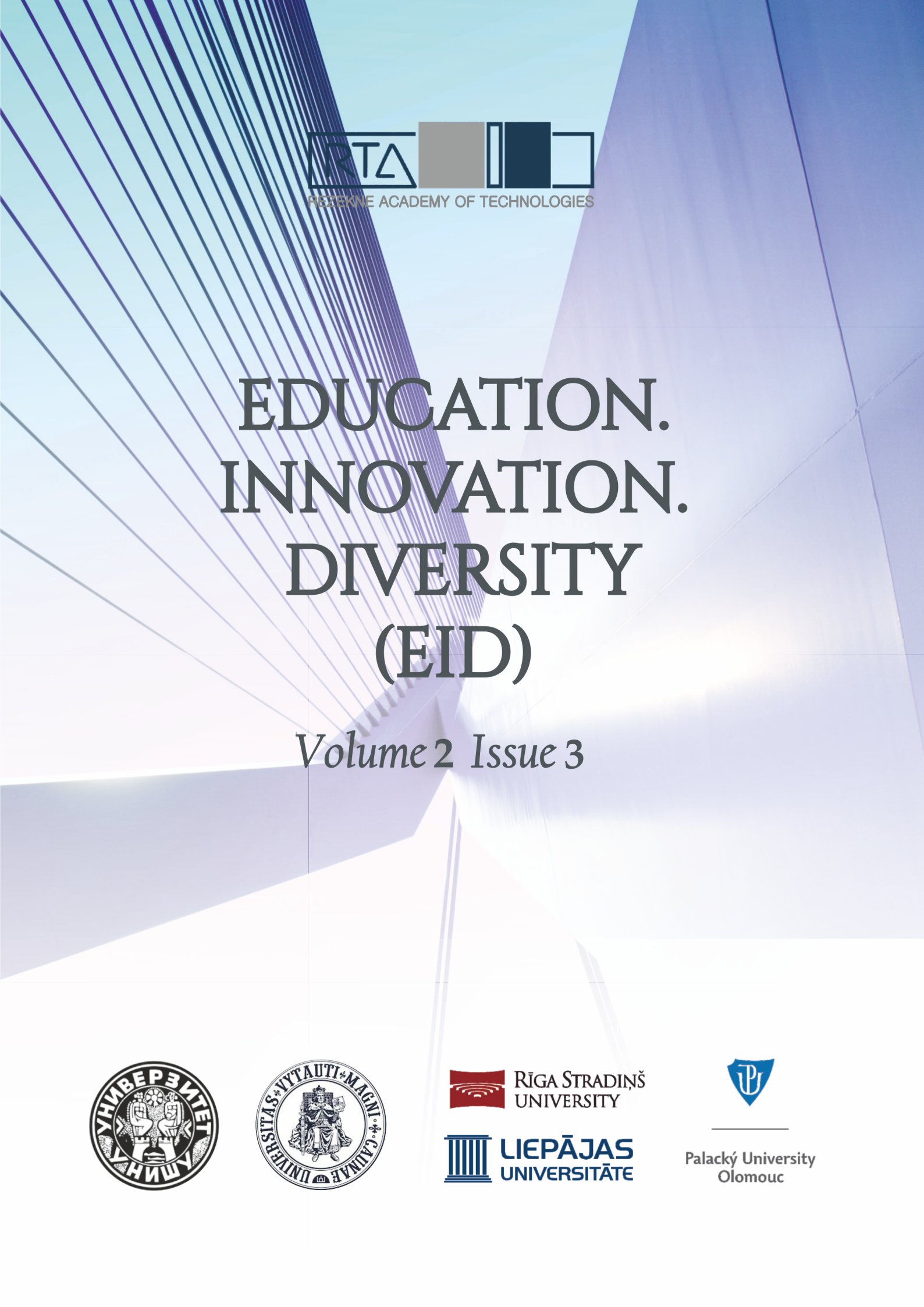
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The journal has been prepared at Rezekne Academy of Technologies in cooperation with Liepaja University (Latvia), Palacký University Olomouc (Czech Republic), Rīga Stradiņš University (Latvia), Vytautas Magnus University (Lithuania), University of Niš (Serbia).
EID is an international, periodical scientific journal publishing original research which is of general significance to the education research community and which comes from a wide range of areas of education research and related disciplines.
This journal operates a blind review process. All contributions are typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. Every peer-reviewed research article appearing in this journal will be published open access.

Recommended for publication by the Scientific Counsil of Rezekne Academy of Technologies on December 7, 2021.

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CONTENT

PREFACE

Dear authors and readers,

I am delighted to present the new issue of the scientific e-journal "Education. Innovation. Diversity" (EID). The journal is the result of scientific cooperation between several universities - Rezekne Academy of Technologies (Latvia), Liepaja University (Latvia), Palacký University Olomouc (Czech Republic), Riga Stradins University (Latvia), University of Niš (Serbia) and Vytautas Magnus University (Lithuania). EID aims to make major research and new findings of broad importance widely accessible.

In the 3rd issue of the journal, the authors discuss the problems associated with the impact of Covid - 19 on education (Herdian& Nadia Dwi Suci Ningtyas Putri; Ahrens, Zascerinska, Aleksejeva, Zascerinskis, Gukovica, Aleksejeva, &Abjalkiene) and the work of music therapists (Koucun& Kantor), as well as the provision of support to children with special needs in the context of inclusive education (Kawa; Nanou, Tsiomi, Oikonomou, &Karampatzakis).

Many thanks to the authors from Czech Republic, Germany, Indonesia, Poland, Latvia and Greece for entrusting their research to our journal! Thanks to the reviewers; it would not have been possible to publish this issue without their input and evaluation. We hope that the research published in the journal will be encouraging for readers.

We are pleased to announce that the journal is on its way to international recognition. Currently the e-journal "Education. Innovation. Diversity " (EID) is indexed in the databases of WorldCat and Directory of Open Access Journals (DOAJ). We will continue this work.

We also invite other authors to submit papers for publication in the e-journal EID. We have started working on the creation of the 4th issue.

Themes:

- **Teaching and Learning** (curriculum development and innovation at all levels, approaches to accommodating national and state standards within the context of effective instruction and assessment, teacher development and mentoring, diversity in the classroom and augmented/virtual reality in education, etc.)
- **Language and Literacy Education** (theoretical perspectives on language or literacy that address teaching and learning; research-validated approaches to instruction and assessment or curriculum development and refinement for general education learners, second language learners, or those with particular needs; learner identity; social justice in literacy and language teaching and learning; accommodating national and state standards within the context of effective instruction and assessment; digitally-mediated learning, etc.)
- **Diversity in Education** (education and multicultural society today, intercultural communication, human rights and anti-racist education, pluralism and diversity in a democratic framework, pluralism in post-communist and in post-colonial countries, migration and indigenous minority issues, refugee issues, language policy issues, etc.)
- **Health and Sport Education** (interventions related to primary prevention of chronic disease from a social ecological perspective that conceptualized the effect of individual, interpersonal, institutional, community and policy factors on lifestyle

behaviour, advancement of sport/exercise/health sciences, health promotion, health education, social rehabilitation, physical exercise and health, adapted physical activity).

- **Engineering Education** (engineering education at all levels, innovation in engineering education strategies, course and curriculum design, teaching, and assessment within and outside of the classroom, etc.)
- **Personality Development in the Educational Environment** (professional school counselling, bullying and bullying prevention, social emotional learning, college or career readiness, multicultural counselling and development, performance psychology, etc.)

We invite authors to submit papers to the journal's website http://journals.rta.lv/index.php/EID We hope that together we will be able to create a high-quality e-journal on research in education.

Responsible for the publication
Dr.paed. Svetlana Usca

EGO DEPLETION AND ACADEMIC DISHONESTY IN STUDENTS COLLEGE DURING PANDEMI COVID-19

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Abstract. *The COVID-19 pandemic is still being felt until September 2021 in several countries around the world. We examine the impact of the COVID-19 pandemic, especially on unethical behavior during online learning—other phenomena such as ego depletion trigger academic dishonesty behavior that occurs. A total of 92 students participated in this research. The measurement tool uses the ego depletion scale and the academic dishonesty scale. The results show that ego depletion is a significant predictor of academic dishonesty. The contribution of ego depletion to academic dishonesty is 16.3%. Ego fatigue makes students choose an easier academic path, which they feel has been affected by the COVID-19 pandemic. So that the behavior of academic dishonesty increases. The implications and research suggestions are discussed in detail.*
Keywords: *ego depletion, academic dishonesty, pandemic COVID-19, online learning, students college, cheating, plagiarism.*

To cite this article:
Herdian & Ningtyas Putri, N.D.S. (2021). Ego Depletion and Academic Dishonesty in Students College During Pandemi Covid-19. *Education. Innovation. Diversity*, *2*(3), 6-13. DOI: https://doi.org/10.17770/eid2021.2.6715

Introduction

The ongoing COVID-19 pandemic until September 2021 in several countries still has a significant impact on human behavior. The results of many studies report that the COVID-19 pandemic has a lot of effect on mental health (Chaturvedi et al., 2021; Drissi et al., 2020; Herdian & Chen, 2021; Kaparounaki et al., 2020). In particular, the impact of the COVID-19 pandemic was more significant on students than on workers, and women were more affected than men (Marelli et al., 2021). So this can cause changes in the daily activities of people around the world. We conducted a particular study of the impact of the COVID-19 pandemic on student activities. This is important to study because the COVID-19 pandemic has an impact on school closures around the world. During the COVID-19 pandemic, many studies reported that there was an increase in academic stress (Herdian & Mildaeni, 2021), increased anxiety (Wang & Zhao, 2020), sleep quality (Marelli et al., 2021), to an increase in unethical behavior. On student academics (Herdian et al., 2021). Referring to this impact, we conducted a follow-up study on unethical behavior such as academic dishonesty among college students. This is important to study because we think that the impact of the COVID-19 pandemic must be prevented as early as possible so that students can behave professionally in their academics.

Academic dishonesty behavior is a common thing in the academic environment. This refers to the number of studies on academic dishonesty in various countries in the world (Charubusp, 2015; Do Ba et al., 2017; Hendy & Montargot, 2019; Herdian et al., 2021; Ismail & Yussof, 2016; Lahur, 2004; Rawwas et al., 2004; Ruipérez & García-Cabrero, 2016; Shalevska, n.d.) this happened not only during the COVID-19 pandemic but also before. Referring to the definition of academic dishonesty behavior, Kibler (1993) defines it as a form of academic cheating and plagiarism that involves students in giving or receiving unauthorized assistance in academic training or receiving money for work that is not done by themselves (Kibler, 1993). Typical forms of dishonesty are using inappropriate information during tests,

cheating assignments, and submitting false information (including plagiarism) (Oran et al., 2015).

The factor of academic dishonesty has been widely studied, which is considered a factor of dishonesty during the COVID-19 pandemic is ego depletion. Ego depletion is critical to study as a predictor of academic dishonesty because the phenomenon is that students experience many significant changes in activity during the COVID-19 pandemic. Students must adopt online learning, which so far there has never been any prior training. In addition, the many tasks and academic burdens make students vulnerable to stress. So that, at the same time, will trigger the emergence of ego depletion. Ego depletion is a condition in which a person experiences a reduced desire or willingness to engage in action but is only temporary (Baumeister et al., 1998). For example, Lack of self-control, a result of ego depletion, reduces people's capacity to resist these self-serving temptations and consequently increases dishonesty (Gino et al., 2011). The results of a review of 48 recent studies on ego depletion in college students stated that undergraduate students were susceptible to the effects of ego depletion (92% significant), and that included various cognitive and emotional variables such as self-control, prospective memory, and anxiety (Gissubel et al., 2018). Students have many demands that require optimal self-control, such as completing lecture assignments, academic demands, adaptation to new environments, financial management, interpersonal conflicts, etc. Students who experience ego depletion in an experimental study conducted by Price & Yates (2010) prefer to work on more straightforward questions. It can be concluded that ego depletion can affect the Lack of effort made on academic tasks. So that, in turn, will have an impact on unethical behavior. This research was conducted with a quantitative approach to examine the effect of ego depletion on academic dishonesty in college students.

Theory

Academic fraud is a fundamental problem for academic integrity in higher education (Brimble & Stevenson-Clarke, 2005). Academic dishonesty is a violation of unethical behavior in the performance of academic assignments, which includes cheating, fabrication, plagiarism, and facilitating others to take actions in academic cheating (Pavela, 1997). Academic dishonesty is an act of fraud or cheating intended to obtain more than desired results on exams, papers, homework assignments, or other learning assignments (Miller et al., 2017). Academic dishonesty is motivated by many factors, including motivation (Siaputra, 2013; Thomas, 2017), religiosity (Khan et al., 2019), closer friendship, in students who have low grades (Griebeler, 2017), personal characteristics (Ruffle & Tobol, 2017), Self-efficacy (Javed, 2020; Onu et al., 2019) parents' pressure (Punjab et al., 2017). Until now, research on academic dishonesty is still often investigated to see how this behavior occurs and understand it comprehensively. The aspect of academic dishonesty refers to forms of academic dishonesty that have been previously studied by McCabe & Trevino (1993) and Stone et al. (2010), including cheating, collaboration, and plagiarism. Cheating is rule-breaking behavior related to the intention to gain an unfair advantage over a party or parties with whom the fraudster has a norm-regulated relationship (Green, 2004).

One of the predictors of academic dishonesty is ego depletion. Referring to the definition, Ego depletion is a condition when people have psychological and physical exhaustion, limited energy that affects cognitive problems, passive tasks become suboptimal and cause negative reactions and attitude problems (Undarwati et al., 2017). Ego depletion is theorized as a loss of self-control after being exercised over a period of time, leading to a loss of conscious regulation of behavior (Oehring, 2020). Ego depletion occurs when the power in self-control is depleted. Ego depletion is defined as a temporary state in which previous self-control reduces the individual's self-control resources (Hurley, 2019). that ego depletion is a consequence of

exerting self-control on activities previously carried out, resulting in impaired self-control performance (Dang, 2018). Many factors that influence ego depletion include situational (Banker et al., 2017), cyberbullying(Zhang et al., 2021), personal demands, social demands, low self-control, task demands or too much burden, family problems, and conflicts with others. Others (Undarwati et al., 2017). Ego depletion can result in passive behavior such as Lack of initiative and impulsive behavior, such as decreasing mental control over behavioral responses (Vonasch et al., 2017), increasing students' deceptive behavior (Keller et al., 2020), and being a predictor of future anxiety (AlHarbi et al., 2021). In addition, the emergence of ego depletion can impact decreasing academic performance, concentration, leaving responsibility for tasks, and unethical behavior.

Methodology

A total of ninety-two students of the faculty of Islamic religion participated in this study. Based on demographic data, the female gender is 57 (62%), and male is 35 (38%). Students consist of semester 2 (6.5%), semester 4 (38%) semester 6 (38%) semester 8 (17.4%). Based on GPA, participants who have GPA 2.00–2.74 are 4.3%, GPA 2.76–3.50 are 46.7%, GPA 3.51-4.00 are 48.9%. demographic information is shown in table 1.

Table 1 ***Demographics of Participants***

	Levels	**Counts**	**% of Total**	**Cumulative %**
sex	male	35	38.0 %	38.0 %
	female	57	62.0 %	100.0 %
semesters	2	6	6.5 %	6.5 %
	4	35	38.0 %	44.6 %
	6	35	38.0 %	82.6 %
	8	16	17.4 %	100.0 %
GPA	2,00-2,75	4	4.3 %	4.3 %
	2,76-3,50	43	46.7 %	51.1 %
	3,51-4,00	45	48.9 %	100.0 %

measurement
Academic Dishonesty

The scale developed by Ampuni et al. (2019) was compiled based on aspects of Academic Dishonesty according to McCabe & Trevino (1993) and Stone et al. (2010), namely Cheating Collaboration and Plagiarism. Items totaled 11 favorable statements, using a Likert scale scoring 5 (often) to 1 (never). Example of a cheating statement item "Cheating on the test in any way", example of an item for collaboration "Allowing friends to copy my answers during the test". An example of an item for plagiarism is "Plagiarism partially or completely using the internet". The academic dishonesty scale shows high internal consistency ($\alpha = 0.87$).

Ego Depletion

The scale was developed by Undarwati et al. (2017), which is based on aspects of ego depletion, including psychological fatigue, physical exhaustion, helplessness, drained energy, cognitive impairment, passiveness, suboptimal, negative reactions, and behavioral disturbances. There are two types of statements used in this scale, namely Favorable and Unfavorable. The number of items on the ego-depletion scale is 30. The Likert scale is 5 (very true of me) to 1 (very untrue of me). Examples of items used in this study include: "Give up to do anything, Tired of the situation, Tired with existing activities, Difficult to hold desire, Chest

feels tight, Body feels weak, Head feels dizzy." The ego-depletion scale showed high internal consistency (α = 0.743).

Data Analysis

We used correlation analysis to see the relationship between demographic variables with academic dishonesty and ego depletion variables. At the same time, the main analysis uses a simple linear analysis to see the effect of ego depletion as a predictor of academic dishonesty.

Result and Discussion

We conducted a correlation test to see the relationship between each variable and demographic data. The results are shown in Table 2. that sex correlates with academic dishonesty with a value of r = -0.364, p < .001. In addition, there is a significant positive correlation between ego depletion and academic dishonesty with a value of r = 0.403, p < .001. This can be interpreted that the higher the ego depletion, the higher the academic dishonesty.

Table 2 ***Intercorrelation Among Demographic And Variables***

	Sex	Semesters	GPA	Academic Dishonesty	Ego Depletion
sex	—				
	—				
Semesters	0.21 *	—			
	0.044	—			
GPA	0.333 **	0.07	—		
	0.001	0.51	—		
Academic Dishonesty	-0.364 ***	-0.058	-0.074	—	
	< .001	0.582	0.486	—	
Ego Depletion	0.029	0.07	-0.014	0.403 ***	—
	0.787	0.505	0.892	< .001	—

Note. * p < .05, ** p < .01, *** p < .001

In table 3, the results of the statistical analysis of ego depletion regression on academic dishonesty show that ego depletion has a significant effect on academic dishonesty with a value of F = 17.5, < .001. The value of R square shows that ego depletion contributes 0.163 or 16.3% to academic dishonesty. Meaning that ego depletion is a significant predictor of academic dishonesty. The line of regression equation for this research model is y = 12,461 + (0.252) x. So it can be interpreted that academic dishonesty will increase by 0.252 for every change in ego depletion.

Table 3 ***Linear Regression Result***

				Overall Model Test			
Model	R	R^2	Adjusted R^2	F	Estimate	B	p
Ego depletion to academic dishonesty	0.403	0.163	0.153	17.5	0.252	12.461	< .001

Our results confirm that ego depletion is a predictor of academic dishonesty behavior. This is following the research conducted by Keller et al. (2020) that ego depletion causes

deceptive behavior in students. Ego depletion occurs because a lack of self-control, for example, reduces people's capacity to resist these self-beneficial temptations and consequently increases dishonesty (Gino et al., 2011). During the COVID-19 pandemic, students adapted to the online learning system. all devices must be provided to support the effectiveness of techniques in the implementation of online learning. Another impact arises when online learning is carried out. Students are required to have quite a lot of tasks and take up much time. Students have many demands that require optimal self-control, such as completing lecture assignments, academic demands, adapting to new environments.

The implication of this research is the policy of lecturers and campuses in providing various forms of academic assignments. Fatigue occurs when students experience many demands during online learning, on the other hand, students must adapt to the new system. In addition, this research contributes to the welfare of students during online learning, which needs to be considered. Because many policymakers or faculty staff may focus only on learning techniques because they need to adapt to online learning, this study has limitations that can be used as a basis for future research development. The many and diverse participants from all faculties may be considered so that the research results are more comprehensive.

Conclusion

The impact of the COVID-19 pandemic is still being felt by students. Along with the impact felt by students, online learning also impacts students' psychological power, so that ego depletion behavior appears, which in fact can increase students' academic dishonesty behavior. The results of our study contribute to the unethical behavior of students during online learning. Ego depletion proved to be a significant predictor of students' academic dishonesty. We hope that the student ego gets serious attention in online learning to handle the emergence of ego depletion behavior properly.

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TOURISM OF FAMILIES WITH THE DISABLED CHILDREN OR WITH SPECIAL NEEDS IN POLAND OF RECENT DECADES

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Abstract. *The last decades in Polish society have been seen not only an increase in empathy and outlining needs for families and children with disabilities or deficits, but also economic improvement of families, which enables tourist or rehabilitation trips at least once a year. The growing needs and good practices for disabled children and adults also contributed to the greater awareness of the people managing of tourist centers in Poland, who are increasingly trying to propose within their offer to such groups, not traveling so far. This brief study tries to provide in a condensed way to propose good practices and experiences to meet the problems of families traveling with disabled children or adults in Poland.*
Keywords: *disabilities, disorders, family, tourism of disabled, travelling of disabled in Poland, good practises.*

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Introduction

There are currently around 650 million people with disabilities in the world, of which around 4.5 million only in Poland. Due to the difficult financial situation of families, mostly caused by the fact of staying with a disabled child for life at home of one of the parents, the vast majority choose solely domestic trips. According to research made by T. Skalska, in 2004 around 21% of people with disabilities travel in Poland, while according to our research, at least once a year, 60% of families go away, and only 12.7% twice (Skalska, 2004). Most often these are trips within the regions of Poland, travels abroad are declared by about 10% of respondents.

In relation to healthy (normative) Poles, people with disabilities travel three times less than the former. Their participation in international travel is fourteen times smaller (Analiza…, 2007). For many people, rehabilitation trips remain the only chance to see the Baltic Sea, Mazurian lakes… etc. or the capital of the Tatra Mountains - Zakopane. There is no publicly available statistics on travel in Poland people with disabilities, and tourism preference studies are carried out sporadically and to a narrow extent, which makes it difficult to generalize the issue.

From the point of definition of disability, we treat discrepancies of variety of definitions more freely. We are aware of plethora of arguments and disputes over definition of disability. Therefore, we will use such terms as ‘intellectual impairment’, ‘intellectual disability’, ‘developmental disability’ and ‘mental retardation’ interchangeably in the context of intellectual and mental disability. On the other side towards physical disabilities we are prone to use more open and larger approach. There are two terms in English for a person with a disability and handicap. The first is a person with disability, and the second is a handicap person. The former emphasizes the physical dimension more and is rather a medical term. The second term emphasizes impairment in the sense represented by functioning, and therefore emphasizes the social aspect. In practice, there are no major differences between them and both terms are used interchangeably (Majewski, 1980). After professor of Jozef Sowa, we are following his more open definition of disability:

“A person with disability is someone in whom the damage and reduced fitness level of the organism made it difficult, limited or impossible to perform life and professional tasks and

fulfill social roles, taking into account their age, gender and environmental, social and cultural factors (Sowa, 1999).

People with physical disabilities should be constantly rehabilitated. Parents of such children must take care of the most common breathing and relaxation exercises, equivalent or improving, to facilitate the functioning of healthy people in the world. Exercise in water or an hippo therapy, which often take place outside the place of residence, usually during the break school time can be helpful in rehabilitation too. For recent 40 years there have been tries to help disabled people to fulfil their sightseeing and tourist dreams, offering various forms of touristic activity. It is tourism that builds emotional bonds with the landscape, with Poland, with people who wander and people inhabiting the regions of visit. On the tourist route, everyone is equal in the face of nature and other people. Due to a given disability, people with disabilities have special needs regarding holidays, which mainly correspond to the accessibility of transportation, accommodation, sights, infrastructure, tourism services (Pühretmair, 2006).

The material below is based on some parts of the report of international project ELISE (The Eliminating Social Exclusion), which was conducted by partners from Poland, Greece, Turkey, Spain, Latvia and Bulgaria in 2019-2022. Based on the desk research and also collecting experience of foreign partners of the ELISE project (ERASMUS PLUS) and comparing with Polish experience in this field there were presented some conclusions and propositions of good practises and main problems of Polish families who have been trying lately to travel with the disabled children.

Regulations available to support the travel needs of families with the disabled children and adults

In the Polish law there are some regulations which refer mostly to the group of people with disabilities but there is no a particular law or bill which might regulate situation of such people in the circumstances of travelling. For instance the Polish Constitution states in general way about human rights of everyone without discrimination:

Everyone is equal before the law. Everyone has right to equal treatment by public authorities (The Constitution of the Republic of Poland of April 2, 1997, Art. 32. 1). No one may be discriminated against in political or social life or business for any reason; (The Constitution of the Republic of Poland of April 2, 1997, Art. 47). Everyone has the right to the legal protection of private and family life, honor and good name and to decide about your personal life; Everyone has the right to health protection… (The Constitution of the Republic of Poland of April 2, 1997, Art. 68.1).

There is also in the international law an important convention named the Rights of Persons with Disabilities which was adopted on December 13, 2006 by the United Nations General Assembly (Convention.... 2006) and later implemented by many of 192 member countries, including Poland. Poland also accepted the Charter of the Rights of Persons with Disabilities of August 1, 1997 (MP of August 13, 1997, No. 50, item 475), which states that people with disabilities are persons whose physical, mental or mental fitness permanently or periodically hinders, limits or prevents daily life, education, work and social roles in accordance with legal and customary standards. This is the law approach towards definition of the disabled persons which not always complies with the latest established definitions in a scholar literature.

Many years ago in Poland there was implemented the Legal Act (Journal of Laws of 1997, No. 123, item 776, as amended) which had been in some parts referring to the required conditions for the all groups of people with disabilities which would ease and help the functioning better in society. It was called: The Act of 27 August 1997 on professional and social rehabilitation and employment of people with disabilities (Journal of Laws of 1997, No. 123, item 776, as amended).

Relating to children with some degrees of disabilities in Poland there was implemented on January 1, 2002, a disability certificate (Rozporządzenie Ministra Pracy i Polityki Społecznej..., 2002) for children under 16 years old for the purposes of obtaining nursing allowance, permanent allowance for caring of a child with social assistance, rehabilitation and treatment purposes.

More detailed laws regulating issues and problems of movement or technical which may affect tourism of the disabled people (including children) in Poland can be found in some minor acts. The disability certificate contains indications regarding, among others, the need to supply orthopedic items, auxiliaries and technical aids, facilitating functioning, the need for permanent or long-term care or assistance of another person in connection with the significantly limited possibility of independent existence, the need for permanent participation in every day of the child's care giver in the process of his treatment, rehabilitation and education, meeting the conditions specified in art. 8 clause 1 of the Act of 20 June (Ustawa o ruchu drogowym..., 1997). Such an assistance should include also help during the movement because of the touristic causes.

There are also in Poland some other more detailed documents referring to such a special group of Poles, an example of such a solution is the Regulation of the Minister of Economy and Labor from 2004 devoted to giving categories to hotel facilities (Rozporządzenie Ministra Gospodarki i Pracy z dnia 19 sierpnia..., 2004). This document introduces, among others rules for making such facilities available to people with disabilities.

The problem of tourism of people with disabilities was also raised, albeit only to a small extent, as a part of the draft Tourism Development Strategy for 2007–2013 (Strategia Rozwoju Turystyki na lata 2007-2013, 2005). Written for the broader concept of the National Development Plan, the document prepared by the Tourism Department of the Ministry of Economy sat directions for the harmonious and coherent development of tourism as one of the branches of the Polish economy.

By the way of regulations of such areas in Poland as public transportation there are some references to situations of the disabled like in the Act no. 02.179.1495, with further amendments issued as “Regulations of the Minister of Infrastructure from 25th October 2002 on the types of documents confirming the right to use concessionary public transport services” (Rozporządzenie...., 2002). Poland also accepted the Regulation (EC) of the European Parliament and of the Council EU No. 1107/2006 of 5 July 2006 on the rights of persons with disabilities and persons with reduced mobility traveling by air (Rozporządzenie (WE) NR 1107/2006).

Many issues regarding the provision of buildings and space for people with disabilities in Poland are governed by the provisions of the construction law and the law on spatial development. However, people with limited mobility themselves specify the requirements that their environment should meet to remove barriers. For recent years the majority of public buildings (including schools) have been adjusted to such physical requirements of people with disabilities including students and kids too.

The problems of people with disabilities in the context of tourism, though, appear in the most important document of programming Polish development tourism for the coming years, however, still it does not treat it as a separate area of issues.

Identifying the primary and secondary needs for the families with the disabled children and adults

M.A. Devine has shown that 28% of the US population of people with disabilities travel outside of their own territory (Disability and Development Report…, 2004). The distances that families with members carrying disabilities can get through for tourist purposes depend on the type of child dysfunction. M. Milewska showed that 20% of people with physical disabilities travel in Poland. A much larger difference occurs in the case of mentally ill people, because according to M. Milewska they travel the least often, which was not confirmed in the presented work (Milewska, 2008).

Needs of the disabled people are generally the same as for the healthy part of the population, but they require support in a creative way to fulfill specific social roles in the best of their abilities. It is widely believed that people with disabilities in Poland have been ones of the most marginalized groups and have been constantly experiencing restrictions on access to any field of social life.

The level of participation of people with disabilities in tourism is also marginal, despite its undeniable values and positive rehabilitation effects.

Adults with disabilities belong to active participants of society, making a significant contribution to its development. On the other hand, a medical model instead defines disability through the lens of health, perceiving it as a disease, which is under the control of doctors and rehabilitation specialists. Among adults who are categorized as the disabled there are some who declaring their stay outside of the place of residence, only 30% of them took part in tourist and leisure trips, 28% in health care, while most trips concerned visits of relatives and friends. Due to the type of disease, people with cardiovascular diseases travel most often (21%), while the least people with mental retardation and mentally ill (15%), as well as people with hearing impairment (Milewska, 2008).

Beside issues of adults we should also take into account a tourism of disabled children. This sort of tourism should be treated as part of the rehabilitation with elements of therapy for disabled people, whose main goal is to restore maximum physical, mental, social and professional fitness and adapt to normal life. Tourism of people with various disabilities should be treated not only as active leisure, but also as therapeutic and educational measure, enabling everyone to handle it at various, often harsh conditions. Some data referring to question about the means of transportation during such touristic trips indicate that respondents definitely most often choose a car and then rail as a means of transport during travel in Poland. Parents of children with physical disabilities do not use buses and planes at all, choosing trips within a given region of Poland (Poland is divided into administrative regions which are called by term of a ‘voivodship’) most often (51.7%). A similar destination is preferred by parents of children with multiple disabilities (65.4%), while parents of blind or deaf children travel throughout the country (over 60% of respondents). Probably for financial reasons, the vast majority of Poles go with the child only once a year. For parents of mentally handicapped children 43.8% declare that they travel less than once a year (Milewska, 2008).

Regardless of the type of child disability, most often decide on trips which are organized on their own. An organized travel is popular among families with a blind child (18.5%), while specialized camps dedicated to particular disability among children with physical disabilities (17.9%). Active recreation is preferred by families with deaf children (60%) and mentally retarded children (51.4%), while most families passively rest with children with motoric dysfunction (71%) and multiple disability (65.4%) (Milewska, 2008). Other data indicate that parents of disabled children most often use the offer of private accommodation. Guest houses are also popular because of specific touristic market in Poland still strongly based on private

guest houses. Parents of deaf children choose to send them to holiday homes and campsites (20% of parents surveyed each), while parents of blind and disabled children use rather hotels (24.1% and 15.2%, respectively).

Most obstacles related to the lack of infrastructure adaptation during trips are declared by parents of children with physical disabilities (80%), multiple disabilities (63%) and blind children (44.4%). The problem of parents with a mentally retarded child is usually intolerance (56.3%). Parents of deaf children in general, 60.0% have no major objections during traveling (Milewska, 2008).

Rehabilitation visits are most popular among families of children with motoric dysfunction (92.6%) and multiple disability (76.9%). In the case of deaf children, 80.0% of them do not use the option of going to such visits (Milewska, 2008). Another factor hindering the tourism of children with hearing impairments is the problem of focusing attention, arousing curiosity, eyes arousing interest. Camps or other forms of organized tourism for children may not be suitable for deaf children because it is more difficult for them to make any interpersonal contacts. They often have egocentric habits that make it difficult to function in a group.

Vision disability, according to (Kędzierska, 2007), has a medical, social, psychological and didactic dimension. The sight itself should be considered in the categories of cognitive, practical activity, spatial orientation, emotions and interpersonal communication. A tourism adapted to the needs of the blind people is a demanding challenge for the organizers. In the case of the blind people and partially sighted children, it should be taken into the consideration that any form of activity should be combined with rehabilitation that will facilitate their efficient life in society.

The tourist accommodation must meet the following requirements for persons, including families with blind and visually impaired children:

- open spaces and paths free of obstacles,
- explicit and accurate descriptions of the environment to help experience surroundings and obstacles,
- well-lit and high contrast marking,
- the possibility of touching objects in the immediate surroundings,
- acoustic signals for obstacle or dangerous determination place,
- the use of documents and forms in Braille,
- information on CDs, DVDs, floppy disks etc. or in the alphabet Braille,
- an assistant available to assist you in special cases.

Due to the fact that tourist information is often distorted, most respondents individually organize their family trips (over 81%). The obtained results indicate that the goal of 50% of travel was passive rest, while active holidays were declared by 29% of respondents. The most therapeutic, from the point of view of rehabilitation, is the form of active tourism that has a positive effect on health, develops physically, aesthetically and morally. According to the research of K. Kaganek and H. Stanuch, the most favorable for people with visual disability is the cognitive factor, which is confirmed by the results of the study. In their research 35.7% of respondents declared "visiting" among families with blind children (Kaganek & Stanuch 2005).

Still there can be observed many wrong ideas about deaf adults and children in society. The consequence of this situation of misunderstanding is a tendency to avoid hearing contact with hearing impaired people and vice versa. Such reluctance of the sides is due to the stage of fright and fear of talking to someone who does not know the language of another person. People who are deaf and hearing-impaired, despite the accepted opinion, are disturbed by noise as much as people who can hear. A deaf person with a damaged middle ear is sensitive to noise and vibrations, and the hearing impaired people do not have good sound selection skills and may pick up the wrong sounds in the situation of unexpected noise.

The time of hearing loss has a huge impact on the socio-psychological situation of people with hearing disabilities - apart from the popular stereotypes. Children who lost their hearing after the age of 5, i.e. after completing language learning, are able to use audio speech. Those who have lost their hearing in older age, but have not mastered sign language are suspended between the world of hearing and deaf people (Milewska, 2008). They are not identified with any of the groups. The deaf people who were born with such disability, called culturally deaf, they create their own social group. They easily make contacts with each other and exchange information, because of different communication they think specifically. Therefore, this is a reason for their perception as a mentally retarded group. Thus, such reasoning is obviously wrong (Milewska, 2008).

Hearing impaired people are sometimes treated as nervous and aggressive ones. They often give the impression that they are disregarding the interlocutor. It includes those who communicate effectively with hearing people by reading speech from their mouths. They make breaks in the conversation because they are no longer able to focus their eyes and attention on the interlocutor's lips.In this context of internal conditions it makes deaf people feel better to deal and communicate in a similar environment. The conversation does not require much effort from them and is more pleasant (Milewska, 2008). This approach further isolates this group of disabled people from the rest of society. Integration of the deaf and hearing impaired should therefore consist in accepting the need to have their own environment, and rehabilitation should lead to equal opportunities for hearing-impaired people.

People with intellectual disabilities, often showing intellectual retardation, must learn basic life activities, cannot play, often have to learn to live together and work with peers, hence the important role of rehabilitation sessions or integration camps. It should be remembered that children/adults with intellectual disabilities in their environment expect friendly guides, guardians and visual signals that will diversify their impressions. The most dangerous for this group of disabled people is noise - disturbing, distracting and disrupting the reception of signals coming from the outside.

However, sport and tourist activity of the disabled faces a number of barriers. Research conducted in a group of people with various dysfunctions show that one of the most important barriers to tourist activity are organizational difficulties and lack of information (Skalska, 2004). Among dozens of travel websites operating on the Internet, none of them treat people with disabilities as customers with different needs. They are missing in them also information on travel amenities and the availability of hiking trails.

On the other hand people with disabilities can increasingly engage in water sports, such as canoeing and sailing, and winter sports (trekking, ski-mountaineering). There is a little known about this, but people with disabilities have been practicing even the most difficult types of qualified tourism in Poland for many years, such as skydiving, diving, sailing or canoeing (Szczuciński, 2005).

Plethora of research done in Poland throughout the period of 2007-2015 among adults with disabilities indicate similar group of answers. For instance the vast majority of respondents do not feel a fear around them that could be another barrier in tourist and in recreational activity. A significantly higher percentage of the unemployed and inactive respondents in the study group in relation to the group of working people considered communication difficulties as a serious limitation (Żbikowsk & Soroka 2011). Factors such as: fear of people, lack of help on the part relatives, the lack of facilities associating people with disabilities do not significantly discourage people with disabilities especially in the Lublin region (the south-east part of Poland) from tourism and recreation (Żbikowski & Soroka 2011). To sum up research made in this particular region of Poland (Lubelskie Region) we may conclude that: the largest percentage of respondents do not feel fear of people with whom they would come into contact during travelling, sport and recreation, which indicates the openness of people with disabilities

and the desire to make new contacts during active rest. The attitude of people with disabilities should be assessed positively, which is characterized by great interest in tourist activity and recreational, and the possible lack of help from the loved ones is not a main obstacle in their intentions to implement real actions. The disabled people living in the Lubelskie Voivodeship (a south-east part of Poland) considered as insignificant or insignificant barriers to participation in tourism and sport and recreational activities identified during the research.

This is an optimistic phenomenon from the perspective of the development of the tourist and recreation market, which should focus its offer more on the segment of the disabled market.

Good practices and initiatives. Propositions of improvements

In Poland mostly a third sector of NGOs is trying to response to challenges of social tourism. Also implementing a results of the EU pro-social projects. For example: a project named - "In the world beyond Silence and Darkness" conducted in 2012 by foundation "Zdążyć z Pomocą" ("Be on time with help…") – a foundation for children in cooperation with PTTK ("The Polish Society of National Tourism") became the organizer of anti-discrimination training for tourist guides. Project "In a world outside of Silence and Darkness" was not only raising qualifications and acquiring new ones skills, but also broadening the guides' view on the problems of the blind and visually impaired people.

Conclusions of mentioned project direct to some proposals of sustainable development of tourism of people with disabilities through individual elements of travel in Poland:

Table 1 ***Proposal of sustainable development and good practices of tourism of people with disabilities through individual elements of travel in Poland***

Elements of travelling	Now	Needed to do/ Future
1. Access to touristic information.	city guides, internet, folders, leaflets	more details on the maps, more widespread.
2. Travel preparation	specialized travel agencies, organizers	increasing the number and scope of activities
3. External communication	good and bad situation	increasing accessibility to railways, ferries, bus transport and aviation
4. Internal communication	depends on personal and local circumstances	this element requires enhancing
5. Travel destination, (open air, museums, monuments)	it depends on type of disability	more detailed information
6. Accommodation, housing	variety of offers	more detailed information on special equipment in accommodation
7. Feeding	good conditions	there is a need of detailed information
8. Functionality	barriers and limitations in connection with a particular type of disability	abolition of barriers and limitations

Source: Author's proposition.

So far in Poland there have been completed some programs dedicated to families with members carrying disabilities. Next examples may be added, for instance:

"Tourism for All" implemented by the "Polish Tourist and Country Fans' Society" with the support of the Government Program of Civic Initiatives Fund. As part of the pilot project

carried out in Łódź City, the Masovian Region and the Podlaskie Region, the availability of various types of facilities is checked: accommodation, catering, cultural, sports, but also tourist routes, national and landscape parks or means of transport. An important element of the project is a website containing lists of facilities adapted to the needs of people with disabilities, which can be searched in terms of their location or type of amenities offered (Grabowski, Milewska, Stasiak 2007).

Another example of internal institutional initiatives in Poland - a project called „Let's take the first step" was run and implemented by the State Vocational University of John Paul II in Biała Podlaska City a training system for the environment cooperating with disabled people. One of the main goals of the project was:

1. to break stereotypes in perceiving the role of people with disabilities in society by carrying out information and education campaigns that promote a change in the way people with disabilities are perceived as defective citizens;
2. preventing social exclusion of people with disabilities by overcoming problems associated with limiting access to public services and restrictions on the possibility of professional activation. Although the project is mainly aimed at improving the situation of people with disabilities on the labor market, its impact on other areas of life of people with disabilities cannot be excluded (Grabowski, Milewska, Stasiak 2007).

There are also some infrastructure improvements widely introduced in Polish hotels like for example for adults and kids with physical limitations, especially using wheelchairs.
For instance a cable-car or city buses that can be entered stepless is a requirement of use for about 10% of the population. For approximately 30 – 40% a stepless access simplifies the use and for 100% of the population it is an argument of comfort. A higher number of accessible facilities and services make traveling easier and increase the comfort factor when enjoying holidays (Pühretmair, 2006). In these days majority of Polish public transport must have a special area for those passengers with special needs. In addition, people with limited mobility in cities can also use cabs (taxi) today. Vehicles specially adapted for them are available to this group of people, however, the fact of disability should be reported at the time of ordering. Many privileges for a person with disability give possession of card parking. It is a document that all countries belonging to the European Union recognize, and which allows parking in designated places and inaccessible to people with disabilities. However, in some countries the parking card entitles people with disabilities to other types of concessions and when they stay abroad, they must comply with the regulations in force in that country. Below we enclose also some advices for young, children and their families who deal with some problems during travelling:

- when giving directions, do not use terms that are understandable only for the sighted person;
- when talking turn always to the blind person instead of a person accompanying him/her;
- when in a room with a visual disability try to put all objects in their place or inform them about any changes;
- express your gestures in words, e.g. willingness to shake hands (do not grab the hand beforehand);
- warn about your willingness to help;
- choose the option of help accepted by a blind person; when you're in a hurry, don't offer your help so that you don't have to leave such person unattended;
- helping the blind, warn about obstacles, change of direction;
- giving a chair, do not place a blind man on it, but place his hand on the backrest;
- plan your time well, without leaving too much for unorganized activities – the blind people in a new place feel insecure.

Another large group of the disabled are deaf adults/children. Their activities should be supported, unrestricted access to mass media should be provided as well, and they should be provided with appropriate technical means supporting the hearing process. However, they must not be forced to teach speech and make deaf people like hearing people. It is also necessary to prepare social services for contact with deaf people, e.g. by learning sign language loop should be European standard. The tourist base should be properly technically prepared to support the hearing impaired and deaf people and use such solutions as (Budny, 2003):

- information in writing (brochures, guides, guides) on the adaptation of the facility to service guests with hearing disabilities;
- phones with audio-visual function;
- facilities using Bluetooth technology, signaling devices and vibrations;
- alarm systems with audio-visual function;
- teachers - sign language interpreters;
- telephones, videophones with the teletexting option,
- television broadcast with the option of sign language translation,
- textual information on all relays (devices) TV / Video.

Information for the deaf and hearing impaired guests should be mainly provided by means of signs, symbols, pictograms. Into good practices dealing with deaf children, youngsters or adults belong also:

- if a hearing impaired person takes part in the mixed group, break the conversation from time to time and explain to a such person what has been said so far; in this way you free her from loneliness and isolation;
- remember that reading from your mouth is more tiring than normal listening, especially for a kid; for this reason, take breaks while talking so that a person can relax from constant concentration;
- speak calmly, not too quickly, speak accurately; sentences must be short and unambiguous, and questions should contain interrogative pronouns (who, what, when, why, where, how much, etc.);
- make sure that the conversation is accompanied by natural gestures; appropriate facial expressions and gestures make it easier to understand or guess the meaning of our speech;
- do not approach the deaf person suddenly from behind so as not to frighten him;
- do not approach too close when talking - the best distance is one meter;
- while talking, direct your face towards the deaf person so that he can read your mouth from the movement;
- participants should always be placed facing the object in question (during travelling the guide and translator are standing backwards).

For children with intellectual disabilities and some neurotic disorders intellectual disability may vary, depending on dynamics of nervous processes. Due to the many activities they perform routinely, may require assistance or a longer adjustment period in a new and unknown environment. During travelling is advised strongly to remember that some matters may be delicate. i.e.

- in catering also the menu card should be properly structured. If individual dishes are sketched or a photo is posted, the disabled consumer can easily choose the menu according to own preferences;
- an hippo therapy may be a very good form of recreation for intellectually disabled people. The use of appropriate positions and exercises during hippo therapy eliminates increased muscle tone. Contact with an animal teaches especially children sensitivity and friendship, affection and showing feelings.

- people with intellectual disabilities are unable to receive visual experience outside the bus window. For this reason, when we want to say something about a place, we should stop. Similarly to other disabilities, the position of participants on the bus should be planned for intellectual disabilities. Additional disorders such as epilepsy, anxiety, etc. are also included.

There is important to encourage people with disabilities to carry on with their daily duties, help them focus their attention and mobilize them to act by giving very specific tasks to perform;

Conclusion

To sum up our conclusions on still evolving and so important issue there are some updated advices for parents and families with children of special needs or disabilities. The main traveling impact/issues for such families might be:

- changes in routine;
- tackling unexpected events;
- finding the appropriate accommodation structures;
- manage the children behavior;
- interacting with normal people;
- crowd;
- new noises and sights.

Planning travel in these days is an action that encompasses all the travel components and can be affected by traveling relationships. When a family plans travel should define a strategy to minimize the primary impacts/issues that can occur. To achieve a such goal, it is important to define travel in all its aspects. On this purpose, can be useful the following travel descriptors:

- trip origins;
- trip destinations;
- distance;
- travel time;
- travel duration;
- trip purpose;
- mode for trip;
- number of persons.

Lists of services that support families of children with ASD are also necessary.

Furthermore, the best practices to tackle the various issues should be identified. Best practices are also relevant to define the policies to support the traveling of families with children with ASD. The principles underlying good practice should form the conceptual basis for policies. Educational support is an important element of the model. Educational actions are needed to sustain families as well as to stimulate awareness and inclusion from “normal” people.

New technology plays a crucial role in providing information to families. Nevertheless, appropriate strategies should be identified in order to screen information available on the internet and select only reliable sources.

During a current situation of semi or full lockdowns in Poland which heavily effect tourism branch, there should be raised some governmental programs dedicated to families with disabled kids to encourage to individual tourism. Maybe there should be prepared some money transfers (ie. an alternative form of “Polish Family Support Program 500+” dedicated to families with the children with disabilities or disorders) to such families with special needs children to stabilize and save tourism in Poland too.

The disabled people in Poland no matter of which disorder they suffer still are not respected in the context of tourist market and commercial offer. The large field of tourism might be enormous opportunity for integration and revalidation process too. Also in Poland people with disabilities or elderly have right to Accessible Tourism, which is referring to the idea of "The Philosophy of Tourism for All". This is based on the concept of Design for All. The idea behind is to design products, services and the entire environment in a way that the broadest group of users is enabled to make use of it equally (Pühretmair, 2006).

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PREFERENCES FOR VIRTUAL MUSIC THERAPY AND THE USE OF TECHNOLOGY IN THE PRACTICE OF CZECH MUSIC THERAPISTS – A DESCRIPTIVE CROSS-SECTIONAL STUDY

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Abstract. *The preventive restrictions imposed at the beginning of March 2020 led to the interruption of the therapeutic practice of most music therapists in the Czech Republic. The aim of this descriptive cross-sectional study was to find out what impact this situation had on the music therapy community at the end of May 2020, how many music therapists gained experience with virtual music therapy (VMT) and how ICT and other technologies were used in music therapy practice. A survey with an extended version of a questionnaire created by Gilboa, Weiss and Dassa (not yet published) for the purpose of an international survey in music therapy was used for data collection. Based on the findings, most music therapists at the time had no experience with VMT, but a small number of practitioners were interested in using VMT even after the end of the lockdown. ICT has been used more for receptive music therapy activities and its wider application faces problems such as a lack of knowledge and skills in the use of ICT in the context of music therapy. Based on these findings, a project focused on the implementation of best-evidence concerning VMT into Czech music therapy practice was launched. Also, we recommend creating projects focused on the use of ICT (including applications in music therapy conducted face-to-face) in the near future.*
Keywords: *Music therapy, virtual, telehealth, pandemic, survey, ICT, COVID.*

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Introduction

The onset of the pandemic in spring 2020 in the Czech Republic resulted in long-term epidemiological restrictions, as well as serious challenges, for most professions. One of the professions strongly influenced by the repeated lockdowns were arts therapists. In the course of 2020-21, many arts therapists in the Czech Republic had to suspend their therapeutic practice for a long time or start working through telehealth. However, the transfer of therapeutic practice into the virtual space is, in the case of arts therapies, much more difficult as compared with verbal therapy. As far as telehealth is concerned, the greatest complications were experienced by music therapists as all publicly available online communication platforms are primarily intended for verbal communication. Music therapy is particularly complicated by the inability to synchronize sound and by the deformation of sound quality when playing an instrument or singing.

Therefore, virtual music therapy (VMT) had been used only sporadically before the pandemic, which is also confirmed by the limited number of publications. Vaudreuil et al. (2020) investigated the use of VMT among military-connected populations on a continuum of clinical and community engagement and found positive responses, including a decrease in pain, anxiety, and depression. According to a case study conducted by Lightstone, Bailey, & Voros (2015), VMT was effective in the treatment of a patient with post-traumatic stress syndrome and depression. Fuller & McLeod (2019) described several models of VMT used for families of children with hearing impairment. More scientific evidence about VMT was published after

the beginning of the pandemic. We conducted a scoping review and found 10 articles published from the onset of the pandemic to the 25th October 2020 (Kantorová et al., 2021). Moreover, we described different adaptations to music therapy practice, including adaptations to the goals, methods/techniques, space, musical instruments, technologies, flexibility and logistics, etc.

A growing number of publications suggest that during the pandemic, music therapists became interested in VMT due to the adverse effects of the preventive measures on traditional music therapy practice (Gaddy et al., 2020). Regarding the fact that there are many music therapists in the Czech Republic outside the clinical sphere (Kantor et al., 2016), an increased interest in VMT as an alternative to face-to-face music therapy was expected. During the lockdowns, music therapy, just as all external services, was immediately suspended in many workplaces. The most serious restrictions affected social services, which are the most common working environments for music therapists. A question emerged at the beginning of the pandemic as to how music therapists could be assisted in adapting their practice to the virtual environment. It was important to identify how many music therapists were experienced in VMT and how many music therapists considered the use of VMT in their practice. It was also necessary to identify the extent to which music therapists used ICT in their music therapy practice, what obstacles they faced and what could help them utilise these resources. The application of VMT is largely dependent on the ability to use ICT. Therefore, data was needed to inform further planning of effective interventions to support music therapists during the pandemic. Regarding the fact that during this time, an international cross-sectional study was being performed in the Czech and Slovak music therapy community led by Avi Gilboa, Ayelet Dassa and Chava Weiss aimed at evidence-based description of the music therapy profession, we added in the domestic version of the questionnaire items focused on the current situation regarding the use of VMT and ICT in the music therapy process. This paper analyses only the data acquired from these additional questions in the Czech Republic and Slovakia, since the findings may be of high importance in the ongoing pandemic time.

Methodology and sample

We used the descriptive cross-sectional study design with a questionnaire survey. The study was approved by the Ethical Committee of Bar-Ilan University (E.MUS.2021-13). The goal of the study was to answer the following questions:

- Did music therapists start to use VMT as a result of the pandemic and do they consider the use of VMT after the pandemic?
- For what purposes do music therapists use ICT?
- What barriers do music therapists face in the use of ICT in their practice?

We used a modified version of the questionnaire created by a group led by Avi Gilboa, Ayelet Dassa and Chava Weiss and further modified by the authors of this paper. In this modified version, 5 questions were added (the questionnaire is attached in the Appendix 1). The questionnaire includes general data (including respondents' demographic data), data about their music therapy practice, etc. The additional items used a combination of questions with dichotomous answers, scales and open questions. The data analysis was based on descriptive statistics computed in MS Excel and absolute and relative frequencies.

The survey was conducted in the community of Czech and Slovak music therapists. Both countries share common history and similar language and most Slovak music therapists received training from Czech lecturers. Music therapists in the Czech Republic are organised in the Music Therapy Association of Czech Republic (CZMTA) and several minor associations. The number of registered music therapists in CZMTA is about 200, including non-practicing and senior music therapists and music therapy students. The number of music therapists in Slovakia is not known but we suppose it to be fewer than 40 persons (depending on the

professional criteria). Currently, there is no functional music therapy association in Slovakia and some Slovak music therapists are registered with CZMTA. Regarding the fact that music therapy lacks statutory recognition in both countries and for music therapists it is not obligatory to register anywhere, the number of respondents in the basic sample can only be estimated.

Inclusion criteria: practicing music therapist (including music therapy students and practitioners who do not achieve the professional standards established by CZMTA), whose practice is conducted in the demographic area of the Czech Republic or Slovakia. Exclusion criteria: respondents who lack qualification consisting of at least long-term training (more than 100 hours) or respondents who do not practice music therapy with clients.

The survey was delivered through CZMTA, Facebook groups/other social media and respondents were kindly requested to forward it to music therapy practitioners not registered with CZMTA. The data was collected during May 2020 and two reminders were sent by the CZMTA office. Eventually, we included 64 respondents from the Czech Republic and 13 respondents from Slovakia, together 77 respondents. No completed questionnaire was excluded from the sample.

The demographic information (including years of experience in music therapy) concerning the research sample is shown in Table 1.

Table 1 ***Demographic characteristics of respondents***

		Czech Republic	Slovakia
Gender	Female	51 (80%)	10 (77%)
	Male	13 (20%)	3 (23%)
Age	≤ 30	3	0
	31–40	15	5
	41–50	25	5
	51–60	17	2
	61 >	4	1
Years of experience	Less than 3	8	2
	4–7	21	5
	8–11	12	3
	12–15	11	1
	More than 15	12	2

n=77

The characteristics of music therapy practice are presented in Table 2. The following is described:

- Main working environment – the most preferred examples of social care services included homes for the elderly and day care centres, whereas the most preferred educational institutions were special schools or nursery schools.
- Main client population – the most frequent special needs included intellectual disability, multiple disability, autism spectrum disorder, while the least frequent included behaviour and emotional disorders. The category of the elderly consisted of typical elderly persons as well as persons with dementia or Parkinson's disease. Other client groups included chronically sick patients and persons after stroke.
- Main music therapy methods/techniques (for example improvisation or music and movement) and the most preferred musical instruments – these items enabled respondents to apply multiple choices and, therefore, the number of answers is higher than the number of respondents.

Table 2 ***Characteristics of music therapy practice***

		Czech Republic	Slovakia
Main working environment	Educational	23	2
	Social care	30	10
	Private practice	5	1
	Health care	8	2
Client groups	Persons with special needs	39	9
	Typical children and youth	7	3
	Elderly	8	1
	Psychiatric patients	7	1
	Other groups	3	3
Music therapy methods/techniques	Improvisation	59	12
	Vocal improvisation	25	2
	Receptive techniques	28	6
	Song-writing	10	7
	Guided imagery	22	2
	Singing songs	36	9
	Recording of clients' music	3	1
	Music and movement	35	8
Most preferred musical instruments	Piano	29	6
	Acoustic guitar	35	7
	Drums/Djembe	47	11
	Harp, lyre, kantel or other similar instruments	25	3
	Small percussions (such as Orff, rumba balls, rain)	57	13
	Flute, ending, double, fujara	32	6
	Xylophone, metallophone	36	10
	Patam, Handpad, Handdrum, Sundrum	20	5
	Ocean drum	32	7

n=77

Research results and interpretation

This section presents the data on respondents' experience with VMT, preferences for VMT use after the pandemic, methods of ICT use in music therapy sessions, as well as preferences for the use of ICT in future music therapy practice.

The experience of respondents with VMT gained before the pandemic is greater than expected, which confirms their effort to perform music therapy in the virtual space. However, respondents' preferences concerning VMT in the future are largely negative. This result could have been influenced by the time of data collection, because in May 2020, the Czech Republic

was close to the end of the lockdown and most of the population did not believe in the re-introduction of preventive measures, which eventually took place in autumn 2020. At that time, a significant proportion of respondents were convinced about face-to-face music therapy, especially as there was seemingly no need to adapt to VMT as a result of the preventive measures. However, of the total number of respondents, some seriously considered the inclusion of VMT in their practice after the pandemic.

Table 3 ***Experience with VMT / preferences for VMT***

		Czech Republic	Slovakia
Previous experience with VMT	Yes	15	2
	No	49	11
Preferences for using VMT in the future (Likert scale)	1 (no preference for use)	24	4
	2	8	0
	3	5	0
	4	10	0
	5	4	4
	6	3	1
	7 (maximum preference for use)	9	4

n=74

The remaining questions related to the use of ICT and were not directly related to VMT. Respondents also described ICT applications used in face-to-face therapeutic sessions. The responses (Table 4) suggest that more than half of respondents used ICT directly in music therapy sessions, especially during receptive activities. Specific examples of other types of ICT use included a singing book application, matching music with vibrations and light effects in Snoezelen, or simulation of musical instruments using iPad during active music therapy.

In this case, too, respondents could indicate whether they would like to use ICT in future music therapy sessions. In this case, the attitude to ICT was more balanced than in the case of VMT, with a number of respondents willing to deepen their knowledge in ICT. The biggest barriers to the use of ICT in music therapy practice as suggested by respondents included the unavailability and cost of technology, as well as education in the area of ICT. Some respondents showed their willingness to participate in courses aimed directly at music therapy in specific population groups.

Table 4 ***Use of ICT in music therapy***

		Czech Republic	Slovakia
Use of ICT in music therapy sessions	For active music therapy	15	5
	For receptive music therapy	29	7
	Respondent does not use ICT	30	3
Ways of using ICT	For recording and storing client data	43	8
	Music applications for PC	7	3
	Music applications for tablet/mobile phone	19	4
	ICT as a compensation aid in MT	10	0
	Specific devices such as SoundBeam or Cymis	3	1
	Computer controlled therapy	1	0
	Interactive board	3	1
	Visualization (light stimuli according to ICT controlled music)	4	1

	ICT controlled vibration stimuli	4	1
	Online internet/cloud services	25	5
	I do not use ICT	6	0
Preferences for using ICT in music therapy practice in the future (Likert scale)	1 (no preference for use)	11	1
	2	5	3
	3	11	0
	4	14	2
	5	8	3
	6	9	3
	7 (maximum preference for use)	7	1

n=74

Discussion and conclusion

On the basis of the data presented in the previous section, the answers to the research questions are as follows:

- Only a few music therapists have gained experienced in VMT. However, a small number of music therapists consider the use of VMT after the release of the preventive measures due to the pandemic.
- Music therapists use ICT primarily for receptive music therapy (listening to music) and administration. Some music therapists use internet/cloud services and music applications for client intervention.
- In the use of ICT, music therapists face barriers in the form of insufficient skills and education in the form of ICT use, as well as its cost and unavailability.

The results of the questionnaire survey suggest that Czech music therapists need to be supported in the use of ICT in their therapeutic practice and that their interest in VMT is not necessarily linked to the necessity to adapt to the virtual environment due to the preventive measures that made face-to-face contact with clients impossible. In this respect, VMT appears to be a potentially legitimate form of music therapy (Negrete, 2020). Moreover, according to World Health Organisation (2021) estimates, a rapid end to the pandemic cannot be expected and although it is not clear whether there will be more lockdowns in the following months, including strict restrictions on physical contact, the interest in VMT is likely to increase even among those music therapists who held a negative attitude during the pandemic. The majority of respondents in this study work in social services and schools that have so far been strongly affected by the preventive measures and whose therapeutic practice could again be at risk of suspension.

The greatest obstacle for therapists is the lack of knowledge and experience concerning ICT. Therefore, appropriate training activities need to be created for these purposes. The current need for the adaptation of music therapy practice to VMT should not be haphazard; without sufficient knowledge of VMT techniques and online platforms, music therapists can easily gain negative experience and thus confirm their belief that the virtual environment is not suitable for music therapy. Musical improvisation was identified by respondents as the most common method in their practice, and it is musical improvisation that brings the greatest challenges in the online space. Addressing these challenges requires the knowledge of specific adaptations (Berman, 2020; Knott & Block, 2020). Although there is only limited scientific evidence for VMT (Kantorová et al., 2021), it is desirable to implement previously mentioned recommendations in therapy practice and ensure the highest possible quality of music therapy carried out in the virtual environment.

One of the activities that used the data from this survey is an implementation project entitled “Implementation of virtual music therapy into the private practice of Czech music

therapists: a best practice implementation project", which started in May 2021 and the objective of which is to implement the best evidence-based practice concerning VMT into the practice of Czech music therapists, to increase the number of clients served, and to improve their satisfaction with music therapy services. In addition to supporting music therapists in using VMT, attention should also be on supporting various forms of ICT during face-to-face sessions. As far as music and music therapy technology in the Czech Republic is concerned, a relatively great focus is on vibroacoustic therapy (Vilímek, Kantor, & Kořínková, 2021) and other vibration platforms (for example using a vibration platform). In the past, a modification of the Japanese cybernetic tool CYMIS was developed (Koucun & Kantor, 2016).

In the interpretation of the results, the limitations of the present study must be considered, relating especially to external and internal validity. The data were obtained from a limited number of practising music therapists and, for practical reasons, the research sample was not selected in a representative manner and was based on relatively broad inclusion criteria. A non-standardized questionnaire was used for data collection and the results cannot be compared with a control group. On the other hand, the recommendations and conclusions based on the present research would probably not change if more respondents were involved. Moreover, the research focused on a highly topical issue and the results were required for timely implementation of interventions in order to protect the Czech music therapy community (including music therapy clients) from much more serious impacts of the pandemic.

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THE SAS STRATEGY TRAINING FOR CHILDREN WITH ASD IN INCLUSIVE EDUCATIONAL ROBOTICS ACTIVITIES

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Abstract. *Educational Robotics in inclusive learning environments creates a wide area of research where innovative teaching practices and theoretical approaches are developed and investigated in order for the new growing educational challenges to be met. In this context, an educational intervention research was carried out using mixed research methodology. The aim of the research was to investigate the effect of the"SAS Strategy Training" a strategy that developed to foster the participation of children with autism, at level 2, in inclusive teamwork with peers during construction and programming LEGO Mindstorms. 2 children, 10-11 years old, diagnosed with autism, at level 2, participated in two inclusive educational robotics teams with typical peers. The SaS Strategy has been integrated in the collaboration script that was designed to support the interaction between the team members during their collaboration on programming LEGO Mindstorms. The "SaS Strategy Training" had encouraging results in reducing the barriers of the participation of the children with autism in teamwork with their typical peers. Critical questions, reflections and new research horizons emerged.*
Keywords: *Inclusion, Participation, Educational Robotics, Lego Mindstorms, collaboration scripts, autism.*

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Introduction

Educational Robotics (ER) is an innovative and promising discipline with a focus on how robots can foster or support human learning processes in formal or informal learning environments (Barker & Ansorge, 2007). ER studies interests in those kinds of robots that children can manipulate and interact with for educational purposes. The Educational Robots receive instructions designed and executed through algorithms by the children themselves, to control the behaviour of the robot and complete a specific task (Pivetti et al., 2020). Although the literature reveals a lot of difficulties that are being raised for the effective integration of ER in curriculum, this trend in education have been already introduced into the classroom, from kindergarten through high school, as the design, assembly and programming of ER require the use of principles from different sciences such as engineering, computers, mathematics, and physics.

ER supports the learning processes in different ages and enhance of various skills such as logical reasoning, critical thinking, and creativity (Blanchard, Freiman, & Lirrete-Pitre, 2010; Miller, Nourbakhsh, & Siegwart, 2008), problem solving, social interaction and teamwork (Benitti, 2012). Recently, new research outcomes demonstrated that ER bridges gaps that lead to risks of social marginalization and subsequent risks of early school leaving by improving learning motivation, interest in learning itself and engagement of children with disabilities in active learning processes (Daniela & Lytras, 2019).

The last ten years, much work has been conducted to investigate the effectiveness of ER engagement of children with disabilities (Pivetti et al., 2020; Sannenan et al., 2020; Tsiomi & Nanou, 2020; Hinchliffe, Saggers, Chalmers & Hobbs, 2016; Yuen, Mason & Gomez, 2014;

Wainer et al., 2010;). The interest of many of the authors focused on which kind of robots, which educational methods and specific collaborative or cooperative strategies promote the engagement of children with ASD or with other kinds of disabilities and foster the learning possess the emotional, cognitive, or social skills. Most of the research work had been conducted in special educational settings.

Although ER is being applied in inclusive learning environments, very little research has been conducted in this field (Hinchliffe, Saggers, Chalmers, & Hobbs, 2016; Tsiomi & Nanou, 2020). As the learning environment all over the world becomes more inclusive, there is a need to develop successful inclusive practices and theories within the inclusive context in all fields in formal and non-formal education (Seale et al 2014; Nanou et al., 2020; Nilholm, 2021).

The aim of the present study is to investigate the effectiveness of an educational intervention focused on teaching children with Autism Spectrum Disorder (ASD) at Level 2, a specific strategy, under the name Search and Share Strategy (SaSS), to foster their participation in teamwork with peers during inclusive ER constructive and programming activities with LEGO Mindstorms. The proposed strategy was devised to solve the problem of how children with ASD could be fostered to participate in teamwork during ER activities. This problem emerged after our previous research work in the field of inclusive ER where children with ASD were included (Tsiomi & Nanou, 2020). SaSS Training that was based on the structured teaching (Mesibov & Howley, 2003) extends Legoff's method of assigning specific roles to children with ASD in teamwork during LEGO constructing play. The SaSS Training had been applied in two teams of three 10-11 years old children where two children with autism were included. The participation of children with ASD had been assessed by participant and independent observers, through observation protocols and research diaries. A rubric used for the description of the SaSS usage by children with autism. Data analysis followed a mixed research methodology.

Literature Review

In inclusive environments, it is important for all students to participate and to learn according to their needs. Children with ASD included in formal or non-formal educational environments have the same desire in using ER technologies and to participate, as their typical peers, in the educational process. Participation is the key to childhood development and the "best predictor" of learning for children with autism (Iovannone, Dunlap, Huber, & Kincaid, 2003). According to the psychosocial approach, the Participation has two dimensions: Attendance and Involvement. Attendance is related to the objective dimension of the concept and takes on the meaning of "I'm here". The Involvement, however, has emotional components such as motivation, involvement, perseverance, and sociability in the sense of interaction and interconnection and. On a personal level the content of Involvement means engagement (Immset al., 2017). According to researchers' statement "Sustainable learning can occur only when there is meaningful engagement. The process of engagement is a journey which connects a child and their environment (including people, ideas, materials and concepts) to enable learning and achievement"(Carpenter, Carpenter, Egerton, & Cockbill, 2016). Engagement "In the person level is the internal state of individuals involving focus or effort: (page 20) (Imms et al., 2017).The engagement of children in ER designing, assembling, programming, testing, debugging, and modification activities presupposes effective collaboration and teamwork. Participants in an ER activity are invited to collaborate on the design and construction of a robot that is required to carry out a project. Collaboration requires students to be active and involved (Yuen et al., 2014; Tsiomi & Nanou, 2020).

However, children with ASD face barriers in communication and socialization that negatively affect their social interactions and participation in activities of day life. People with

ASD are less engaged in social or physical activities compared to their typically developing peers (Askari et al. 2015, Simpson, Imms, & Keen, 2021). Research and clinical data have shown that teamwork between typical and non-typical students does not usually lead to substantial learning outcomes if specific rules are not agreed between the team members (Bell, 2004; Hewitt, 2005; Liu & Tsai, 2008). The effective engagement of children with ASD in an ER learning environment depends on the degree of the structuring of the learning environment (Mesibov & Howley, 2003). Structure is oriented by specific collaboration scripts and rules being defined to support teamwork. It is strongly recommended, except in the ER environment, that the interactions between students must be structured (Dillenbourg, 2002).

According to the research findings, when the teamwork in inclusive ER learning environments is structured using specific collaborative or cooperative strategies, the participation of the children with ASD is increased. More specifically, it was documented by previous research in inclusive ER settings, that specific cooperative strategy for structuring the activities and the processes of sharing ideas had positive results in fostering the participation of children with ASD and social interactions of typical and non-typical peers (Tsiomi & Nanou, 2020; Tsiomi, Pashalidou & Nanou, 2020). Additionally, one of the best outcomes concerning the participation of children with ASD in teamwork during LEGO construction play have been documented after the assigning of specific roles to each child with ASD in the team (Legoff, 2004). Legoff, in order to promote teamwork during LEGO construction play, structured the teamwork process, assigning different responsibilities between children with ASD (e.g., a child is given a set of instructions and acts as "engineer"; another child has the necessary pieces to make the set and acts as the "supplier"; and another child is the "builder", who is assigned the task putting the pieces together, following the instructions of the engineer). Positive results concerning the participation and social interaction of children with ASD peers have been documented (Legoff, 2004; Pang, 2010).

In inclusive ER learning environments, where children with ASD are included, specific strategies have to be developed in order for the learning environment, the learning processes and the collaboration to be structured. During ER activities with peers the collaboration process (e.g. verbal interaction, active gesturing, physical contact) is important to be structured if our intent is children with ASD to gain social interaction and skills (Yuen et al., 2014). Teamwork strategies are strongly recommended to be presented by visual stimuli in order for the participation of children with ASD to be effective (Tsiomi & Nanou, 2020; Albo-Canals et al., 2015). Specific strategies that could impose a specific structure on how children with ASD could interact with peers during teamwork inclusive educational robotic activities need to be developed especially for children with ASD in Level 2 that need substantial support for effective collaboration (American Psychiatric Association, DSM 5, 2013).

The aim of this study

This study aims at investigating the effects of SaSS Training in the participation of children with Level 2 ASD as "suppliers", in teamwork with typical peers during the inclusive ER activities with LEGO bricks and ER LEGO Mindstorms.

Research questions

More specifically, with our intervention we try to give answers to the following questions:

1. Will the SaSS training reduce the barriers and increase the successful participation of children with ASD in Level 2 in the teamwork with peers a) during the construction activities with LEGO blocks? b) During the design of the LEGO Mindstorms robot? and c) during programming activities of LEGO Mindstorms robot?
2. Will the children with ASD learn to use the SaSS autonomously in teamwork with their peers?

Methodology

Research Methodology

Educational intervention is chosen as the most suitable research method. Educational intervention is a qualitative study that involves the design, implementation and evaluation of a proposal or curriculum in a particular course and can be related to either the content or the teaching process. Requires measurements before and after the intervention. Comparing the results of the measurements before and after the educational intervention, the researchers test the success or failure of the educational intervention (Damaskinidis & Christodoulou, 2019).

Educational intervention gives answers to educators, questions like: «what works, in what context, with which groups, and at what cost» (Hutchinson. 1999). It is also based on detailed and well-timed planning, in a way that accurately records all the steps of the educational process; measurements are provided before and after the intervention so that an improvement can be calculated (Hutchinson, 1999).

Place, schedule, and educational equipment

The educational intervention took place at the "Tokei Maru - School for all", located in Triandria Thessaloniki, Greece. It lasted at 12 Meetings of ER activities (M1-M12) once a week, and for a period of three months. Each Meeting had a duration of 90 minutes. The schedule (day and time) of each Meeting was fixed. The ER equipment consisted of two kits of NXT LEGO Mindstorms kits were used, one for each team. The children followed an assembling process through the LEGO Mindstorms manual using two 10 inch tablets. The practice in robotics was done on a track (2,40m x 1,20m) intelligently designed for ER activities with LEGO Mindstorms.

Participants

6 children separated in two teams, team A of three boys and team B of three girls, 10-11 years old, were selected to participate in the activities of the inclusive ER educational programme. In each group a child with ASD was included.

All children participated with the permission of their parents in the after-school activities of "Tokei Maru - School for all". The children with ASD did not have any experience in LEGO Mindstorms constructing and programming activities. They were selected to join this activity because they had a keen interest in structured LEGO play. The children with typical development were selected because they were interested in joining robotic activities. They were experienced in ER and familiar in collaboration with ASD children at "Tokei Maru" before.

Table 1 ***Teams of participants in relationship with researchers***

	Participants			Researchers	
	Name	Role in the team	Diagnosis	Observers	Coordinator
A	A.1	Architect	typical	2	1
	A.2	Supplier	ASD		
	A.3	Builder	typical		
B	B.1	Architect	typical	2	
	B.2	Supplier	ASD		
	B.3	Builder	typical		

The children with ASD were both diagnosed by the Greek Public Educational and Counselling Support Center. According to their psychiatric evaluation their functionality was detected at Level 2. ASD people diagnosed with Level 2 have moderate symptoms, showing deficits in verbal and non-verbal social communication skills and limited ability to start social interaction. They need substantial support (American Psychiatric Association DSM 5, 2013).

According to the diagnosis, the boy, named Christos, found it difficult to adapt to new social situations and environmental changes. Although he had extensive vocabulary, he rarely participated in dialogue. He responded effectively to instructions when presented to him visually. He responded with one word in the dialogue context. He was very skilled in constructive play with blocks. The girl, Lina, needed substantial support in social interaction. She used to speak with short sentences. Her expressive vocabulary was limited to everyday situations. She responded in the dialogue slowly and she used to discuss specific topics. Although she loved art and constructive play with LEGO, she kept her interest for a limited time, and she was working slowly.

Educational Methodology

In the context of educational intervention, the inclusive ER programme followed a specific collaboration script (Kollar, Fischer, & Hesse, 2006). The collaboration scripts are scaffolds that shape the collaboration by structuring the interaction process in computer supported collaborative learning. Scaffolding supports learners to accomplish tasks that they are not able to accomplish on their own and it is derived by Vygotsky as a concept of the Zone of Proximal Development (Vygotsky, 1992; Wood et al., 1976).The collaboration script of this educational intervention followed five components:

I. *the learning objective*: The children with ASD learn to participate as "suppliers" in teamwork with peers during ER inclusive activities

II. *the type of activities*: Designing and programming the NXT LEGO Mindstorms into its basic movements, going forward and performing a square to reach specific LEGO objects in the track. The NXT LEGO Mindstorms were selected as an educational tool that functions as a magnet of interest, to enhance the participation and collaboration between children at each team. The NXT LEGO Mindstorms facilitate the construction play with structured blocks and computational bricks that allow users to create their own robots (Lauwaert, 2008). The assembly kit contains building block pieces and a programmable control unit that can enable one to build several robots. It allows users to assemble robots, program the movement, interface sensors and motors without focusing on technical details. The process of assembling and making the robot work involves basic understanding of physical and design principles and elementary programming skills (Afari & Khine, 2017). NXT platform provides students with the opportunity to "test their programming skills" as what they are programming through the LEGO Mindstorms robot. They can visually understand "what works" and "what does not work" and "why". LEGO Mindstorms robots provide students with the opportunity to understand fundamental computer programming concepts that are, by their very nature, abstract (Afari & Khine, 2017).

One of the greatest advantages of the LEGO Mindstorms for the participation of children with ASD is that the model structure for the assembling step by step is being represented in the detailed manual that is being included into the kit. These detailed visually structured manuals describe all the facilitated play options, step by step (Lauwaert, 2008). Through the detailed manuals the structured activities are visually organized and presented in a planned, sequential, and logical way. This kind of manual is effective in facilitating the constructing play of children with ASD (Hampshire & Hourcade, 2014). Although structured block play with LEGO is suitable for individual play of children with ASD in collaborative robotic projects specific strategies must be developed and taught in order everyone in the team has its role and to keep the collaboration process. Collaborative robotics projects require students to work together to solve a robotic task. For example, students can work together to design and build a robot that will find an object, pick it up, and

move it to another location (Yuen et al., 2014. Children with ASD face difficulties in initiating or responding to social interactions and need the support of specific strategies to collaborate with peers (Silva et al., 2020).

The implementation phases of SaSS during the 12 Meetings (M1-M12) are the following:

- **Phase A**: Construction activities with LEGO blocks (M1-M3),
- **Phase B**: Robot design (M4-M5), and
- **Phase C**: Programming (M6-M12).

The ER program activities in each meeting is presented below:

- **M1**: Assessment meeting on LEGO construction without the intervention or the support of special educators.
- **M2-M3**: LEGO construction using LEGO Educational material.
- **M4-M5**: Robot design: Construction of the NXT LEGO Mindstorms using the SaSS with optical verbal or physical guidance.
- **M6-M8**: Programming 1st mission, Moving front and going back. Each team works on a tablet. Children with ASD are being asked to transfer the blocks to the tablet following the standard image on colour printed cards, using the SaSS with optical, verbal or physical guidance.
- **M9-M11**: Programming 2nd mission, Go forward, come back and turn four times like a square.Children with ASD are being asked to transfer the blocks to the tablet following the standard image on colour printed cards, using the SaSS with optical, verbal or physical guidance.
- **M12**:Assessment meeting on Programming 1st and 2nd missions without intervention or the support of special educators.

III. *the sequence component*: The sequence in the script specifies the activities learners should perform and when they should perform them (Kollar, Fischer, & Hesse, 2006).In order for the sequence component to be followed the Search and Share Strategy (SaSS) steps were designed to structure the ER activities in this educational intervention. The SaSS was devised based on the experience gained by our action research that is conducted for many years with children on the autism spectrum (Tsiomi & Nanou, 2020) as well as study of the relevant literature and especially the Legoff method (Legoff, 2004). The SaSS determines the specific steps that a child with ASD must follow to participate as a productive "supplier" while working with the "architecture" and the "builder" in the ER team. The children have to share bricks during LEGO construction or robot design and share information during programming of the robot Lego Mindstorms.

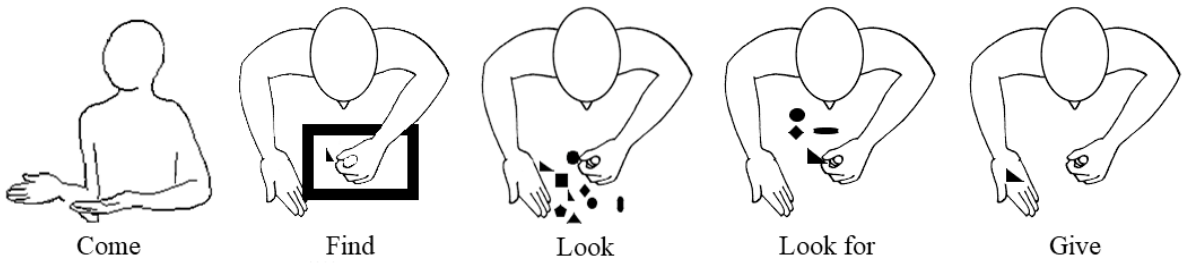

Figure1 ***The five steps of the SaS Strategy***

The SaSS consists of five steps, as illustrated in Figure 1.The steps are presented visually to prepare more precisely the children with ASD to use the SaSS during the A,B and C phase of the programme. The steps are:

(1) **Come** - the child is invited by the teacher to come to the training area,

(2) **Look** - the child is verbally encouraged by the teacher to focus on the desired point of construction,
(3) **Look For** - the child is encouraged by the teacher to seek to find the necessary piece either with physical or verbal guidance,
(4) **Find** - the child finds and confirms with the requested piece,
(5) **Give** - the child gives the piece and focuses on the assembly process.

IV. *the role distribution component:* Specific roles addressed to the participants during the teamwork in ER activities. These roles had specified according to Legoff's work on construction play with LEGO (Legoff, 2004) (see Table 1)

V. *the representation component:* This component refers to the type of representation of the components of the script. In our educational intervention emphasis had been given to the representation of the SaSS which constitutes the sequence component of the script. As the SaSS training addressed to the children with ASD the visual representation had been chosen (see Figure 1).

Data Collection

Data concerning the participation of the children with ASD after the SaSS training during the Phases (A, B, C) were collected through observation methods and tools. Observation consists of the main method of data collection in ER activities (Bernstein, Mutch-Jones, Cassidy, & Hamner, 2020).

Two observers, special pedagogues, observed the ASD children's participation in the two teams (4 observers in total). The Independent Observer (IO) was to observe the participation processes of the children with ASD in each team without taking part in the robotic activities. The Participant Observers (PO) was the one that supported the children with ASD in each group to efficiently use the SaSS. Participatory observation combines participation in activities under study by maintaining a professional distance that allows appropriate observation and data recording.

Both the observers used structured and unstructured observation methods and tools for data collection. Work diary was used as an unstructured observation method. Work diaries were used by both the participant and independent observer of each team just after the end of each meeting in order their observations and interpretations were recorded. In addition, they recorded methodological notes about her role in the context, her relations with the other researchers, participants, her personal impressions and feelings or practical issues arising in the field (Feldman, Altrichter, Posch, &Somekh, 2018; Willig, 2008). At the end of each activity, a feedback discussion is held between the observers and special educators to evaluate the educational process.

Rubric for the assessment of autonomy in the use of SaSS by children with ASD

A unique rubric has been designed for the specific research as a tool for the assessment of the level of autonomy in the implementation of the SaSS by the children with ASD in teamwork during the constructive and programming robotic activities. Rubrics are effective and efficient tools that are being used for the objective evaluation of a range of performances or activities in any subject area (Stevens & Levi, 2005). The level of autonomy in the usage of every step of the SaSS was being accessed by both the coordinator and the independent observer at each group at the beginning of the constructing or programming process in all meetings (M1-M12).

The rubric that has been designed for the purpose of the research aims at evaluating the degree of autonomy in participation of the children with ASD in each of the five SaSS steps: 1) Come, 2) Look, 3) Look for, 4) Find, and 5) Give. The coordinator of both teams and the independent observer of each team had to assess the participation in each process using a scale

of grades 0-5 that represent the levels of autonomy in the implementation of the strategy. More specifically (0) declares the absence of participation, (1) the intention of participation, (2) the participation with Physical guidance of a special educator, (3) the participation after verbal reminders, (4) the participation with visual reminders, and (5) the autonomous participation. The designing of the rubric followed the scaffolding processes derived by Vygotskyan concept of the Zone of Proximal Development (Vygotsky, 1992).

How data was classified and analysed

For data analysis mixed methods were used. According to Creswell and Clark (2007), "Data analysis in mixed methods consists of analysing the qualitative data using quantitative methods" (p.128).

Categorical productive approach was chosen for Qualitative data analysis (Isaris & Purkos, 2015). The reason that the productive rather than the inductive approach in categorical analysis was chosen dictated by the aim of the research, which was to find out specific reactions, that could be given information concerning the participation of children with ASD as suppliers in the inclusive educational robotics program and how this participation achieved. The research data recorded by the observers in their diaries were analysed in content units that focus on participation and have been categorized according to two thematic categories: Observation of the Barriers in participation. These specific thematic categories were predefined to focus and highlight data that are related to the issues being investigated by the research questions (Isaris & Purkos, 2015). In order for the 1stand 2nd research questions to be answered the Barriers and Successes in participation of children with ASD as they were recorded in the research diaries were counted.

Research Findings

1st Research question

Will the SaSS Training reduce the barriers and increase the successful participation of children with ASD in Level 2 in the teamwork with peers a) during the construction activities with LEGO blocks? b) during the design of the LEGO Mindstorms robot? c) during the programming activities of LEGO Mindstorms robot?

The data concerning the 1st research question came up by the categorical analysis of the observations included into the research diaries of both the Participant Observer (PO) and the Independent Observer (IO) during the A, B and C Phase.

After the categorical analysis, 110 content units were identified through the research diaries of both the Participant (60 units) and the Independent Observer (50 units) concerning the participation of the boy with ASD in teamwork with peers during the three phases (A, B and C) of the SaSS Training. 17 content units into the Independent Observer's diaries have been categorized as Barriers and 43 as Successes of participation. 14 content units into the Participant Observer's diaries categorized as Barriers and 36 as Successes in participation of the boy with ASD.

The agreement between the two observers (IO and PO) was checked with the Cohen's Kappa index. Specifically, regarding the the boy's participation Barriers, the index for the weaknesses of cooperation took a value of 0.660 which ranks the agreement between the observers in a significant agreement (above average) at the level of importance $p = 0.001$ and for the successes with a value of 0.4 which classifies it as a moderate agreement between the observers with a significance level $p = 0.002$.

Figure 2 presents the average of the observed Barriers and Successes of the boy during the 12 Meetings.

Figure 2 ***The average of the observed barriers and successes of the boy's participation in each session until the completion of the 12 meetings of the boys' group***

Concerning the participation of the girl with ASD in teamwork with peers, 126 content units were identified through the research diaries of both the Participant (62 units) and the Independent Observer (64 units) during the three phases (A, B and C) of the SaSS Training. The Independent Observer recorded 28 barriers and 34 successes while the Participant Observer recorded 34 barriers and 30 successes.

The agreement between the two observers (IO and PO) was tested with Cohen Kappa index, showed for each category of semantic coherence above average relevance at the significance level p = 0.001. Regarding the Barriers, the Cohen Kappa index for the weaknesses of cooperation took a value 0.571, which ranks the agreement of the observers at the upper levels of mediocrity at the level of significance p = 0.001 and regarding the Successes of participation, took a value 0.564, which also ranks the agreement between observers at the upper level of the median, in terms of significance, p = 0.001.

Figure 3 presents the average of the observed Barriers and Successes of the girl's participation during the 12 Meetings.

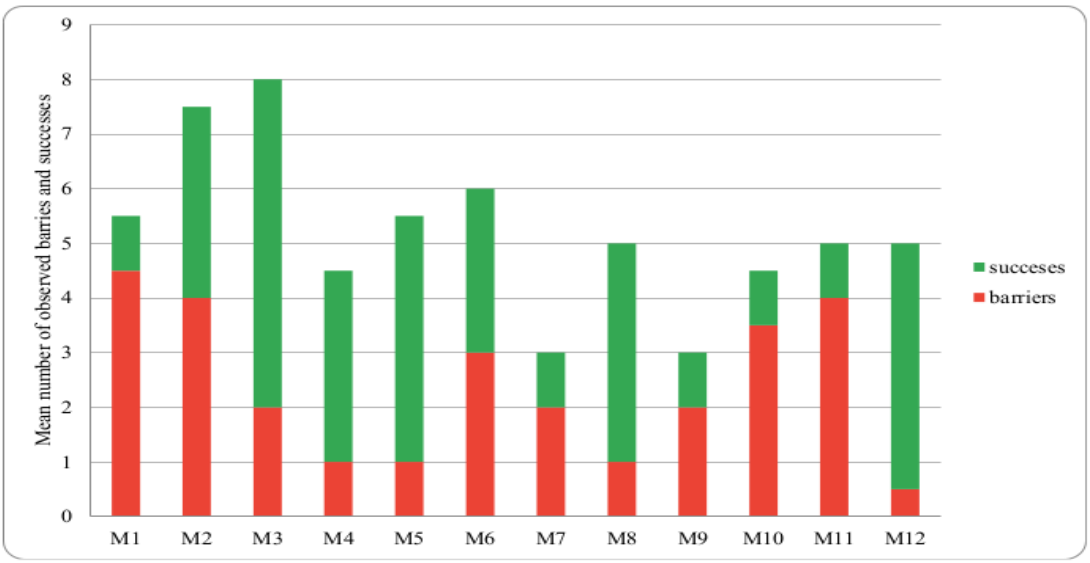

Figure 3 ***The average of the Barriers and Successes recorded by the observers of girl's participation during the Meetings (M1-M12)***

Differences in the participation between the boy, Christos and the girl, Lina, were determined, with the girl facing more Barriers, especially in the programming Phase (C). More specifically, during the Phase (A) in constructing play with LEGO, both the girl and the boy were facing Barriers at the same degree. In the second phase (B) during robot design the Barriers were decreased. But in Phase (C) during the programming, Barriers for the boy were reduced, while for the girl was increased.

The Barriers and the Successes of participation of both children with ASD, Christos and Lina, while using SaSS in teamwork are described in detail with the comments of the observers as they were recorded into their dairies. The data from the observations of A and B Phases are presented concerning the boy first and the girl next.

During M1 more Barriers than Successes were recorded in the boy's participation. Christos entered the Tokei Maru with his personal LEGO toys and played alone only with them throughout the Meeting. He chose not to participate in the teamwork with peers. While he was talking to himself he was looking at the team working. Although the boys asked him to participate he preferred to stay alone. During M2, boys asked Christos to join their team from the beginning of the Meeting. Although he approached the team, he didn' stop playing with his own LEGO constructions. He was helped by the special pedagogue to come close to the team, but he had a parallel construction play. The independent observer noted in her diary;

"Christos looked like not want to participate.The boys had understood that he was really good at construction so they tried to find some ways to interact with him"

When the boys asked him to present his LEGO constructions he responded:

"These are my constructions. They are vehicles"

During M3, robot design Phase (B), Christos, under the guidance of the special pedagogue, put his personal LEGO toys in a box and left them visible. Special pedagogue helped and ensured that he could have visual contact with his toys any time during the Meeting. The team of boys sat at the table and the special pedagogue presented visually the SaSS describing the steps one by one. The independent observer noted:

"The boys helped to put on the table the pictures of the SaSS steps and the starting letters of each step that on the pictures because Christos could recognize the alphabet letters"

They started assembling the robot in which Christos participated following the SaSS steps with the help of the special pedagogue and with the support of the other boys. The SaSS pictures were sent to his parents by email so that Christos could study the pictures and be better prepared. During M4, Christos' participation progressively increased with longer duration. Christos had learned the routine of entering the room, putting his personal toys in the transparent box and sitting at the table with his team members where the SaSS pictures were put. At first, he started to follow the steps with physical guidance by the special pedagogue. The participant observer wrote in her diary:

"*The Mindstorms manual and the construction of the collaboration process through the SaSS strategy, helped him to organize his participation during the robot design and to contribute as a member of the team"*

In the M5 it is noted that he was upset when he entered the room. Although he was confused, he participated in the construction of the robot. He helped his team to find the correct pieces with the guidance of the special pedagogue.

Concerning the participation of the girl with ASD, Lina, during M1, more Barriers than Successes were recorded. From the first time Lina joined the girls, the members of her team talked with them asking their names. Thus, while responding to the call of her team members to focus her gaze and attention on the book of orders for LEGO construction, she participated only in the role of the observer without proceeding with the search and finding of the appropriate block.

During M2 and M3 after she was taught the steps of SaSS by pictures with the support of the special pedagogue her participation became more successful. The Participatory Observer, special pedagogue, noted the Barriers that Lina was face:

"She looked at the brick shown to her in the guide, raised her hand to look for the pieces but reassembled her hand as if unsure. she needed physical guidance to complete the steps"

The SASS pictures were, also, sent to her parents, so that Lina could study them before the next Meeting. At M4 and M5 Lina was involved in the process of assembling the robot. According to both the Independent and the Participant Observers, Lina participated successfully during the robot design (Phase B). The reason was due to the robot components that were settled in the specific places in the kit. This arrangement of the components in the kit made it easier for Lina to search and locate the blocks the team was looking for. Throughout the process the support of the special educator was necessary, especially when Lina lost her concentration. During the Phases A and B of the SaSS Training there was progressive closeness and success in involving children in assembly teamwork.

Findings from the Phase C are presented below for both the boy and the girl:

During M6, Christos' participation improved. Although the means of implementation were changed and a tablet with the programming software was added through the NXT platform, the participation of the child continued, and in fact because he had a special interest for digital media, his participation was of better quality. He was significantly helped by the SASS pictures that were put during the Meeting on the table. During the Step Give of SaSS Christos had to put in the "programming frame" the programming blocks using the touch screen of the tablet. The team decided how many blocks Christos had to put in the "programming frame" and he became the "supplier" of the blocks during programming.

During M7, Christos' participation continued to be active. He managed to put all the blocks even though they were increased. In the M8, Christos made his routine at the entrance, placing his toys in the box. This time he approached his group alone after the children's call. He follows the steps of the SaSS with minimal guidance from the special pedagogue. He successfully transferred the blocks and when he completed his mission, he gave the tablet to the next one. In M9 they programmed robots to move on. Christos followed the steps of the SaSS and transferred the appropriate blocks. However, because these were more, they needed verbal guidance from the special educator. He was enthusiastic about the robot's movement. The children completed the arrangements for the robot's movement and Christos watched the team in programming tests. During M10-M11 he entered with great enthusiasm. He followed his routine and approached the team alone. He followed the steps of the SaSS and the cooperation was constructive. The support of the special pedagogue was deemed necessary in the steps that Christos seemed to have difficulty in (numbering the necessary blocks for programming). In the last meeting Christos followed the verbal guidance of the special pedagogue to stay in his team and work together placing the blocks. The special pedagogue's notes in her diary "Christos could be taught how to adjust the other parameters in order to control the movement of the robot".

On the other hand, during M6-M7, a decrease in Lina's successes was observed according to both the Observers. This change was attributed to the activities of programming during the Phase C. During this phase the teamwork was differentiated. As a result, it was difficult for Lina to participate especially during the 7th Meeting. According to the observers, Lina's behaviour was affected negatively by the constant movements of the girls of her team, who were moving all the time while programming and testing their robot on the track. These new conditions in their collaboration were unexpectedly differentiated according to the previous M2-M5 collaboration conditions, in which less movement was required. Even when the special pedagogue showed Lina the steps of the programming process visualized, she found that Lina had a difficulty in concentrating. The special pedagogue, as she realized that difficulty, asked

the girls of her team to stay at the table, next to Lina, in order to complete the programming in a specific place. In the following meetings (M8-M9) the planning process was visually structured to facilitate Lina's participation. Except for the SaSS pictures, pictures of the exact number of blocks that Lina had to transfer to the canvas-programming surface were placed on the table. The construction positively affected Lina's participation, which seems to have increased according to the observers of cooperation possibilities. Lina started following the team on the track and participating by giving the command with the support of her team girls in the robot to move. Although her participation was mechanistically she understood the process and her role in the team, as "supplier".

Lina found it difficult to participate in the programming process during the next Meetings. The independent observer notes:

"The programming process was complex as it required eight blocks that Lina had to measure and place on the canvas in a row".

The comparison of the Successes and Barriers of participation of both boys and girls between the 1st and the 12th Meeting when there was no support by special pedagogues is presented in Figure 4.

The Barriers in participation for both the boy and the girl were reduced from M1 to M12. Although the boy, during M1 had no Success in his participation as he worked alone, at the final Meeting M12, his participation was totally successful, according to both observers. Christos was accepted as a member of the ER team and participated in the process of construction and programming of Lego Mindstorms, using the SaSS. On the other hand, the girl, Lina, although from the first meeting she had positive interaction with the girls' team, needed strong support from the special pedagogue to participate effectively in the programming Phase. At the last Meeting M12 faced Barriers using the SaSS but she managed to collaborate with the guidance of the other girls of her team. Of course, as one observer points out, it was obvious that her participation was achieved without the corresponding understanding of concepts and programming algorithms, concepts that the other members of the team understood.

Figure 4 ***The Successes and the Barriers of participation of both boy (a) and girl (b) at the M1 and M12 with no support of special pedagogue***

The SaSS training as pilot intervention showed that inclusive ER teams could be effective under identifying and specific roles and collaboration scripts that determine the steps of collaboration. The process of deepening concepts to participate effectively at the cognitive level remains to be further explored in mainstream research.

2nd Research question

Will the children with ASD increase the level of their autonomous implementation of the SaSS as suppliers in their teamwork?

The level of autonomy differentiated between the two children and between SaSS steps. Figures 5 and 6 presents the Levels of the boy's and girl's with ASD autonomy in the implementation of the SaSS during the ER M1-M12

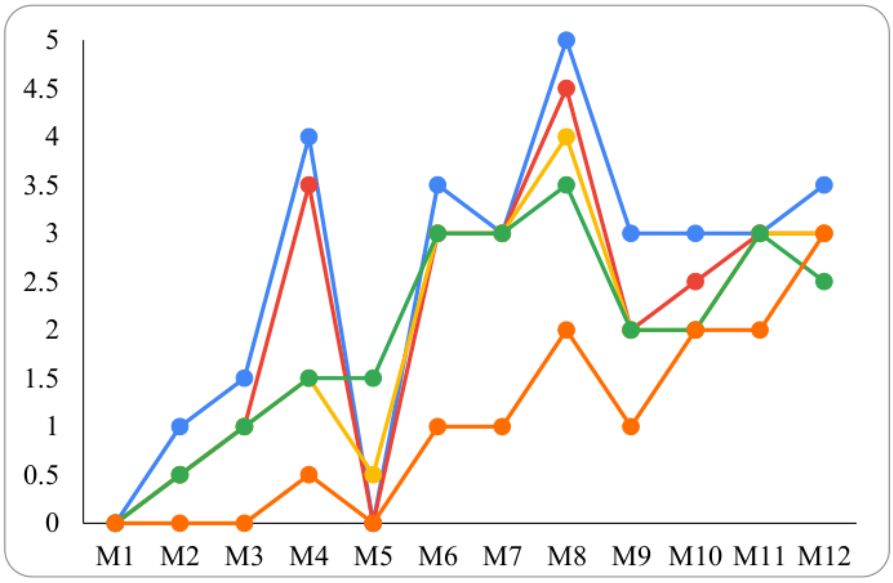

Figure 5 ***Levels of the boy's with ASD autonomy (0-5) in the implementation of the SaSS during the ER M1-M12***

As presented in Figure 5, Christos at the first meeting of his team, rated 0 which means the absence of participation in teamwork. At M2-M3 at all the steps of SaSS declared an intention to participate in the teamwork by approaching the team or looking at the manual but his participation was unsure (rated 1 or 2). In the next, M4, he managed to follow the first two steps of the strategy (Come and Look) with his own effort and the other steps (Find and Give) with visual support and vertical prompts by the special pedagogue (rated 4). During M5 he needed support by physical guidance by the special pedagogue as he was disrupted, according to the observation diaries (rated 1 and 2). But in the next meetings (M6-M8) the physical guidance of the special educator was reduced. Christos could follow the steps of SaSS with virtual support. In the phase of programming (M8) he was able to independently conquer the first steps of the strategy (Come, Look, Look for) but he needed visual and verbal support to Find, Give steps of SaSS. Finally, during M9-M12 although the tasks for programming were more complex, the boy supplied the programming blocks in the canvas himself with only visual support. In the last two meetings, even if the task was more complicated, Christos followed SaSS steps with visual prompts and/or verbal guidance.

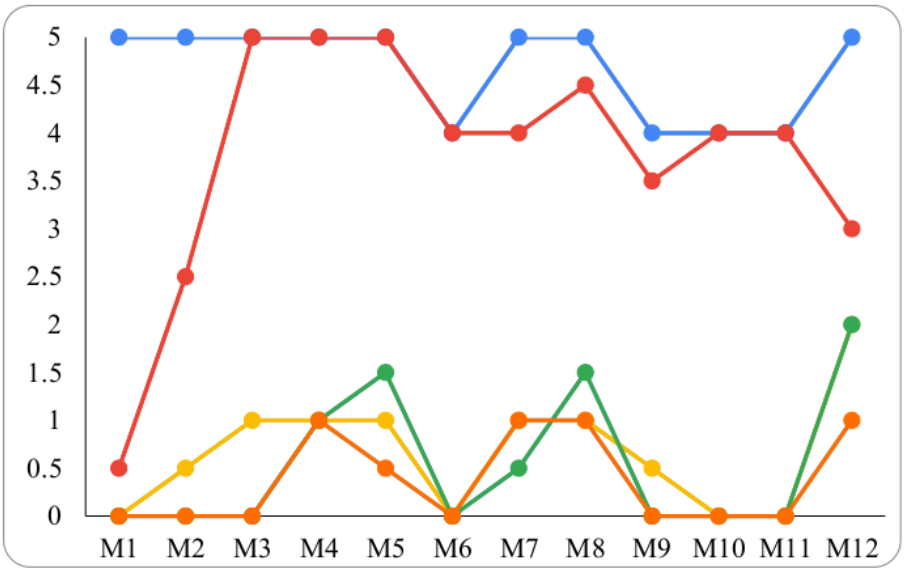

Figure 6 ***Levels of the girl's with ASD autonomy (0-5) in the implementation of the SaSS during the ER M1-M12***

As presented in Figure 6, Lina's first meeting with the girls' team had positive results concerning the first two (2) SaSS steps. Lina rated 5 to the first two SaSS steps (Come, Look) as she independently approached and stayed close to the team without guidance. This was a stable characteristic of her participation in all the meetings. In contrast to Christos, she needed more support to apply the last steps of the strategy. More specifically during all the meetings graded 1 or 2 concerning the Look, Look for, Find and Give of SaSS steps, which means that she followed the SaSS to participate with physical guidance by the special pedagogue. This was the same also for the robot assembly meetings (M4-M5) and for the programming meetings. The need for guidance was ensured also by the observations of her participation according to which Lina was delayed and the special pedagogue with physical guidance helped her to be more effective. Only in the last meeting she completed the SaSS steps with the visual support and verbal guidance with the support of her team in the last two SaSS steps.

Conclusions and Discussion

The analysis of the findings leads to the following conclusions

Although the children with ASD with the need of substantial sup.port that were included in the two ER teams with typical peers during the educational intervention that was carried out, managed to "be on their roles" in teamwork as "suppliers" and to start functioning autonomously with the visual support of the SaSS. It is documented therefore, that SaSS Training fostered the participation of the two children with ASD in Level 2 in ER inclusive activities.

SaSS Training took place in authentic inclusive settings. It has to be mentioned that the children with ASD haven't got any special intervention before but were taught the SaSS in real time with their typical peers. By the observation of the children in the authentic learning environment drew to the conclusion the assignment of specific roles of the children in teamwork, the determination of the specific steps that the "supplier"could be followed as these steps were determined by the SaSS, the representation type and the support of special pedagogues created the circumstances of promoting the participation of both children with ASD in the construction and programming phases of the ER Lego Mindstorms activities. The support of special pedagogues progressively minimized.

The educational Robots, Lego Mindstorms, functioned as "collaborative motivators". The choice of LEGO Mindstorms as the ER education kit was derived mainly because of their dominant acceptance and use in educational institutions. Also, LEGO Mindstorms has a widespread active community and supporting educational material. Learning practices through LEGO (only bricks) and LEGO Mindstorms (ER) especially for children with Autism Spectrum Disorders (ASD) are getting strong attention by education and academic society. LEGO, as structured, rule-based play, had strong evidence in facilitating social interaction and participation of children with ASD in team work with peers (Legoff, 2004; Legoff & Sherman, 2006). The model structure for the assembling step by step as it was being represented in the detailed manual, proved an effective educational material suitable for children with ASD and challenging at the same time for typical children. The detailed visually structured manuals that are being described by (Lauwaert, 2008) proved very effective in inclusive settings where children with ASD are being included. LEGO Mindstorms NXT canvas was helpful for the children with autism to participate in the programming Phase. Their participation during the programming Phase fostered by using SaSS as Searching and Sharing the blocks in the programming canvas. SaSS in block programming has the meaning of Search and Sharing information (programming blocks), while at constructing Phases has the meaning of Search and Share the real blocks. SaSS gave children the opportunity to participate actively and to be engaged in construction and in programming with peers just after 11 Meetings. The SaSS was used as a common communication code between the team members, and this gave them the confidence to continue their collaboration. According to the observations of the observatory "the children of typical development knew what to do to cooperate". The SaSS essentially contributed to leading and integrating the children into the teamwork so that the collaboration becomes more effective.

The educational intervention that was carried out continues the research on educational methods and strategies that can be applied in inclusive ER learning environments. Although the level of function of children that participated in this research was lower than the ones that had participated in inclusive ER in Australia (Hinchliffe et al., 2016), benefits documented by the research findings.

One of the main limitations of our educational intervention is the lack of control groups that could be left without intervention. In the inclusive settings it is not recemented, not an intervention without support to be applied. The absence of a control group is a usual methodological weakness in ER activities and especially in special or inclusive settings. According to the most recent review (Pivetti et al., 2020), eleven from thirteen research works in the field of ER programs addressed to people with disabilities didn't test their results in comparison with a control group. The lack of control group is expected due to the difficulties in the availability of participants. In these educational interventions the designing of research follows the restrictions of occasional participation.

As the field is new and the interest of researchers is really strong the research is under the circumstances of occasionality. Of course, the interpretation of the results has to take into consideration the specific limitations till the circumstances be more mature (e.g., ER be implemented in all populations in formal and non-formal education and their utilization will be spread in all educational settings).The other limitation is the small number of participants. In order for the results to be reliable the SaSS has to be taught to more children with ASD in inclusive settings.

Although the participation of the children with ASD was encouraging, future research has to focus on educational interventions that could foster the automatization of the SaSS in their teamwork as suppliers. Also, the investigation of functioning under differentiated roles (e.g., as builders) could be promising and helpful in promoting the participation of children with ASD in ER programmes. Also, future research has to investigate educational methodologies and

strategies to increase the engagement of children with ASD in programming ER. The investigation of the subjective aspect of participation due to the Imms et al. (2017) model would be measured under the self assessment approach in order the engagement of persons with ASD to be globally estimated.

We do not know how the process of learning could go on if the research had the opportunity to deeply focus on programming. Children with autism at Level 2 may have the opportunity to understand fundamental computer programming concepts with the support of specific educational strategies as many researchers highlight for typical children (Afari & Khine, 2017).

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Scientific e-journal
EDUCATION. INNOVATION. DIVERSITY (EID)

MIXED CLASS TEACHING AS AN EMERGING TREND ACCELERATED BY COVID-19

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Abstract. *The COVID-19 pandemic has essentially accelerated the pace of the teaching transformation. Mixed (also hyflex) class teaching has become indispensable in medical, engineering, teacher and other fields of education when only online teaching is not enough to ensure the continuity of the instruction. The research aim is to identify scenarios of mixed class teaching underpinning the elaboration of implications for higher education. The present research used both - theoretical and empirical methods. The theoretical methods included the analysis of scientific literature, theoretical modelling, systematisation, synthesis, comparison, and generalisation. The empirical study carried out in June 2021 was exploratory. Data were collected through the analysis of published studies. The collected data were processed via content analysis. The present research allows concluding that teaching has undergone significant changes in different historical periods. The findings of the empirical study facilitate the conclusion on the existence of two scenarios of mixed class teaching, namely HOT (Here or There) and COIL (Collaborative Online International Learning). Both scenarios are oriented to students' learning, teaching in these scenarios is neither segmented nor structured. The novel contribution of the research is revealed in the implications on mixed class teaching for higher education. Future research work was proposed.*
Keywords: *COVID-19, Educational Process, Hyflex (Hybrid Flexible) Class Teaching, Mixed Class, On-campus Students, Remote Students' Teaching, Teaching Sub-Phases.*

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Introduction

Since many years, teaching remains an important part of education despite contemporary foci on peer-learning and learning in education and training (Ahrens, Zaščerinska, Lange, & Aļeksejeva, 2021).

The COVID-19 pandemic stimulated simultaneous delivery of a face-to-face course to on-campus and remote off-campus students (White, Ramirez, Smith, & Plonowski, 2010) or, in other words, mixed class teaching, also known as hyflex (hybrid flexible) class teaching (Aleksejeva, Zascerinskis, Abjalkiene, Gukovica, Zascerinska, & Ahrens, 2021).

Analysis of the existing literature reveals exploratory and qualitative nature and focus of the previously done research (Raes, Detienne, Windey, & Depaepe, 2020). Mostly, descriptions of students' experiences, the organisational implementation and the technological design were investigated (Raes, Detienne, Windey, & Depaepe, 2020). Empirical studies have only begun to emerge, and more research is needed into different pedagogical scenarios and their impact on student outcomes (Raes, Detienne, Windey, & Depaepe, 2020).

The research aim is to employ theoretical and empirical methods for the identification of scenarios of mixed class teaching underpinning the elaboration of implications for higher education.

The present research employs both - theoretical and empirical methods. The theoretical methods include analysis of scientific literature, theoretical modelling, systematisation, synthesis, comparison, and generalisation. The empirical study was exploratory. Data were

collected through the analysis of published studies. The content analysis for processing the collected data was carried out. The novel contribution of the research is revealed in implications on mixed class teaching for higher education.

Conceptual Framework

Education is widely recognised to be a process (Ahrens, Zaščerinska, Lange, & Aļeksejeva, 2021). This process is broadly defined as the educational process (Zaščerinska, Zaščerinskis, Andreeva, & Aļeksejeva, 2013). The other terms of the educational process include educational processes (Smidt, 2015), educational practice(s) (Murphy, 2013), educative process (Judd, Bagley, Kilpatrick, Moore, & Chassell, 1923), education as process (Creasy, 2018), the process of education (Bruner, 1960), educational technology (Thota, & Negreiros, 2015), and similar. The educational process is implemented in a certain sequence as depicted in Figure 1: from teaching in Phase 1 through peer-learning in Phase 2 to learning in Phase 3 (Ahrens & Zaščerinska, 2010, p. 185). The educational process sequentially proceeds (Zaščerinska, 2011, p. 105–106):

- Phase 1 Teaching is aimed at a safe environment for all the learners. In order to provide a safe environment, the essence of constructive social interaction and its organizational regulations are considered by both the teacher and learners. The present phase is organized in a frontal way involving the learners to participate.
- Phase 2 Peer-Learning is designed for the learners' analysis of an open academic problem situation and their search for a solution. The same materials can be prepared for all of the class/group learners. This phase involves the learners to act in peers.
- Phase 3 Learning emphasizes the learners' self-regulation with the. use of assessment of the process and self-evaluation of the results.

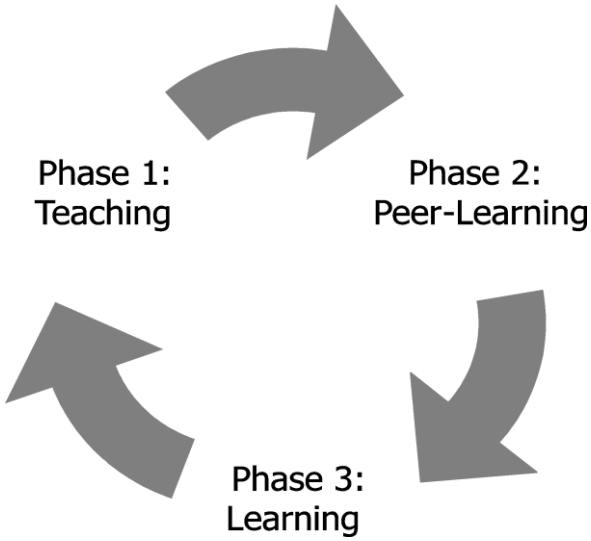


Figure 1 ***The phases of the educational process*** *(Ahrens & Zaščerinska, 2010, p. 185)*

The present research mainly focuses on teaching. Teaching is the first phase in the educational process (Zaščerinska, 2013). Figure 2 reveals the relationships between education as the macro-environment, educational process as the mezzo-environment, as well as teaching, peer-learning and learning as the micro-environment.

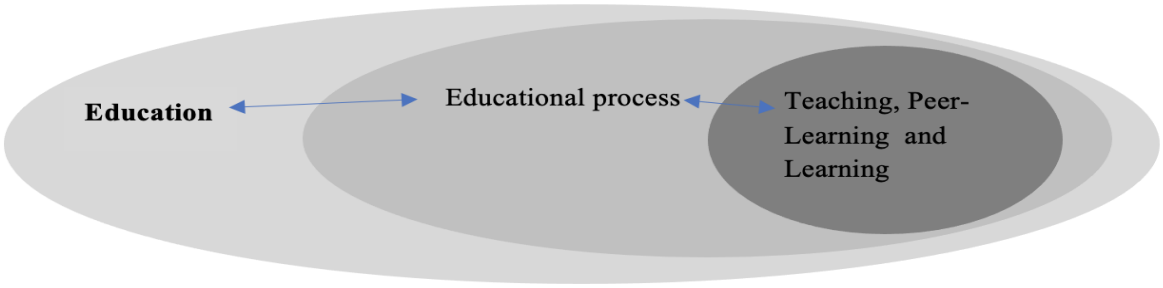


Figure 2 ***The relationship between education, educational process, teaching, peer-learning and learning*** *(the authors)*

Table 1 gives an overview on the teaching development in different historical periods.

Table 1 ***Teaching development in different historical periods*** *(the authors)*

Historical period	Teaching definition	A short description of teaching	Reference
40 000 years ago	Teaching by the people (people teaching)	Simple pedagogical views and ideas that were most fully manifested in labor activity, traditions, rituals, customs, games, holidays, oral folk speech	Amirov, Kudashkina, & Lipatova, 2017, p. 18
over 2000 years ago	Teaching as the effective strategy for learning	What kind of learning is desired and toward what ends by the Greek philosophers, Socrates (469 –399 B.C.), Plato (427 – 347 B.C.), and Aristotle (384 – 322 B.C)	Hammond, Austin, Orcutt, & Rosso, 2001, p. 3
500 A.D. to 1500 A.D.	Teaching at religious schools	Transmission-based teaching from the priest to the people	Monroe, 1925
15th to the 17th century, The Renaissance	Teaching for thinking	For thinking – the effort to understand ideas and use knowledge for broader purposes	Hammond, Austin, Orcutt, & Rosso, 2001, p. 4
18th century	Teaching and learning	The unity of teaching and learning	Zakirova, Grigoryeva, & Kayumova, 2018, p. 7
19th century	Teaching from the psychological perspective	Behaviorist vs. cognitive psychology: the scientific study of learning for searching the best approach to teaching	Hammond, Austin, Orcutt, & Rosso, 2001, p. 5
20th century	Teaching and peer-learning	Teachers and peers assist learners in developing new ideas and skills	Vygotsky, 1934/1962
21st century	Teaching, peer-learning and learning	The unity of teaching, peer-learning and learning	Ahrens & Zaščerinska, 2010, p. 185
	Information and Communication Technology enhanced teaching	Teaching with the use of Information and Communication Technology, digitalized teaching and similar	Zaščerinska, 2009; Melnikova, Grünwald, Ahrens, Pfaffenberger, & Zaščerinska, 2017
The COVID-19 pandemic in the 21st century	Mixed class teaching	Simultaneous teaching of a class of both on-campus and remote learners	White, Ramirez, Smith, & Plonowski, 2010

The COVID-19 pandemic has essentially accelerated the pace of the transformation of the educational process (Ahrens, & Zascerinska, 2020). Almost overnight, the pandemic has shifted the delivery of education to only online teaching (Ahrens, Zascerinska, Bhati, Zascerinskis, Aleksejeva, 2021) done from home. With warnings of the next COVID-19 wave and other impending pandemics, universities need to be prepared to deliver courses in alternative ways to ensure continuity of instruction (White, Ramirez, Smith, & Plonowski, 2010). It should be pointed that not all teaching can be done fully online. For example, the shift to online platform poses serious challenges to medical education (Jiang et al, 2020). Expressly, most medical schools set students in physical settings for 1–3 years where their knowledge foundations are built; students' physical presence in both inpatient and outpatient settings has been a successful practice of early clinical immersion experiences and the clerkship curriculum (Jiang et al, 2020). The second half of medical school education requires students to participate in clinical rotations, sub-internships, and/or research projects (Jiang et al, 2020). The same refers to many other educational fields. Among many, there is teacher education, engineering education, maritime education, and others, too.

Figure 3 illustrates a simultaneous delivery of a face-to-face course to on-campus and remote off-campus students (White, Ramirez, Smith, & Plonowski, 2010) or, in other words, mixed class teaching.

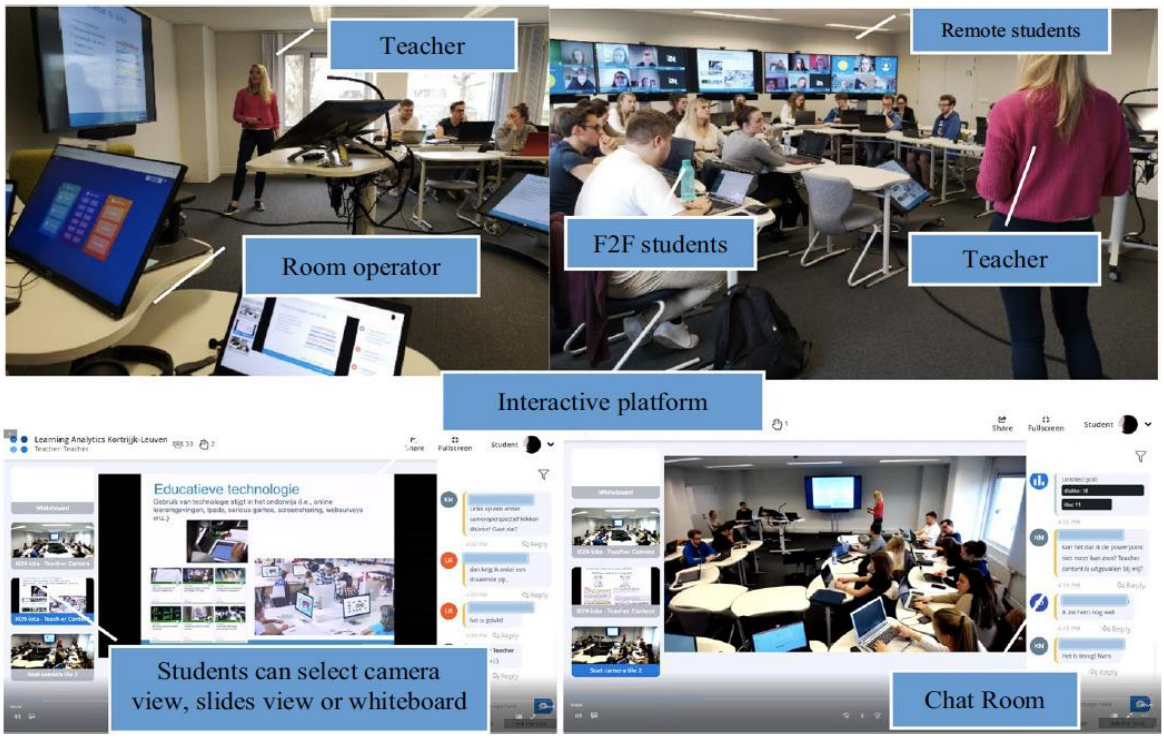


Figure 3 ***Mixed class including both on-campus (F2F) and remote individual students (upper pictures) and the platform visible for the students (lower pictures)***
(Raes, Detienne, Windey, & Depaepe, 2020)

For comparative purposes, Table 2 demonstrates the differences in the use of the selected terms containing "mixed", "class" and "teaching" and similar terms.

Table 2 ***Use of selected terms containing "mixed", "class" and "teaching"*** *(the authors)*

Term	***Term's meaning***	***Reference***
Mixed teaching mode	The mix of online and offline teaching	Xie, 2020
Hybrid teaching mode		Sun, 2020
Blended method		Setyawan, 2019
Teaching mixed ability classes	Students with mixed abilities in a class	Djurayeva, 2021
Teaching of a mixed aged / level class	Students of different ages / levels in a class	Smit & Engeli, 2015
Mixed classroom	A class environment in a formal education setting that includes both Heritage-Learners (HL) and second-language learners (L2)	Morgan, 2017
Mixed (also known as hyflex) class teaching	Teaching as part of the educational process in formal education settings that is simultaneously addressed to both – on-campus and remote learners	Aleksejeva, Zascerinskis, Abjalkiene, Gukovica, Zascerinska, & Ahrens, 2021

By a scenario, an approach to assess the future is meant (Sardesai, Stute, & Kamphues, 2021). It should be noted that approach means a set of theoretical principles (Karapetjana, 2008). A principle is defined as a shared combination of beliefs and assumptions that determine researchers' attitude to the world, their behaviour's norms and activities (Zaščerinska, Ahrens, & Bassus, 2015). Also, a principle is a condition of activity (Beļickis et al., 2000). A condition means a circumstance from which the implementation of a process, process or activity depends (Beļickis et al., 2000). In the present research, mixed class teaching depends on the inter-relationships between the teacher and learners. For the purposes of the present research, the use of the theoretical methods applied to the work of Sardesai, Stute, and Kamphues (Sardesai, Stute, & Kamphues, 2021), allows the authors of this contribution to define a pedagogical scenario as the description of an educational situation (environment) casually inter-related with the dynamic process of teaching. It should be pointed that a pedagogical scenario focuses on the creation of a coherent process that is adjusted to the learners' needs (Zogla, 2018). Teachers and learners follow different aims and motives, use different background knowledge and tools, and still their attempts have to be met (Zogla, 2018). This "joint venture" allows for transitions from a normative to a learner learning-centred process with the learners' meaningful participation in creating, conducting and evaluating the process where the learner has to achieve; that is leading to learners' autonomy in learning and development, as well as to teachers', learners', and other stakeholders' overcoming the growing complexity and transferring their way of thinking (Zogla, 2018). Educational situation (environment) is based on social interactions (Ahrens, Foerster, Zaščerinska, & Wasser, 2020). By interaction, obvious or non-obvious influence on each other in the process of implementing a joint activity (Ņikiforovs, 1994) is understood.

The normative scenario focusing on "How can a specific goal be achieved?" (Boerjeson, Hoejer, Dreborg, Ekvall, &. Finnveden, 2006) will be considered in the present work.

The overall goal of education is the enhancement of learner's experience, namely knowledge, skills and attitude (Ahrens, Zaščerinska, Hariharan, & Andreeva, 2016). The educational process is discussed to be effective to reach this goal (Hariharan, Zaščerinska, & Zaščerinskis, 2014).

The educational process is conventionally organized as a lecture, class, or lesson in education (Zaščerinska, 2013). In its turn, class is based on the system of learners' groups

(Zaščerinska, 2013). Organization of teaching as part of the educational process depends on the class's structure (Zaščerinska, 2013):

- if teaching is the only form within the class, the organization of mixed class teaching coincides with the lecture's structure,
- if mixed class teaching does not coincide with the class's structure, the class is part of teaching.

In the present research, the organization of teaching does and does not coincide with the class structure (Zaščerinska, 2013). It depends on a number of lectures in the semester, learners' age, learners' level of education, etc. Hence, teaching is defined as a class component and a certain system with its own structure (Zaščerinska, 2013).

Teaching as the 1st phase in the educational process has a particular significance as teaching facilitates teachers' and learners' creation of new products, new patents, new entrepreneurial activities and new jobs (Ahrens et al, 2021).

Teaching in formal education is defined as a purposefully organized process of teacher's sharing experience (knowledge, skills and attitudes) with learners (Zaščerinska & Ahrens, 2013). Teaching in Phase 1 was differentiated into two sub-phases (Zaščerinska, 2013): Teaching in Phase 1.1. and Teaching with the elements of peer-learning in Phase 1.2. as illustrated in Figure 4.

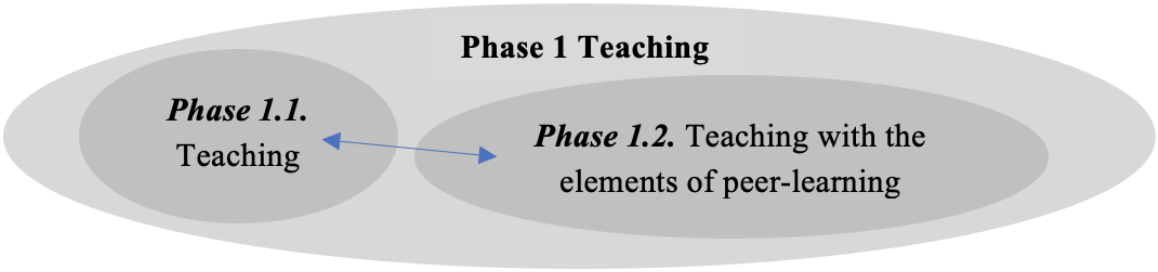


Figure 4 ***The relationship between teaching and its two sub-phases*** *(the authors)*

Methodology

Methodology is defined as a system of principles, practices, and procedures applied to any specific branch of knowledge (Karapetjana, 2008). The course of the implementation of the empirical study shows how the steps of the process are related following a logical chain.

The empirical study was enabled by the research question: How to organise mixed class teaching? The purpose of the study was to analyse mixed class teaching experiences. It should be noted that experiences at different universities follow different traditions, approaches, cultural contexts (Zogla & Lubkina, 2020).

The empirical study was carried out in June 2021. The empirical study was exploratory. Here the exploratory relates to being open at the outset of the study (Ahrens, Zascerinska, Bhati, Zascerinskis, & Aleksejeva, 2021). The exploratory methodology was chosen (Ahrens, Foerster, Zaščerinska, Wasser, 2020), as

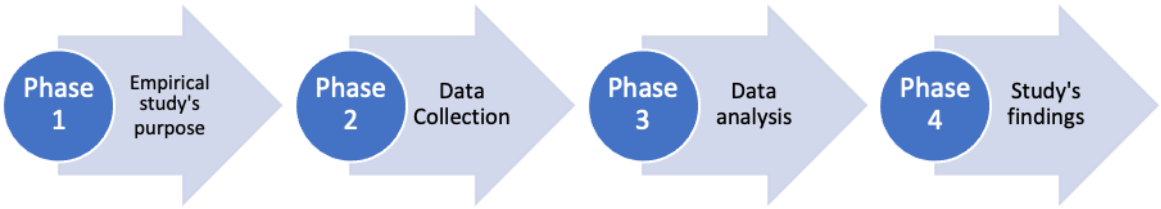
- on the one hand, the addressed phenomenon, namely mixed class teaching, requires more research into different pedagogical scenarios and their impact on student outcomes (Raes, Detienne, Windey, & Depaepe, 2020), and
- on the other hand, an exploratory study is characterised by a high degree of flexibility as well as a lack of formal structure and aims to identify the boundaries of the social environment, namely mixed class teaching, based on social interactions.

Data were collected through the analysis of published studies on the theme of the present research, namely mixed class teaching. Data were collected through reviewing, analysing, comparing and synthesising experiences from observations and interviews as well as in the literature on the theme in "an integrated way such that new frameworks and perspectives on the topic are generated" (Torraco, 2005, p 356). The content analysis for processing the collected data was carried out. The content analysis was differentiated into structuring content analysis and summarising content analysis (Mayring, 2014). Structuring content analysis means data categorising based on the previously defined criteria (Budde, 2005). Summarising content analysis tends to preserve the essential contents in a manageable short text (Mayring, 2004).

The processed data were interpreted. The researcher is the interpreter (Ahrens, Purvinis, Zaščerinska, Micevičienė, & Tautkus, 2018). The interpreter reveals his/her interest in a phenomenon (Zascerinska, Aleksejeva, Zascerinskis, Gukovica, & Aleksejeva, 2020) as well as practical interest in the research question (Cohen, Manion, & Morrison, 2003). The interpretive paradigm is aimed at analysing the social construction of the meaningful reality (Zascerinska, Aleksejeva, Zascerinskis, Gukovica, & Aleksejeva, 2020). Meanings emerge from the interpretation (Zascerinska, Aleksejeva, Zascerinskis, Gukovica, & Aleksejeva, 2020).

Figure 5 highlights the key steps of the empirical study and the sequence of their implementation.

Figure 5 ***The key steps of the empirical study and the sequence of their implementation*** *(the authors)*



Results of the Empirical Study

The analysis of the published studies reveals the comparison of two scenarios, namely the Remote Classroom and the Hybrid Virtual Classroom (Raes, Detienne, Windey, & Depaepe, 2020) as displayed in Figure 6.

The Remote Classroom **The Hybrid Virtual Classroom**

Figure 6 ***Two models of synchronous hybrid learning*** *(Raes, Detienne, Windey, & Depaepe, 2020)*

The picture on the left in Figure 6 depicts what is called the Remote Classroom, whereas the picture on the right depicts the Hybrid Virtual Classroom (Raes, Detienne, Windey, & Depaepe, 2020). Both learning settings have in common that both on-site or 'here' students and remote or 'there' students are simultaneously included (Raes, Detienne, Windey, & Depaepe, 2020). This kind of learning and instruction is also framed as Here or There (HOT) instruction (Zydney, McKimm, Lindberg, & Schmidt, 2019). The difference between the Remote and the Hybrid Virtual Classroom involves the location where students follow the lecture or class (Raes, Detienne, Windey, & Depaepe, 2020). In the Remote Classroom setting, one group follows the course on campus and another group follows the course synchronously from another campus (the remote location and students are displayed on the screen depicted in the left corner of Figure 6) (Szeto & Cheng 2016). In the Hybrid Virtual Classroom, one group follows the course on campus and simultaneously individuals follow the course remotely from the location of their choice (Butz, Stupnisky, Pekrun, Jensen, & Harsell, 2016). This method of teaching offers even more flexibility because it gives learners, as well as students who are, for example, abroad or ill for a longer period of time, the opportunity to participate in the actual lesson and interact at a distance with all students and the teacher from a place of their own choice (Raes, Detienne, Windey, & Depaepe, 2020).

Another scenario received the name Collaborative Online International Learning (COIL) (Ahrens et al, 2021). COIL connects students and professors in different countries for collaborative projects and discussions as part of their coursework. COIL Collaborations between students and professors provide meaningful, significant opportunities for global experiences built into the programs of study. COIL enhances intercultural student interaction through proven approaches to meaningful online engagement, while providing universities a cost-effective way to ensure that their students are globally engaged. COIL offers a creative, relevant, accessible way of engaging in international teaching and learning (Ahrens et al, 2021). Partners working on COIL programmes can share content and methodology, in mutually beneficial ways (Ahrens et al, 2021). Collaboration of students from a university in the USA and a partner university in South Africa served as the COIL illustration (Ahrens et al, 2021).

Empirical Study's Findings

The structuring content analysis of the data collected within the present empirical study allows identifying the scenarios of mixed class teaching reflected in Table 3.

Table 3 ***Scenarios of mixed class teaching*** *(the authors)*

Scenario	Sub-scenario	A short description of the scenario
HOT (Here or There)	Remote Classroom	One group follows the course on campus and another group follows the course synchronously from another campus
	Hybrid Virtual Classroom	One group follows the course on campus and simultaneously individuals follow the course remotely from the location of their choice
COIL (Collaborative Online International Learning)		Students and professors in different countries are connected for collaborative projects and discussions as part of their coursework

Table 4 highlights the differences between the scenarios of mixed class teaching.

The structuring content analysis of both scenarios – HOT and COIL – does not allow segmenting the organisation of teaching. In the HOT scenario, a group follows the course (Szeto & Cheng 2016; Butz, Stupnisky, Pekrun, Jensen, & Harsell, 2016), while the COIL scenario

puts the emphasis on students' learning as it is highlighted in the name of the scenario. Consequently, both scenarios are aimed at students' learning.

Table 4 ***Scenarios of mixed class teaching*** *(the authors)*

Scenario	**Sub-scenario**	**Mixed class teaching components**		
		Teacher	**Students**	**Language of instruction**
HOT (Here or There)	Remote Classroom	One teacher in one of the campus classes	2 groups of students from 2 different locations	One official language (used by the study programme) for the teacher and learners
	Hybrid Virtual Classroom	One teacher in the campus class	One group of students in the campus class, the others remotely from the location of their choice	One official language (used by the study programme) for the teacher and learners
COIL (Collaborative Online International Learning)		A couple of teachers from different countries	Students are from at least 2 countries, each of 2 students' groups is in the campus class, these 2 students' groups are connected via the Internet.	An international language is used for both teachers' and students' communication in the COIL class

The summarizing content analysis results in the finding that in both scenarios (HOT and COIL) social interactions between the teacher and students as the basis of mixed class teaching are not structured.

Conclusions

The theoretical findings of the present research allow concluding that teaching has undergone significant changes in different historical periods. Another conclusion based on the concepts' comparative analysis is drawn on the differences in the use of the selected terms containing "mixed", "class" and "teaching" and similar terms.

The findings of the empirical study facilitate the conclusion on the existence of two scenarios of mixed class teaching, namely HOT and COIL. Both scenarios are oriented to students' learning, teaching in these scenarios is not segmented and structured. The structure of mixed class teaching is to be based on social interactions between the teacher and students, namely, two sub-phases of teaching.

Implications for higher education imply that mixed class teaching is part of the educational process. The contemporary emphasis on peer-learning and/or learning in the modern education has to be shifted to the consideration of the educational process as a whole: the educational process is composed of the defined phases, namely teaching, peer-learning and learning. These three phases of the educational process, namely teaching, peer-learning and learning, proceed in a certain sequence: from teaching through peer-learning to learning. Teaching is the first phase in the educational process that increases the importance of the implementation of teaching within the whole educational process. In mixed class teaching, the inter-relationship or, in other words, social interaction between the teacher and learners is structured: teaching consists of two sub-phases, namely teaching and teaching with the elements of peer-learning.

The present research has some limitations. A limitation is the theoretical interconnections between mixed class teaching and scenarios. Another limitation is that the data were collected through the analysis of published studies on the theme of the present research, namely mixed class teaching. Also, the methods of data processing, namely the structuring content analysis and the summarising content analysis, serve as a limiting parameter in this research.

Future work will be aimed at expanding the theoretical interconnections of the present research, namely mixed class teaching and scenarios. Discovery of other scenarios of mixed class teaching will be continued. Modelling of mixed class teaching is proposed, too. Also, the search for methods of data collection and processing will be widened. Empirical studies focused on the analysis of mixed class teaching implemented in two sub-phases, namely teaching and teaching with elements of peer-learning, will be carried out. Comparative studies of different countries are of great research interest.

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