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PREFACE

The Erasmus Congress (ERACON) is an annual Conference, organized by the European Association of ERASMUS Coordinators (EAEC) where IR Officers, placement and Internship Managers, researchers and professionals with an interest in the ERASMUS+ programme are actively participating with presentations, workshops and paper submissions. ERACON 2023 was the 19th Conference organized since 2005.

CAREER-EU is also an annual Conference organized by the European Association of Career

Guidance (EACG) in cooperation with the European Association of ERASMUS

Coordinators (EAEC) hosted within ERACON. Career Guidance Counsellors and other experts make presentations and submit papers. CAREER-EU 2023 was the 14th annual Conference organized since 2010.

ERACON 2022 & CAREER-EU 2022, were held in cooperation with the University of Makedonia and the EUROTRAINING Institute. Plenary speech was given by the ERASMUS Unit of the European Commission. The Congress was organized as a hybrid event on 27 June - 01 July 2022. In this electronic publication, presenters share their papers with those interested to read further on the content of their presentations. Views and opinions expressed are those of the authors only and do not necessarily reflect those of the European Association of ERASMUS Coordinators.

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ERASMUS STUDY MOBILITY – AN OPPORTUNITY FOR STUDIES OR A STRUGGLE FOR EQUABILITY?

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ABSTRACT

Over the centuries education has evolved and strived for its improvement and wider accessibility and so has the EU Erasmus+ programme for the last thirty-six years of its existence. Being the EU's most successful flagship programme for education, training and sports, it can boast of its most recent refinement: namely, the Erasmus Dashboard, the goal of which is to enhance individual student mobilities and to "save our environment, save our future."

Laudable as such changes are, the most fundamental pillar of the programme, which is student exchange, still gives rise to certain questions or even controversies amongst its participants and Erasmus coordinators alike. The Erasmus+ programme promotes equality and inclusion as well as teaching its participants transparency and fairness. The discrepancy in allotting a consistent number of ECTS points in the policy of particular universities and even countries for the same modules leaves many Erasmus+ successful applicants in astonishment and with a feeling of injustice.

This paper attempts to compare and contrast the same courses in light of the number of ECTS points awarded for them by selected Universities participating in the Erasmus+ programme, with a view to eliciting an answer to the question as to whether such inconsistencies exist sporadically. Should it prove to be a universal problem, the paper will look into possible remedies that can be applied in order to make the Erasmus+ programme fairer and more equitable.

Introduction

In the article, *The Elephant in the Room. Power, Politics, and the Global Rankings in Higher Education* Brian Pusser and Simon Marginson state that higher education is a blend of policy successes and failures (2012: 87). Intrigued by their text, I delved into the topic with a view to eliciting these merits and demerits, in particular in the area of modularisation and the commodification of higher education. In September 2014 during the 3rd Annual International Week entitled "Intercultural Erasmus Experience: 10 Years with Erasmus, organised by the International Relations Department of Klaipeda State College, Klaipeda, I had the pleasure to deliver a speech entitled *A System of Interchange: its successes and failures*, in which, on the one hand, I argued that modular degrees and credit accumulation programmes seem to abide by the needs deriving from the current expansion of higher education, but on the other hand, I endeavoured to point out the shortcomings and challenges that this modern innovation has had to confront. One of the issues under discussion in this context was the transferability of ECTS points and their coherence within all the universities participating in the programme (Smoluk, 2015: 207). As illustrated by the examples, it appeared self-evident that particular universities within one country, let alone foreign universities, find certain modules more "valuable" than they are in other places. The question now arises if, eight years after my talk in Klaipeda, those discrepancies have diminished and if the Erasmus students now benefit from a fairer system in which the modules they select "earn" them the same number of credits, no matter in which university they decide to study.

Main Text

A good starting point for this research is perhaps a course in a given country's native language offered to foreign students who intend to do their mobility abroad. The table below lists several Polish Universities, selected at random, together with their offer of the Polish language for foreigners. The number of ECTS points ranges from 2 to 6 and depends on the location of the University, not – as one would expect – on the course's duration, intensity, or level of difficulty. Certain conditions apply such as at Zielona Góra University viz. a student who passes an examination after a course, will be awarded 6 ECTS points, otherwise 4 (without a requirement to sit for an examination).

Table 1: **"Polish for foreigners" in Poland**

UNIVERSITY	ECTS	SOURCE:
University of Zielona Gora	4 or 6	https://www.polski.wh.uz.zgora.pl
University of Silesia	6	https://www.sjikp.us.edu.pl
Wrocław University of Science and Technology	5	https://sjo.pwr.edu.pl
Jagiellonian University	6	https://plschool.uj.edu.pl
Warsaw School of Economics	2 or 3	https://www.sgh.waw.pl

The question arises if such a considerable difference in a number of credits allotted for an equivalent level course of the Polish language is a phenomenon known and practised only at Polish Universities? The table below shows the number of points offered to foreign students who take up such a course in the Turkish language at Turkish Universities. This time the discrepancy in the number of points is not as notable as in case of the Polish Universities, but still makes a difference for students, who would like to see the Erasmus+ programme as their bulwark of fairness and justice.

Table 2 **"The course of the Turkish language in Turkish Universities "**

UNIVERSITY	ECTS	SOURCE:
Hasan Kalyoncu University	3	Course Content | İngilizce Öğretmenliği | Hasan Kalyoncu Üniversitesi
Izmir Ege University	2	İngiliz Dili ve Edebiyatı
Istanbul Bogazici University	3	Boğaziçi Üniversitesi - Batı Dilleri ve Edebiyatları Bölümü

Istanbul Topkapı University	4	Bölüm Dersleri İstanbul Topkapı Üniversitesi
Bilkent University	2	https://catalog.bilkent.edu.tr

All the Universities awarded under the Erasmus Charter for Higher Education offer courses of foreign languages for their Erasmus students. Here, Vilnius University and Cork University can serve as an example of the extreme discrepancy between the ends of the spectrum; a 64-hour course of a foreign language at the former is weighted at the same number of points as a mere 24-hour course of a foreign language taken up at Cork University. One cannot restrain oneself from asking the question: how much do these courses differ in teaching outcomes or content, except for a number of teaching hours?

Table 3: **"Courses of foreign languages"**

COUNTRY	**UNIVERSITY**	**FOREIGN LANGUAGE (French, Spanish, German, Russian, etc.)**	
		ECTS	HOURS
LITHUANIA	Vilnius University	5	64h
POLAND	University of Zielona Góra	2	30h
TURKEY	Yeditepe University (Istanbul)	5	48h
TURKEY	Anadolu University (Eskişehir)	4	48h
IRELAND	Cork University	5	24h

Sources:

https://www.vu.lt/en/studies/bachelor-and-integrated-studies/english-philology#programme-structure

https://webapps.uz.zgora.pl/syl/index.php?/main/studyPlan/57445

https://egitim.yeditepe.edu.tr/tr/ingilizce-ogretmenligi-programi/dersler

https://www.anadolu.edu.tr/akademik/fakulteler/162/ingilizce-ogretmenligi-programi/dersler

https://ucc-ie-public.courseleaf.com/modules/

Students doing their mobility abroad are entitled to studying the language of their host institution. The table below illustrates that again there is little consistency in the application of credits allotted among European Universities. If we assume that ten teaching hours are worth one ECTS point, then a course of the modern Greek language at National and Kapodistrian University of Athens should be worth five ETCS points and the course of the Lithuanian language at Vilnius University should be offered for over six points.

Table 4: **"Courses of the native language"**

COUNTRY	**UNIVERSITY**	**MOTHER LANGUAGE**	
		ECTS	HOURS
GREECE	Aristotle University of Thessaloniki Modern	4	39h
GREECE	National and Kapodistrian University of Athens	6	52h
PORTUGAL	Polytechnic Institute of Bragança	3	30h
LITHUANIA	Vilnius University	5	64h
CROATIA	University of Zagreb	4	45h

Examples of extremes abound. Statistically, the most mobile students are those who study English Philology. Two ECTS points at Zielona Góra University seem to be very a modest reward for the course of *Introduction to Literature*, in comparison with twice as many points for the same course at Yeditepe University. The picture becomes even more astounding when comparing the course of *English Literature*, for which a student will receive 3 ECTS points at Yeditepe University but twice as many at Zielona Góra University. The above two examples, however, pale into insignificance when one compares points awarded for the course of *History of English*, which at Vilnius University in Lithuania is worth 15 ECTS points, whereas at Zielona Góra, Poland, almost a mere nothing (i.e. 4 points).

Table 5: **"Courses offered in the field of English Philology"**

COUNTRY	**UNIVERSITY**	**INTRO TO LITERATURE**	**ENGLISH LITERATURE**	**HISTORY OF ENGLISH**
		ECTS	ECTS	ECTS
LITHUANIA	Vilnius University	5	5	15
POLAND	University of Zielona Góra	2	6	4
TURKEY	Yeditepe University (Istanbul)	6	3	
IRELAND	Cork University	5 (module 1)	5	
		5 (module 2)		
FINLAND	Åbo Akademi		5 (module 1)	5 (module 1)
			5 (module 2)	5 (module 2)

Sources:

https://www.vu.lt/en/studies/bachelor-and-integrated-studies/english-philology#programme-structure

https://webapps.uz.zgora.pl/syl/index.php?/main/studyPlan/60842

https://egitim.yeditepe.edu.tr/tr/ingilizce-ogretmenligi-programi/dersler

https://ucc-ie-public.courseleaf.com/modules/

https://studiehandboken.abo.fi/en/programme/25578

In order to avoid suspicion that the ECTS scourge pertains only to the courses of foreign languages or philology courses, let us compare and contrast the modules offered to students in the Mechanical Engineering Departments at the Universities listed below. Here again the inconsistency is overwhelming: i.e. for the course of *Fluid Mechanics* at Technical University of Kosice, the student will receive twice as many points as for the same course at Karabük University. The same University in Turkey will prove to be mean again in a number of points allotted for the course of *Numerical Methods*, offering 3 ECTS, whilst in Kosice the student will receive twice as many. One wonders whether graduates from the Universities of Karabük and Kosice undergo instruction in the same Mechanical Engineering Departments.

Table 6: **"Courses in the field of Mechanical Engineering"**

COUNTRY	**UNIVERSITY**	**Fluid Mechanics I**	**Welding Technology**	**Numerical Methods**
		ECTS	ECTS	ECTS
POLAND	Zielona Góra University	6	4	4
TURKEY	Karabük University	3	5	3
CZECH REPUBLIC	University of West Bohemia in Pilsen	5	5	

SLOVENIA	Technical University of Kosice	6		6
ROMANIA	"1 Decembrie 1918" University of Alba Iulia	5		5

Sources: The data obtained from dr Katarzyna Skrzypek, Zielona Góra University

The table below lists the courses run in Departments of Physics at selected Universities from Poland, Spain, and Greece. Contrary to the tables 1-6 above, this case can set an example for other programmes to follow. It proves that in the discipline of physics, its particular modules are accorded the same value and importance irrespective of the fact at which university they are taught. A maximum difference of one ECTS point in the same courses offered at these universities ensures that not only does the Erasmus student select her/his courses and scores a required number of points hands down, but also the coordinator does not need to go to great lengths to approve the student's Learning Agreement.

Table 7: **"Courses in the field of Physics"**

COUNTRY	**UNIVERSITY**	**Quantum Physics**	**Solid states Physics**	**Nuclear and High Energy Physics**
		ECTS	ECTS	ECTS
POLAND	Zielona Góra University	6	7	6
SPAIN	University of Córdoba	6	6	6
SPAIN	Extremadura University	6	6	6

GREECE	University of Athens	7	7	7

Sources: The data obtained from prof. Sylwia Kondej, Zielona Góra University

Conclusion

When 36 years ago the Erasmus+ programme was being launched, perhaps nobody in authority in the European Union headquarters thought that this idea would catch on, eventually evolving into the most popular, instructive and successful flagship programme for education, training and sports. Almost four generations (of the young in particular) have benefitted from the programme, learning about equality, toleration, and inclusion as well as the values of transparency and fairness. These principles are handed down from one generation to another.

In the wake of this success, new commendable ideas are being implemented such as the Erasmus Dashboard, which is to help individual student mobilities and promote a green world in which trees are not wasted unnecessarily for paper. Along the way, however, we seem to have failed to notice that certain time-tested principles upon which the Erasmus programme is supposed to rest are perhaps beginning to crack.

The fundamental pillar of Erasmus student mobilities is equability in instruction, which should guarantee that a module undertaken at a host university will have the same value in terms of knowledge acquired and number of credits awarded. This paper proves beyond doubt that the Erasmus+ programme has not resolved this issue and that the students' courses, either at home or host institution, can be several times more valuable or penalising. So long as a drastically different number of credits is awarded for the same modules at different universities, the selection of courses remains either a blessing or a curse – a kind of lottery, which has nothing to do with fairness that the Erasmus+ programme ostensibly advocates.

Perhaps some future reports on the state of Erasmus+ programme and its future perspective should take this into account so that the UE's flagship programme does not fracture but continues to flourish.

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INTERNATIONAL SIGN AS A LINGUA FRANCA: A WAY TO PROMOTE INCLUSIVE EDUCATION OF DEAF STUDENTS IN INTERNATIONAL SETTINGS

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ABSTRACT

Sign languages are visual-spatial languages that emerged from the natural interaction among deaf people. Despite they share common characteristics, they are different from each other. Thus, significant barriers are raised to communication between deaf from different nationalities. Deaf students are a special group in education that is strongly affected by these barriers and thus are excluded from the globalized world, international education and mobility. International Sign is a signing system recognized as a lingua franca, among deaf people who do not share a common language. Raising awareness and promoting preliminary contact with International Sign, at an early age in a school environment, is a significant contribution to ensure the inclusion of deaf community in the global world of education and mobility. This paper discusses how International Sign can be utilized as a lingua franca, to promote inclusive education of deaf students. Moreover, it

presents, to the best of our knowledge, the first International Sign course developed based on the CEFR framework.

Introduction

Sign languages are of great importance to deaf communities. They are seen as an essential pillar of their culture and an influential community-building value [1]. They are not invented but rather emerged naturally in deaf communities. In contrast to spoken languages, sign languages are visual-spatial languages that are signed in the space, close to the body using manual and non-manual components and perceived visually. The manual components include the hand shape, location, orientation of palm and fingers, and movement. On the other hand, non-manual components include the elements that are not signed by hands, e.g. mouth, face, or upper body [2].

One of the most common beliefs about sign language is that there is only one sign language. There are, however, more than 300 sign languages around the world, e.g. German Sign Language (DGS), Cypriot Sign Language (CSL), and American Sign Language (ASL) etc [3]. Regional dialects can appear as well. Linguists started to study sign languages in the 1950s to know more about its structure and usage [2]. Although they were under study for a very short period, there are indications that sign languages differ from each other. This is more apparent in the sign language lexicon, which is largely influenced by the culture of the deaf community. They can also differ in the forms (i.e. hand shapes) they use as well as syntactic structure [2].

These linguistic variations create significant communication barriers between deaf and non-deaf and deaf from other nationalities. Deaf students are highly affected by these barriers and thus excluded from the globalized world, international education and mobility. In situations where deaf students do not share a common language, they can take advantage of learning International Sign (IS). IS is a signing system recognized as a lingua franca for the deaf. The adoption of IS as a lingua franca in education will facilitate the access of deaf students to education and promote their inclusion in the globalized society.

This paper discusses how International Sign can be utilized as a lingua franca, to promote inclusive education of deaf students. Moreover, it presents, to the best of our knowledge, the first International Sign course developed based on the CEFR framework.

LINGUA FRANCA AMONG SIGN LANGUAGE USERS

Since 1951 the World Federation of the Deaf (WFD) promoted and facilitated international communication between deaf communities. International events such as the Deaflympics facilitated as well the international interaction between deaf people. The twenty-first century witnessed a significant increase in the number of deaf people from around the world who meet and communicate with each other. Especially with the advancement in communication and digital technologies as well as social media [4].

In international interaction between the deaf (e.g. in conferences, art events, sports events, etc.), both IS and ASL are used as lingua francas for communication. Although ASL is the sign language of the deaf community in the United States, it is widely used and known in many countries in Asia, South America and Africa. A wide range of ASL learning materials are available and easily accessible online and offline. IS on the other hand emerged mostly in Europe. In contrast to national sign languages, IS shows a high degree of iconicity. Iconicity here indicates that the linguistic form of the sign conveys the meaning of its referent. The IS lexicon includes signs from different national sign languages (e.g. ASL) and mouthings from spoken languages [5]. To the best of our knowledge, there are no teaching and learning resources available for IS.

There has been a long debate on which to refer to as lingua franca. Those who are in favor of IS argue that it is more international in contrast to ASL. In other words, it is seen as a neutral communication ground away from geopolitical tensions and imperialist histories. In addition, the high degree of IS iconicity makes it easier to learn and understand. Knowing sign language may ease the learning of IS. Conversely, those in support of ASL argue that IS is not a language and thus can not be referred to as a lingua franca. Eventually, both IS and ASL are used in different contexts and evaluated differently as lingua francas. IS however became the main communication channel adopted by international deaf organizations such as WFD and the International Committee of Sports for the Deaf. It is also used in other international encounters, e.g., migration and tourism [5].

INTERNATIONAL SIGN

As mentioned earlier IS is not a language, however, it is often referred to as pidgin, koine, contact language, and lingua franca. The first attempt to standardize an international sign system was discussed at the first World Deaf Congress in 1951. Later in 1973, the WDF formed a committee “The Communication of Unification of Signs” to create an international sign

system for the deaf. The committee established a photographic dictionary with the title "Gestuno: International Sign Language of the Deaf". The dictionary included approximately 1,500 signs collected from different sign language dictionaries. Although the Gestuno fell out of use, it influenced the IS lexicon that we currently know [6]. Numerous researches have been carried out to define the origin of IS lexicon. Some research suggests that the IS lexicon shares commonalities with ASL, British Sign Language (BSL), Auslan Sign Language and Gestuno. Others report that IS interpreters borrow signs from the national sign language where IS is used [7].

In [7] and [8], the authors report that IS shares several features with natural sign languages, e.g. negation, facial expressions for grammar, nonmanual adverbials, depiction, etc. It inherits also some Interpretation features, e.g. low rate of production, large signing space and groups of different signs with a similar concept.

In the 21st century, IS is increasingly used in simultaneous interpretation during international events. The high-quality and professional IS interpreting services reduced the use of national sign language interpreting services at WFD conferences. Diverse audiences can grasp IS easily compared to ASL, especially those who know ASL or any of the European sign languages [5].

INTERNATIONAL SIGN EVERYWHERE - LEVEL A1.1

Deaf students are a special group in education that is strongly affected by the communication barriers that arise from the linguistic variations between the different sign languages. Thus, they are excluded from the globalized world, international education and mobility. Raising awareness and promoting preliminary contact with IS, at an early age in a school environment, is a significant contribution to ensure the inclusion of deaf community in the global world of education and mobility.

The course International Sign Everywhere - level A1.1 is an introduction course to IS for deaf and non-deaf. The course material is compiled in the context of the Erasmus+ InSign project "Advancing education through International Sign". The course is available in the partner's sign languages namely, German Sign Language (DGS), Slovenian Sign Language (SSL), Cypriot Sign Language (CSL), and Greek Sign Language (GSL).

The IS course specifications, plan, topics, and assessment criteria are compiled based on the Common European Framework of Reference for Languages (CEFR) published in 2001 and the companion volume published in 2018. The CEFR framework published in 2018 provides descriptors for course development and assessment, which has been adapted for sign languages under a former project called Prosign [9] [10]. Due to the lack of

IS literature, the course material has been developed based on the found IS literature and ASL, which is known to have a high influence on IS. The developed material has been validated by IS interpreters.

LEARNING OUTCOMES

The aim of the course is the successful use of IS for all communication purposes in everyday familiar situations. At the end of the course, the learner should be able to:

understand the main aspects of sign languages and the communication strategies one must consider in a signing environment.

understand everyday familiar words, provided they are delivered clearly and slowly in everyday familiar contexts (e.g. personal information, family, dates and days of the week, greetings and nationalities).

handle everyday typical communication tasks such as:

asking and answering questions about him/herself and daily routines, using short, formulaic expressions.

talking about him/herself (e.g. name, age, address, family, nationality) and how he/she is feeling, by using simple words and formulaic expressions, provided he/she can prepare in advance.

write short phrases to give basic personal information (e.g. name, address, family) on a form or in a note, with the use of a dictionary.

COURSE STRUCTURE

The course International Sign Everywhere - level A1.1 for non-deaf consists of 7 lessons and an introductory chapter. Each lesson contains learning materials and exercises targeting IS vocabulary and grammar rules (Table 1). The course material is in national spoken language. Exceptions to this are grammar, examples and exercises which are additionally presented in national sign language and IS in video format. The videos are developed with the support of professional sign language interpreters and the Automatic International Sign Translator.

Table 1: IS course contents.

Lesson	Content
Lesson 1	Students learn about deaf communities, the main aspects of sign languages, the main differences between sign languages, and transcription of sign languages.
Lesson 2	Students learn about the communication strategies one must consider in a signing environment.
Lesson 3	Students will have their first contact with IS and learn about greetings, basic sentence structure, finger alphabets, numbers, etc.
Lesson 4	Students learn how to give/ask for personal information (e.g. name, age, address, etc.), how to fingerspell their names and write information about themselves in simple sentences.
Lesson 5	Students learn how to describe their families in IS and how to ask their colleagues about their families.
Lesson 6	Students learn about nationalities, ask about someone's nationality and how to give simple instructions.
Lesson 7	Students learn how to distinguish between past, present, and future in signing conversation. In addition, they learn how to sign the time.

The IS course directed to deaf students has the same content and structure as the non-deaf version, but lessons two and three were excluded since sign language is the first language of the target group. Further, the course material is presented mainly in national sign language. Exceptions to this are grammar, examples and exercises which are additionally presented in IS.

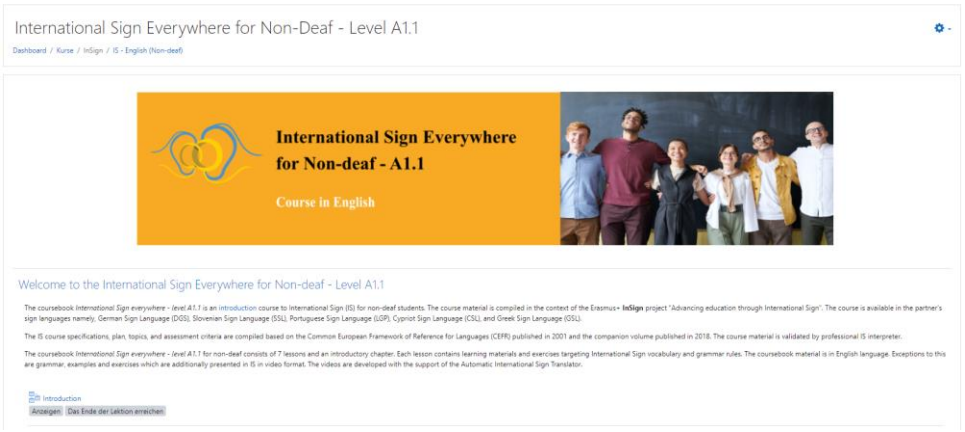

Figure 1: Moodle Platform.

To ensure sustainability and broad engagement of our target groups, we developed a Moodle platform to host the developed courses, see Figure 1. Due to the large size of the course videos, we hosted the MOOC course videos on our InSign YouTube channel as well as our institutions' private channels. The videos were then embedded in all Moodle courses.

The Moodle courses are designed in a way the students need to achieve the lesson-learning outcomes to be able to proceed to the next ones. Upon successful compilation of all lessons and exercises, the student receives an automatic certificate of attendance, see Figure 2.

Figure 2: Certificate of Attendance.

PILOTING

To evaluate the International Sign MOOC course, we run four pilots for five days in the partners' countries. The target groups are mainly local deaf and non-deaf communities. Thus, the pilots were translated into the national spoken and national sign languages of the partners' countries.

A reduced version of the course was created to learn specific competencies that suit the short period of the pilot. To achieve this we structured the pilot course around the six main elements of the course lessons namely Overview, Dialogue, Grammar demonstration, Writing, Summary, and Exercise. The course was designed in Moodle and guest access was given to the participants to review and evaluate the course.

Participants can access the course evaluation after the successful completion of the pilot exercise. The evaluation is made in Google Forms and available in three languages namely English, national spoken language, and national sign language. The pilot evaluation was divided into three sections namely personal information, evaluation of the IS-Automatic Translator and evaluation of the IS course. In personal Information, the participants were asked to give information about themselves, e.g. hearing status, first language, country, etc. The IS-Automatic Translator is one of the core outcomes of the InSign project, which is beyond the scope of this paper. In the evaluation of the IS course, the participants were asked to evaluate the course by giving a rating from 1-5 to different criteria.

PILOTING RESULTS

The pilots were run in Germany, Greece, Cyprus, and Slovenia. We had in total 69 participants, which is a good participation level considering the short period of the pilot course. Among the 69 participants, 28 were deaf and 5 were national sign language interpreters, see Figure 3. Seventeen participants out of the 69 reported that their first language is the local sign language of their country.

The IS course received positive feedback from the participants (Figure 4). The majority found the course contents well-structured, organized, consistent, and of high quality. They reported as well that the content is engaging and understandable. Further, they expressed high satisfaction with the course and expressed a likelihood of recommending it to others.

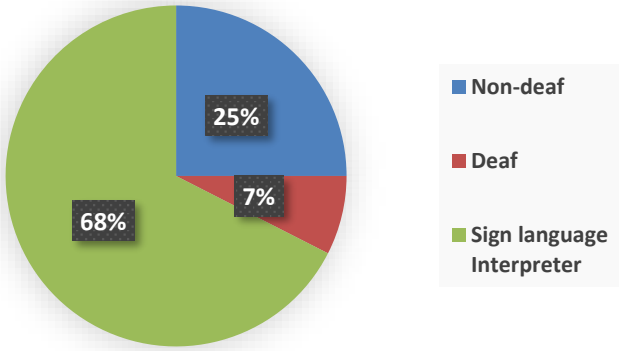

Figure 3: Hearing status of the participants.

The Slovenian participants gave some valuable suggestions for improvement of the course. The first and possibly the biggest change they suggested was the use of subtitles. Even though, in general, the deaf have problems with the written language, it does help (at least for some of them) with the understanding of the contents.

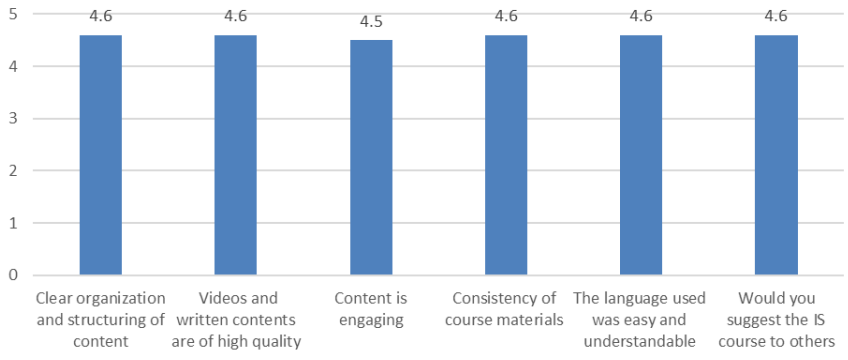

Figure 4: IS course evaluation results.

In preparing the video contents, we have made sure that all the videos have a pause of a second or two during transitions from interpreter to avatar or from language to language. However, the deaf would prefer to have no delay as it makes it less natural and introduces the problem of losing the meaning of things said previously. Similarly, the contents of the course are divided into many shorter videos containing one individual topic or example. This is not bad in itself; however, the Slovenian deaf participants did not have much experience with computers and online environments. Therefore, they had problems moving between videos (they would continue to watch the next video on YouTube instead of going out of the video and going to the next one in the course). As a whole, they would prefer fewer and longer videos without the need to switch videos so often.

DISCUSSION AND CONCLUSION

The linguistic variations among sign languages create significant communication barriers between deaf and non-deaf and deaf from other nationalities. This is especially true for deaf students, who are highly affected by these barriers. Providing channels for communication and access to digital educational materials in a common sign language will facilitate the access of deaf students to education and promote their inclusion in the globalized society. Although IS and ASL are used as lingua francas in different contexts, we are in favor of IS owing to the high degree of iconicity, which makes it easier to learn and understand. Further, it represents a neutral communication ground away from geopolitical tensions and imperialist histories.

In contrast to ASL, there are no learning materials available online or offline to learn IS. In this paper, we presented, to the best of our knowledge, the first International Sign course developed based on the CEFR framework. The course is available in the partner's sign languages namely, German Sign Language (DGS), Cypriot Sign Language (CSL), Greek Sign Language (GSL) and Slovenian Sign Language (SSL). The piloting results indicate high satisfaction with the course content, organization, and quality. The majority also found the course engaging and understandable. The participants gave a few suggestions for further enhancements, which will be used as a base for future updates.

The course International Sign Everywhere - level A1.1 provides a starting point for further research to create new IS courses targeting higher language proficiency levels.

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THE DIGITAL TRANSFORMATION OF UNIVERSITY EDUCATION

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ABSTRACT

The digital transformation of university education is a process that provides fast and painless adaptability for learning and teaching in an unfamiliar context. In this particular situation, this can be achieved by involving all stakeholders, taking into account the leadership role of academic teachers - digitally literate leaders in their field of study. University lecturers have to adopt different learning and interaction styles based on the idiosyncratic nature of learners. Therefore, technologies must be able to adapt to the changing needs and situations of individuals. Developing a sense of community in learners is critical to the effectiveness of the online learning process. In the online learning environment, the variety of the teaching methods allows for the creation of unique learning activities tailored to the needs of the students. The choice of a combination of approaches and methods depends on the experience of the teacher, his commitment to the learning process and his attitude to communicate with students.

Introduction

We live, work and learn in complex times. The years 2019 - 2021 will be remembered by a number of global and national restrictions leading to isolation, learning and working from home due to the COVID-19 pandemic. During this period, online connectivity between professors and students increased in universities. The digital learning platforms have enabled communication and collaboration on a much wider level than before. As academic educators, we have gained considerable experience and are more confident in the use of digital technologies, more resilient to unforeseen circumstances such as a multifaceted crisis.

The multifaceted crisis is characterized by avalanche-like global changes covering all spheres of functioning of society, states and business. These changes are caused by circumstances that strengthen the action of already established factors, which in turn activate new ones in a short time, and ultimately act destructively on generally accepted norms, together, in the same period of time. The multifaceted crisis covers the period from 2019 to now, which includes a growing climate and natural crisis; a sudden, unexpected and rapidly spreading health crisis; with the economic, financial and energy crises accompanying it to this day, putting economies on the brink of recession, geopolitical and governmental crises of unknown outcome and duration, with the massive spiritual crisis that followed them (accompanied by the decline of values, morals, traditions), and everything this, in the conditions of the fourth industrial revolution, caused ubiquitous digitalization, cyber attacks, artificial intelligence for military purposes, social alienation and mass disorientation of people about reality.

According to the European University Association, "meeting current and future social, economic, environmental and technological challenges will depend on the joint and coordinated efforts of a wide range of research stakeholders" [4]. In these circumstances, the society declares its even higher expectations for the universities - to urgently provide innovative solutions for quality education in a digital context.

In this report, I focus attention on the exceptional role of the academic community in addressing the problems of higher education in the conditions of a multifaceted crisis. I present the practices of the New Bulgarian University (NBU) for the period from March 2020 to December 2022 (pandemic and post-pandemic period), which prove the hypothesis that the digitally literate academic community has a leading role in the successful digital transformation of universities in an unpredictable context.

UNDERSTANDING THE DIGITAL LITERACY ACADEMIC LECTURER

Digital literacy is developing thanks to the fundamental importance and revolutionary uniqueness of the Internet environment. Comparing the opinions of different authors, such as Bawden [2], Lankshear, Knobel [8], etc., I come to the conclusion that digital literacy goes far beyond the basic skills of reading, writing, listening and speaking. Gilster [6] first identified digital literates as possessing a specific set of information skills such as searching and evaluating applied to textual and multimedia information found on the Internet and found in formal learning contexts. Regardless of the fact that *this definition gives a limited content of the concept,* it sets the basis for reflections on the requirements of the learning environment for the teacher's digital literacy. These requirements relate to the degree of possession of technological skills, critical and analytical thinking skills, the ability to make adequate decisions and the application of contextual practices.

The extended definition of digital literacy of academic teachers includes a number of characteristics, such as:

General abilities to live, develop and teach in a digital society, taking into account the ever-changing nature of technology and the evolving expectations of students.

A set of discrete abilities or behaviors exhibited when using automated information systems. This set of capabilities includes the ability of the academic teacher to create academic content for the disciplines in which he teaches; to share it online, in forums, sites and social networks created by it; knows when and how to effectively use digital resources to meet the informational needs of the learning process. This perspective includes the behavior of the academic teacher that meets a number of value-added criteria known to us as the value of quality, accuracy, reliability, validity and completeness of information.

Applying abstract mental models to activities involving digital content. These models come from a variety of scientific fields, but most of them are cognitive, focusing on how academics process information in their heads. These are metacognitive structures that support the digital literacy of the academic educator by promoting reflective thinking and heightened awareness of individual thinking on a given task. These models focus on problem-solving skills and are abstract enough to be applicable to a wide range of situations and contexts

A cognitive approach to the challenges of digital media that includes an understanding of the interrelationship between the four factors: performance,

language, production and audience. These components provide a structure for thinking about and evaluating media messages. It has to do with critical thinking and analysis.

A reflective understanding of one's capabilities in relation to technology and digital services, an awareness of network structures - both social and technical, and an understanding of the social aspects that form much of professional digital engagement. A digitally literate academic teacher is not just a simple consumer of information. In an era of unprecedented opportunities for digital relationships, social engagement, lifelong learning, and collaboration, the digitally literate academic educator is a constantly active and vigilant participant in the digital communication process. This position changes the way he understands the relationship between digital tools and infrastructures. If the academic teacher sees himself as part of the conversation, he wants not only to make the learning process and learning content easily accessible, but also with a large following - with very active students.

In summary, our definition at this point would sound like this: *the digitally literate academic educator is a creative agent who works in a socio-technical network that provides opportunities for extension, sharing and learning. The development of digital literacy of the academic teacher is beneficial for his timely engagement and adequate response to the needs of students in conditions of uncertainty and unfamiliar context. A digitally literate academic teacher adds value to the learning process for the benefit of the student and makes the university resilient in the face of a pandemic.*

The university provides computers and new technologies for every learner, but if the teachers are not able to present the learning content to the learners through an appropriate virtual environment, then the online learning process fails.

As we prepare and design the content of our lesson, we ask ourselves: what are the students lacking and how to compensate for these deficiencies. How to turn virtual experience into real learning?

Our modest experience shows that teachers need to be trained and have basic knowledge and tools for online teaching; to use new technologies for non-traditional teaching methods. Mobile devices are essential tools for learners and mobile learning is not a fashion trend in the educational process, but a convenient technological tool for achieving learning goals. Educators must be aware that this is a different technology than its predecessors. The content of the course and the lesson should be created after the teacher has answered the questions - how he teaches, how he maintains the interest of the audience and how he evaluates the students in the course of their development. Educators should prepare unique, understandable and easily accessible instructions that

guide learners where to go in the virtual space, how to find the resources, supplementary materials and assignments they need.

Now we can add to the characteristics of an effective online tutor. Shows his passion, enthusiasm and excitement for the subject he teaches. His passion for the subject is what keeps his students motivated. Sees value in online learning. It values online education, not denying it and opposing it to traditional. It convinces the learners and makes them believe that it will be as useful for them as learning in a classroom. He is a good time manager. Whether the lesson is asynchronous or synchronous, it must show presence and engagement with its students, interact with learners to make them feel useful in class. Listens to student feedback to make the lesson effective and efficient for them by modifying teaching aids, teaching methods and strategies. Motivates students for continuous learning.

According to Bill Gates, “Technology is just a tool. The teacher is the most important in terms of getting the children to work together and motivating them" [3].

DIGITAL TRANSFORMATION OF UNIVERSITY EDUCATION AND THE CONSTRAINTS OF CONTEXT

Digital transformation cannot be understood out of context. On the one hand, the evolution of society, scientific and technological progress, national characteristics and international communities and unions create new areas of human knowledge and imply a reassessment of the importance of education. But on the other hand, the good intentions of universities are often blocked by the constraints imposed by the cultural, social, civic, political and economic factors shaping the context. According to statistics from Eurostat [5] for 2019, many low-income households do not have access to computers. More than 1 in 5 young people in the EU fail to achieve a basic level of digital literacy. A 2018 study by The Organization for Economic Co-operation and Development [9] shows that less than 40% of teachers feel ready to use digital technologies in teaching, with large differences found within EU. The results of the open public consultation held in June and September 2020 regarding the new action plan in the field of digital education (2021-2027) show that almost 60% of respondents did not use distance and online learning before the crisis; 95% believe that the COVID-19 crisis has irrevocably changed the way technology is used in education and training. Respondents stated that online learning resources and content should be relevant, interactive and easy to use. Therefore, for the unprepared, learning in a digital environment creates tension and stress, while agile universities accept the challenges of the crisis environment as new opportunities.

Digitalization of education is a dynamic process. In the period of pandemic, successful practices in digital education were created in less than a year and continue to develop. They are proof of how flexible the organization of the learning process can be in terms of individual group initiatives and how strict it should be in terms of tradition, how new initiatives in education are consistent with existing ones.

THE PRACTICES OF DIGITAL TRANSFORMATION OF UNIVERSITY EDUCATION IN BULGARIA (EXAMPLE OF THE NBU)

Analyzing the state of digital education in Bulgaria during the pandemic period (school year 2019-2020), some key problems were identified [7]:

related to the participants in the learning process: digital inactivity of students, due to the unattractiveness of standard lectures in an online learning environment; need for additional awareness and support of teachers and students;

related to curricula: the need to include digital skills as mandatory competencies in curricula; the need to develop digital literacy - general or basic, literacy for handling data and communication safety in the Internet environment, ethical norms of behavior in a digital environment; new course design, materials and textbook format;

related to the institutionalization of online learning in universities: quality assurance of digital education; need for new university strategies for effective work in a digital environment; new assessment strategy; reduced learning mobility due to the closure of state borders and unrealized planned Erasmus+ mobility.

As a result of the practices during the academic year 2020-2021, I can add new findings, conclusions and recommendations related to the technological support of the educational process, a change in the behavior of its participants and the motivation of students to learn through digital technologies.

The technological collateral of the online educational process is related to the selection of a suitable and effective digital platform, which is a difficult process due to the variety of applications such as Padlet, Edmodo, Google Classroom, Google Meet, Moodle, Big Blue Button, Zoom, MS Teams and etc. The right choice of a platform implies a thorough understanding of its functionality, to what extent it complements the educational goals, how it maintains an acceptable level of continuity of the educational process and guarantees added value for learners. Effective platforms allow educators to

build their online lessons, report student activities through informative reports, including attendance and dropout rates, ensure full control over course content and protection against unauthorized use and downloads. A key functionality of the online learning process is the virtual classroom. It should have a friendly interface - be customizable; teachers and students to feel comfortable while the lessons are taking place; easy to operate functions and implement a level of control in the class. Internet service providers with a secure and reliable Internet channel for fast and quality exchange of information are an essential factor in ensuring quality online education.

We (the teachers from the NBU Administration and Management Department) had the advantage of experience gained over the years working with Moodle in distance learning courses. We easily and quickly adapted the learning process for students enrolled in full-time programs. We have introduced new forms of learning such as the "flipped classroom", virtual team work via Wiki, group coaching, student online debates with the participation of mentors and moderators, etc. We expanded the use of already proven techniques such as asynchronous discussions, electronic assignments and feedback, tests and surveys, provision of electronic multimedia resources, virtual classroom. The technological problems were not related to the choice of platform and Internet provider, because of the long-established and established choice, but to the server capacity, which was difficult to provide access to the multiplied users at the same time. Any technological change of the learning process affects its participants. Analyzing and evaluating this impact, and the response of participants in the online learning process, proved to be a greater challenge than the technological issues encountered.

Technological transformations of learning processes *have a profound impact on the behavior of their participants* (teachers, learners and all stakeholders – parents, society, business, state). "Behavior is a product of human abilities, feelings, needs, motives, attitudes and relationships."[1] Students have resources (knowledge, skills and potential) that must be unlocked, mobilized and developed for a better a world of virtue, prosperity and mutual understanding. This requires differentiating learning approaches and shifting the focus from the teaching content to the student's knowledge and skill needs. When choosing appropriate training approaches, the conscious, imperative and individual needs of the trainees must be taken into account. The individual approach to students and the adaptation of teaching to their needs brings added value from the online learning process, especially if it is combined with student teamwork. This approach is possible and effective in small groups, where the students are between 16 to 20 people in a class. If the group is too small (eg less than 6 people), the team approach is not applicable. If the study group is too large, then the individual approach requires time and effort to research individual needs in advance and group them into group profiles. In this case, some of the needs will remain outside the scope of the

training process. Here the challenge is related to achieving a balance between the originally set objectives of the curriculum and meeting the needs of the students. Any deviation from learning objectives or student dissatisfaction diminishes the usefulness and value of online learning.

Student motivation in the process of teaching in an online learning environment. The essence of online learning is self-preparation and active support and assistance from the teacher. Students succeed if they are able to take control of their educational process. The teacher's task is to help them by giving them the opportunity to independently define their educational goals; by creating a calendar of tasks, determine the method and schedule of assessment; by providing required and recommended online learning materials; by using new scenarios and situations and thus stimulating them to make independent decisions. Factors that influence students' motivation for online learning are support from the teacher, praise and recognition for their work in the course; the teacher's commitment and passion for the teaching process.

The resources that can be used to motivate learners in an online learning environment are:

Rewards and praise through the functional capabilities of gamification systems - mutual nomination through the "gold star" system, creation of badges, etc. [10] It is advisable to avoid rewarding exceptional learner achievements, as this does not motivate all learners, but only the best in the learning group.

Meaningful feedback - messages that use funny videos, GIFs and images; crafting thoughtful and detailed written feedback; online individual communication through personal chats and emails.

Creating a community in the online learning environment, through: continuous coordination of online group activities - asynchronous discussions, Wiki teamwork, BBB virtual classroom, joint discussion of group and individual achievements in the course; off-course chats, such as discussing how busy students are at home and what they do to stay healthy. An online learning community is a group of people who consciously share a sense of belonging, united by common interests, supported by social interactions facilitated by information and communication technologies. Observing the behavior of other learners in the online space and developing reciprocity, empathy and trust are interpersonal skills with an impact on the motivation to participate in the online learning process.

Video lessons through virtual classrooms with guest lecturers - experts from practice to enhance the activity of the regular classroom.

Easy access to resources through the technological capabilities of the platform - for Moodle these are *Lightbox Gallery* for viewing images and placing comments, *URL* for hyperlinking to a resource from another site, *Label* for inserting text and multimedia between hyperlinks to activities on the course page, *Book* to create a multi-page textbook with chapters and sub-chapters, *Folder* to create a group of files, *Page* to create a web page using the text editor, *File* to add a file as a resource to the course. The provided resources should be approached carefully, observing the terms of copyright.

Applying a variety of learning methods and techniques in an online learning environment because students are not "one-size-fits-all learners" and have different cognitive styles.

Conclusion

The time has come to discuss long-term reform of traditional university practices. I agree with Abernathy [1] that "online learning isn't the next big thing, it's the current big thing."

But I believe that the online learning environment is an extension of the traditional practice, not its replacement. For this, we need tools designed to facilitate learning, not just manage it. In online learning, the interaction between the trainer and the learners, as well as between the learners themselves, is of primary importance, which puts them in an active position. Delegating interactions and decentralization increase opportunities for co-creation and innovation in online learning. The implementation of various activities in the process of group work leads to the transformation of the learner into a partner of the teacher and increases his motivation to learn.

If all students have access to an electronic device and the Internet, and educators are well trained and experienced in how to provide high quality online learning, then the limitations of traditional classroom learning can be challenged.

Online learning offers additional opportunities for faculty and students to collaborate so that young people can achieve their academic goals. Regardless of the strategy for changing the learning process, the most important principle should be equity to ensure that all learners have an equal chance of success. When learners visit the same online learning space, it is ensured that they have access to the same curriculum and content.

Educators must adopt different learning and interaction styles based on the idiosyncratic nature of learners, aiming for all learners to achieve their goals. Therefore, technologies must be able to adapt to the changing needs of

individuals. Developing a sense of community in learners is critical to the effectiveness of the online learning process.

There are still many unresolved questions to which the correct answers must be found in due time: redefinition of some European and national policies in education; what technological learning means and what are the elements of artificial intelligence that affect its quality. Future research questions raised can be addressed through continuous collaboration with international and global partners, through the exchange of best practices and knowledge sharing

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EDUCATION 5.0: IN SEARCH OF THE HUMAN FACTOR

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ABSTRACT

This paper explores the integration of scalable game design in higher education as part of Education 5.0. It highlights the importance of gamification and computational thinking in preparing students for the future of digitalisation. The paper presents a framework for monitoring students' acquisition of skills in scalable game design, including computational thinking skills, game design principles and collaboration. The findings highlight the potential of scalable game design to enhance problem-solving, creativity and teamwork skills. Future research directions include investigating long-term effects, pedagogical strategies, equity and inclusion, and professional development for educators. The use of scalable game design empowers students to thrive in the digital age.

1 Introduction

Education has evolved in response to technological advances and societal changes. Education 5.0 is a transformative approach that leverages technologies such as Artificial Intelligence (AI) and Internet of Things (IoT) to provide a more holistic and human-centred learning experience. It prioritises the emotional and social development of students, preparing them to thrive in a connected world. Gamification is a key component of Education 5.0, integrating gaming elements into educational contexts to improve engagement and learning outcomes. By bringing fun to learning, gamification creates an immersive environment that increases student motivation and achievement. Preparing students for the digital age requires equipping them with the skills to navigate and use technology effectively. Computational thinking, an essential part of Education 5.0, fosters critical thinking, problem solving and adept use of technology. In order to ensure that students acquire the Education 5.0 competencies, educators need effective frameworks for monitoring and assessing progress. These frameworks enable targeted support, progress tracking and tailored teaching strategies to meet individual student needs. The aim of this paper is to develop a comprehensive framework for educators to observe students' acquisition of competencies in the context of Education 5.0. By examining the intersection of gamification, digitalisation and computational thinking, this framework aims to provide valuable insights into student learning and support their journey towards proficiency in these critical areas.

2 EDUCATION 5.0: A new era of learning

Education 5.0 represents a paradigm shift in education, driven by the integration of advanced technologies and a renewed focus on the holistic development of learners. It goes beyond traditional teaching methods and emphasises the importance of nurturing students' emotional and social growth alongside academic achievement. Education 5.0 recognises that learners are not passive recipients of knowledge, but active participants in their own learning journey. It seeks to empower students by fostering their creativity, critical thinking, collaboration and communication skills - the so-called 4 Cs of 21st century learning. This learner-centred approach recognises that students have unique talents, interests and learning styles, and aims to personalise their educational experience accordingly. Emerging technologies such as AI, machine learning, Virtual Realiy (VR), Augmented Reality (AR) and IoT are enhancing the learning process in Education 5.0. They enable personalised recommendations, adaptive assessments, immersive simulations and real-time feedback, creating engaging and effective learning environments. AI and machine learning analyse data to provide personalised support and feedback to students. VR and AR provide interactive experiences

that deepen understanding across subjects. IoT facilitates data collection for informed decision-making and resource optimisation. By integrating new technologies, fostering emotional intelligence and promoting social development, Education 5.0 equips students with the skills necessary for personal and professional success in the digital age (Bakkar & Kaul 2023, Oberer & Erkollar 2023a, Oberer & Erkollar 2023b)

3 the importance of gamification IN EDUCATIOn

Gamification applies gaming elements to non-gaming contexts such as education to increase engagement, motivation and learning outcomes. It taps into our natural desire for achievement and reward, creating a fun and engaging learning experience. In education, gamification takes various forms such as points, badges, leaderboards and quests. These elements provide clear goals, immediate feedback, and a sense of progress, fostering intrinsic motivation in students. By incorporating gamification, educators can create interactive environments that motivate students to actively participate and explore. It makes learning fun, harnesses students' curiosity and encourages them to invest in their studies. Personalised learning experiences are possible through adaptive game mechanics that tailor content to individual needs and preferences. Students receive personalised feedback and interventions to ensure appropriate challenge and support. Gamified learning encourages critical thinking, problem solving, collaboration and creativity. Students acquire and apply knowledge and skills in a meaningful context, developing a wide range of competencies. Gamification fosters a positive and supportive environment that emphasises progress, achievement and collaboration. It fosters a growth mindset and encourages risk-taking and resilience. Successful implementation requires alignment with learning objectives, clear instructions, effective feedback mechanisms, and continuous evaluation and refinement. Examples of successful gamification in education include language learning apps that use leveling and virtual rewards, and maths platforms that incorporate puzzles and point systems to reinforce problem-solving skills (Khaldi et al. 2023, Oliveira et al. 2023, Karagiorgas & Niemann 2017).

4 DigitALIZATION and Higher Education Institutions

Digitalisation has the potential to bring about a transformational change in higher education institutions, using technology to improve teaching, learning and administrative processes. The rapid development of digital tools and platforms has opened up a wealth of resources and opportunities for educators to create engaging and personalised learning experiences for students. However, the integration of digitalisation in higher education is not without its challenges. One of the key challenges is to ensure equal access to digital resources and technologies for all students, regardless of their socio-economic

background or geographical location. It is essential to bridge the digital divide and ensure that no student is left behind because of limited access to technology. Another challenge is the establishment of a robust digital infrastructure and reliable connectivity to support the implementation of digitised educational practices. Higher education institutions need to invest in the necessary technological infrastructure to ensure seamless connectivity and access to digital resources. Training and professional development also play a crucial role in successful digitisation efforts. Educators need adequate training and support to effectively integrate digital tools and pedagogies into their teaching practices. This includes developing digital literacy skills, understanding effective digital teaching strategies and keeping up to date with new technologies. Concerns about privacy and security are also paramount in the digital learning environment. Institutions must address these concerns by implementing robust security measures to protect student information and ensure compliance with relevant regulations, such as data protection and privacy laws. Despite these challenges, digitisation offers significant opportunities for higher education institutions. Digitisation enables students and faculty to access a vast array of global educational resources, including online libraries, academic journals, research databases and educational platforms. This access transcends geographical boundaries and enriches the learning experience by exposing students to diverse perspectives and knowledge. In addition, digital tools and adaptive learning platforms can be tailored to students' individual needs, promoting personalised learning experiences. Students can learn at their own pace, with content and assessments tailored to their knowledge levels, learning styles and preferences. This individualisation increases engagement and helps students achieve better learning outcomes. Digital technologies also encourage collaboration and communication between students and teachers. Through online platforms, students can connect with peers across borders and time zones, share ideas and engage in collaborative projects. This facilitates the development of critical 21st century skills such as teamwork, communication and global awareness. In addition, digitisation provides institutions with valuable data and analysis to inform decision-making. By collecting and analysing data on student performance, institutions can identify areas for improvement, track student progress and evaluate the effectiveness of teaching strategies. This data-driven approach enables evidence-based decision making and continuous improvement of educational practices. To fully realise the potential of digitalisation, higher education institutions have a crucial role to play in preparing students for the digital future. It is essential to equip students with the necessary digital literacy, critical thinking skills and adaptability to thrive in a rapidly evolving technological landscape. Digital literacy is the ability to effectively navigate, evaluate and critically analyse information in the digital realm. Students should be proficient in the use of digital tools, platforms and applications, and understand ethical

considerations, digital citizenship and online safety (Rosak-Szyrocka et al. 2022, Telukdarie & Munsamy 2019).

5 Scalable Game Design for Higher Education

Scalable Game Design is an innovative approach that brings computer science education into higher education through game design and simulation. It focuses on teaching computational thinking and problem solving skills by creating scalable and adaptable games. Computational thinking involves systematically approaching problems, breaking them down into smaller components, and designing algorithms to solve them. These skills, such as abstraction and pattern recognition, are essential in the digital age for navigating complex problems, making data-driven decisions and using technology effectively. By involving students in the design and development of games, Scalable Game Design provides an interactive learning environment that fosters motivation, creativity and a deeper understanding of computer science concepts. It not only teaches computer science principles, but also promotes the development of transferable skills such as critical thinking, collaboration, communication and project management, which are valuable in a variety of careers. Through scalable game design, students work on authentic projects that simulate real-world scenarios, making the learning experience meaningful and practical. This approach allows students to directly apply computational thinking skills and computer science concepts to solve business problems and address societal challenges. Integrating scalable game design into higher education requires a comprehensive approach, including curriculum integration, interdisciplinary collaboration and project-based learning. To effectively monitor students' progress in scalable game design, educators can use a framework that assesses their proficiency in computational thinking skills, understanding of game design principles, and collaboration and communication skills. This can be done through project assessments, coding exercises, analysis of game documentation, observation of gameplay, peer evaluations, reflections and communication artefacts. In summary, Scalable Game Design brings computer science education to higher education through game design and simulation. It teaches computational thinking skills, promotes transferable skills and provides an engaging and practical learning environment. By integrating Scalable Game Design into curricula and fostering interdisciplinary collaboration, students develop critical skills for the digital age and gain real-world problem-solving experience (Roepke et al. 2022, Repenning et al. 2018).

6 A Framework for Observing Competency Acquisition

In order to effectively monitor students' acquisition of skills in scalable game design, it is essential to have a comprehensive framework that provides a structured approach to assessing their progress. This chapter presents a framework that incorporates key dimensions for assessing the development of students' skills in the context of scalable game design. The framework outlined here offers a systematic and holistic approach to assessing students' competence acquisition and provides educators with valuable insights into students' progress and areas for improvement. The first dimension of the framework focuses on assessing students' competence in computational thinking skills. Computational thinking is a fundamental skill that underlies problem solving and algorithmic reasoning. It involves the ability to break down complex problems into smaller components, recognise patterns and design algorithms to solve them. Observations can be made during coding exercises, problem-solving tasks or project-based assessments to assess students' proficiency in computational thinking skills. Teachers can assess how students approach and decompose problems, identify patterns and think algorithmically. The second dimension of the framework focuses on students' understanding and application of game design principles. Game design principles cover various aspects such as game mechanics, dynamics, aesthetics and player engagement. Assessing students' understanding and application of these principles provides insight into their ability to design engaging and enjoyable games. Educators can analyse game documentation, observe gameplay and gather feedback from peers or playtesters to assess students' understanding of game design principles. The third dimension of the framework focuses on assessing students' collaboration and communication skills during the game design process. Effective teamwork, clear communication and the ability to give and receive constructive feedback are essential for successful collaboration in game design projects. Peer evaluations, reflections and communication artefacts can serve as evidence of students' development in this dimension. Peer evaluations not only provide valuable feedback to students, but also foster a peer learning environment in which students critically analyse their own and others' work. A variety of assessment methods can be used within the framework to gather evidence of students' competence acquisition. These assessment methods include direct observation, collection of artefacts and documentation, reflection and self-assessment, and peer evaluation. Direct observation allows teachers to assess students' computational thinking skills, game design understanding and collaboration skills in real time during classroom activities, group work sessions or presentations. Artefacts such as game design documents, pseudocode or code snippets provide tangible evidence of students' computational thinking skills and application of game design principles. Reflection exercises and self-assessment activities allow students to evaluate their own development of computational thinking and game design skills,

providing valuable insights into their strengths and areas for improvement. Peer evaluations not only foster a peer learning environment, but also allow students to assess their peers' development of computational thinking, game design and collaboration skills. Monitoring students' competence acquisition is not only about assessment, but also about providing timely feedback and support. Educators should provide constructive feedback to students, highlighting their strengths and areas for improvement. This feedback should be specific, actionable and aimed at helping students refine their computational thinking skills, game design principles and collaboration skills. In addition to feedback, educators can provide targeted support through additional resources, tutorials, or one-on-one help to address specific challenges that students may be facing. By implementing an observational framework that encompasses these dimensions, collecting relevant evidence, and providing ongoing feedback and support, educators can effectively monitor and support students' acquisition of scalable game design skills. This approach not only enhances students' learning experiences, but also prepares them for future challenges in computing and beyond. To further enhance the framework, it is important to consider the integration of formative assessment. Formative assessments provide continuous feedback and help students identify areas for improvement throughout the learning process. By incorporating formative assessments into the framework, teachers can gain real-time insights into student understanding and progress. These assessments can take the form of quizzes, checkpoints or small projects that allow teachers to identify misconceptions or gaps in knowledge and address them promptly. Another important aspect to consider within the framework is the inclusion of assessment of metacognitive skills. Metacognition refers to the ability to reflect on one's own thinking processes and strategies. By including metacognitive assessment, educators can encourage students to become aware of their thinking patterns, problem-solving approaches and decision-making processes during game design tasks. This self-reflection and evaluation of their own cognitive processes can foster the development of metacognitive skills, which are crucial for lifelong learning and adaptive thinking.

To ensure the effectiveness of the framework, it is important to regularly review and update the assessment criteria and rubrics. As the field of scalable game design and computational thinking evolves, new insights and approaches may emerge. By regularly reviewing the assessment criteria, educators can ensure that they remain aligned with current best practice and capture the most relevant indicators of skills development. This iterative process of refinement ensures that the framework remains robust and accurately reflects the evolving nature of scalable game design education. Extending the framework to include peer collaboration and feedback as an integral component can further enrich the assessment process. In addition to peer assessment, creating opportunities for students to engage in meaningful discussions, provide constructive feedback to their peers and collaborate on

game design projects can enhance their learning experience. Peer collaboration not only develops teamwork and communication skills, but also promotes critical thinking and problem solving as students engage in active discussion and exchange different perspectives.

Overall, by incorporating these extensions into the framework, educators can create a comprehensive and dynamic approach to observing and assessing students' acquisition of skills in scalable game design. The flexibility of the framework allows for adaptation to different educational contexts and ensures that students receive targeted support and feedback to foster their growth in computational thinking, game design principles, collaboration and communication skills.

7 CONCLUSIONS and future directions

In this paper, we have explored the concept of Education 5.0, emphasising the use of new technologies to humanise teaching. We highlighted the importance of gamification in education and discussed the potential of scalable game design in higher education to enhance students' computational thinking skills. We presented a framework for observing and assessing students' progress in scalable game design, including computational thinking skills, game design principles, and collaboration and communication skills. Integrating scalable game design and computational thinking into higher education can equip students with valuable skills necessary for success in the digital age, fostering problem-solving, creativity and teamwork skills.

To further advance the integration of scalable game design into higher education, future research should focus on several areas. Longitudinal studies can investigate the long-term impact of scalable game design on students' academic and professional careers, assessing how the acquisition of computational thinking skills and game design principles influences their problem-solving skills and adaptability in a rapidly changing technological landscape. Exploring effective pedagogical strategies within scalable game design is another important avenue for future research. Investigating scaffolding techniques, feedback mechanisms and adaptive learning approaches can improve our understanding of how best to support students' development in this area. In addition, the integration of emerging technologies such as virtual reality or augmented reality may offer new opportunities for immersive and engaging learning experiences. Considerations of equity and inclusion are crucial when integrating scalable game design into higher education. Future research should focus on understanding how different student populations, including underrepresented groups, engage with and benefit from scalable game design approaches.

Addressing potential inequalities and creating inclusive learning environments will ensure equal opportunities for all students to develop computational thinking skills and pursue computing careers. Professional development opportunities for educators are essential for successful implementation. Future research should explore effective strategies for training and supporting educators to integrate scalable game design and computational thinking into their teaching practices. Equipping educators with the necessary knowledge, skills and resources will facilitate the successful adoption of these approaches in diverse educational settings.

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FOSTERING CRITICAL THINKING IN HIGHER EDUCATION

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ABSTRACT

Critical thinking is one of the higher order skills that are not only important for today's job market, but also for achieving innovation in 21st century societies and economies. Critical thinking helps individuals not only in the job market but also in everyday life. There are examples in national education policies of increasing interest in critical thinking skills. The present paper does not examine systems for developing critical thinking in the primary and secondary schools, but focuses on the higher education system. Universities and the system of higher education should look for modern ways and means for the development of critical thinking in students. The paper explores the concept of critical thinking, defining its key elements and links it with other important skills needed for employment, such as problem solving, analytical and digital skills. Statistical data from international studies showing the importance of critical thinking in various business sectors and spheres of activity are presented. The paper seeks to answer the question of whether employers would hire workers who possess critical thinking skills and whether they value these skills highly in job applicants. The literature on the topic is explored to find relevant contemporary approaches to teaching critical thinking at the universities. The report concludes with conclusions on the importance of the critical thinking skills. Suggestions are made about how critical thinking can be introduced into university courses and used in higher education teaching.

Introduction

Critical thinking is considered to be one of the 21st century skills that labour market participants should have. It is also one of the skills that universities need to develop in students to prepare them for the demands of the modern professions and for a successful career [2]. The importance of critical thinking is indisputable and hardly needs to be proven, since one of the aims of higher education is to develop students' independent thinking. For this to be achieved in, universities need to create conditions for the practice of critical thinking skills alongside the development of lifelong learning skills [6].

Some of the touted benefits of critical thinking are that it:
- improves the quality of thinking;
- supports decision-making, both at work and in personal life;
- supports the generation of improvements and innovative solutions;
- assists in better argumentation of one's own position;
- helps to solve complex problems.

There are different perspectives depending on the branches of science that study critical thinking. For example, in philosophy, the aspect of truth-seeking and logical justification is important, while psychologists are interested in the practical application of critical thinking skills and finding criteria for assessing critical thinking through testing. The literature that focuses on the labour market emphasises critical thinking as a soft skill that is needed in the new conditions and demands of the dynamic economy of the 21st century. Research in this area focuses on the extent to which critical thinking skills are in demand by employers and whether employees of companies possess them. Critical thinking is being addressed in fields that require systematic processing and evaluation of information, as well as in occupations where judgment, finding new solutions and innovation are important. The educational perspective on critical thinking draws attention to the development of the skill within the education system, both in secondary, higher and vocational education.

Review of the literature on the topic

First of all, in order to be able to comment on the skill of critical thinking, it must be defined appropriately. Existing definitions are extremely varied in that they can be both general and specific, addressing particular aspects of the concept. The origins of the words kritikos and kriterion ('criterion' and 'kriticos') are from Greek language. The meaning is related to making judgements based on certain yardsticks or standards, and reasoning based on certain criteria.

There is a wide variety of definitions of critical thinking in the scientific literature. In many of them, there is ambiguity or ideas that focus on different aspects of the concept, making it difficult to choose an appropriate definition that is widely applicable and accepted in different fields of science. At the same time, the creation of a good working definition with practical application is in the service of developing programmes in higher education in which the development of critical thinking among students can be applied through appropriate means and methods. First of all, critical thinking can be seen as higher order thinking which consists of three main aspect: knowledge base, motivation and cognitive operations [11]. It consists of individual skills that make it up and which are not elementary but complex in nature. Critical thinking involves the evaluation of facts, circumstances and information, and involves reflecting on past events and decisions. In general, critical thinking is directly related to the skills of analysis and synthesis of information, as well as attention to the manifestation of problems in a specific context and situation. Additional factors here are the need for judgment to be nuanced, and multiple solutions are offered as a result of reflection. The process itself involves the presence of uncertainty, effort and the impossibility of fully following algorithms in assessing and formulating a final solution. Critical thinking, in addition to its constituent skills, is defined as a sequence of attitudes and values.

Fisher and Scriven's 1997 definition includes the following exemplary skills in the composition of critical thinking: reasoning, problem solving, decision making, communication, evaluation, explanation, analysis and synthesis, and metacognition [5]. According to the authors, critical thinking also includes such competencies that require interpretation as critical thinking, listening and observation. They also include critical writing, speaking and presenting, critical knowledge and critical methods and techniques.

An important aspect of defining critical thinking is doing it, which shows that it is not pure theorizing and practicing critical thinking skills is a necessary aspect of understanding the concept [4]. Since the present paper is devoted to the development of critical thinking in higher education the definitions that matter most are those that are appropriate for the purpose of forming university level departmental policy for the application of critical thinking.

Here are two sample definitions of critical thinking:
- "reasoned reflective thinking focused on making decisions about what to believe or do" [4] (Robert Ennis, 1985);

- "To think critically is to analyze and evaluate information, reasoning, and situations according to appropriate standards, such as truth and logic, for the

purpose of constructing sound and insightful new knowledge, understandings, hypotheses, and beliefs. Critical thinking encompasses a subject's ability to process and synthesize information in such a way as to enable them to apply it reasonably to tasks of informed decision making and effective problem solving" [7].

Both definitions focus on the practical aspects of critical thinking and its scope, which leads not only to decision making but also to its application through action. The second definition includes an assessment of individuals' critical thinking abilities, showing that it is an activity performed by humans in the context of their interaction with information, which they select and process purposefully.

Critical thinking and the labour market

Research on the extent to which critical thinking is sought for vacant positions by employers is quite scarce. A European study on the subject found that European employers valued critical thinking mainly in two forms : the capacity to correct and regulate one's own shortcomings, and social responsibility [3].

The most important part of understanding the importance of critical thinking for different types of employment is that it can be refined in practice and can assist professional development and innovation in enterprises. In many cases, business relies on the education system, and higher education in particular, to reduce the shortage of soft skills in critical thinking. In a study conducted in 2019 the Society for Human Resource Management ranked problem solving, critical thinking, innovation and creativity at the top of the list of the top three soft skills lacking in the workplace [12] . At the same time, attitudes about fixing these deficiencies are not positive. Fifty per cent of respondents said the skills gap has been getting worse in their organisations over the past two years, and only 10 per cent confirmed an improvement in this trend.

In another study dedicated to identifying the skills needed by employers in the 21st century job market, after reviewing 120,000 job advertisements, it was found that 19% of them required problem-solving skills [13]. Although not explicitly stated, critical thinking assists problem solving in the workplace in many ways. A concrete example is listening to employees offering different solutions to a problem [9]. From the idea to its implementation, for example in the production process, it is critical thinking that helps to avoid mistakes.

3. University approaches to critical thinking development

The introduction of critical thinking into university courses, programmes and vocational training centres brings the benefits of developing a style and way of thinking that is beneficial to students because it enhances the quality of their thinking process. Often cited benefits of developing critical thinking skills in students are:
the achievement of higher academic results,
the opportunity for more independent and self-directed learning, in addition to teaching and the use of textbooks.
The development of these skills facilitates more active participation in constructive communication because it involves seeking more information about specific issues. Critical thinking is appropriate for working on projects in teams. In this way, students engage in collaborative discussions and learn to argue constructively. The rapid changes in information in modern reality also require skills to process it effectively and assess its quality, including selecting the sources used from the Internet.

To be able to teach critical thinking, it is important to understand it not as an intrinsic ability or character trait, but as a set of skills that can be gradually acquired in the process of teaching and learning at university. It is noteworthy that in parallel with the development of scientific literature in the field, many universities in Western countries are establishing centres for critical thinking aimed at its development in students and the conduct of research. According to Alec Fisher, former Director of the Centre for Critical Thinking Research at the University of East Anglia in the UK, teaching critical thinking is important because it is a skill that can be used in other areas of knowledge and disciplines besides the one being studied [6].

Some researchers believe that critical thinking per se cannot be taught in isolation from a student's particular area of study and it should be as well connected to it as possible. This approach is furthered by Fisher and Scriven, who suggest combining specialized courses in critical thinking with the horizontal development of critical thinking skills at the level of individual university programs by incorporating it into all taught courses [5].

Thanks to the development of psychological research, many universities use tests to assess students' critical thinking. One such test is the Thinking Skills Assessment Test, which is administered by universities in the process of selecting students to continue their studies. This test is used in universities in the UK, India, Sweden, etc. The test is designed to help select students with potential for courses in politics, psychology, economics, technical sciences. There are tests including assessment of critical thinking in various scientific

fields, for example in biology and medicine (BioMedical Admissions Test (BMAT)), law (Law Schools Admissions Test (LSAT)).

3.1. Application of students learning models to develop critical thinking skills

In addition to tests that can predict student success in university programs, serious attention is being paid to developing methodologies, rules, and models for teaching critical thinking in the universities courses and programmes. To this end, more easily assessable skills are identified that, when developed, lead to improved critical thinking.

One of the critical thinking frameworks developed (ACER's critical thinking skill development framework) is proposed by the Australian Council for Educational Research [7]. It comprises three distinct areas, the first of which is knowledge construction, the second - assessment of reasoning, and the third - decision making. Each domain has several aspects. In the first domain, the first aspect requires identifying gaps in knowledge as well as adding to it, the second requires evaluating information and evidence about it, and the third requires identifying trends and making connections. In the second area there are again three aspects: applying logic, identifying assumptions and making arguments. Decision-making involves identifying the criteria for this process, evaluating the options and conducting tests and observation. The framework concludes with the identification of three levels (high, medium and low) for each aspect of the three domains, which facilitates the assessment of applied critical thinking skills.

An even more holistic approach is being applied within the EC-funded CRITHINKEDU project, which has developed a protocol for the development of critical thinking in higher education. The protocol includes 3 levels necessary for its design in universities:
- University Level;
- Individual program level;
- Level of individual course.

For the introduction of critical thinking at the level of the individual university to be successful, special attention must be paid to its inclusion in the mission as well as in policies, learning and teaching processes. It can be linked to the quality system as well as being a requirement for teachers, evidenced through their portfolio of courses. Within the individual programme, it is proposed to follow Van den Acker's spider's web model, in which the role of critical thinking should be positioned in each envisaged activity: role of the teacher, learning activities, materials and resources, aims and objectives, programme content, etc.

3.2 Initiatives for Teaching Critical Thinking to Students at the New Bulgarian University

The item presents initiatives at the university related to the teaching of courses and the critical thinking and problem-solving skills developed through them in undergraduate and graduate programs in entrepreneurship and human resource management. The starting point is the motto of New Bugar University "We are not afraid of diversity", which can be interpreted in the light of tolerance towards different groups of students, as well as ways and styles of thinking that is deeply rooted in the organizational culture and teaching. The university also has a programme to train teachers in innovative teaching methods. It offers training related to new teaching methods through simulations, computer games and case studies, which aim to stimulate students' independent thinking by assessing complex situations close to the real ones and making decisions in a rapidly changing environment.

Students in the Entrepreneurship and Business Administration programs participate in the creation of training companies (created for educational purposes) that are implemented within a University Training Center. Through these simulations, students are given the opportunity to develop practical skills in setting up and managing a company, as well as defending undergraduate and graduate theses.

For now, there is no comprehensive approach to integrating critical thinking skills into all levels of the university in a purposeful way, but it is implicit in the courses and programs being developed. A concrete example of the development of critical thinking is the annual participation of NBU students in the national mediation competition, which aims to resolve real-life disputes, stimulate argumentation and the application of problem-solving techniques.

Conclusion

Critical thinking is increasingly necessary in the modern reality. Although critical thinking is less often cited as a job requirement in job advertisements, it is a skill without which problem solving, decision making, innovation and learning from concrete experience cannot take place. It is important both for the labour market and for students' future employment in modern professions and high-tech companies working in innovative sectors and in research and science. Universities around the world are committed to teaching critical thinking skills and interest in this area is not waning. It can be summarized that for initiatives in this area in university programs and courses to be successful, dedicated attention, resources and time are needed for the purpose

of developing critical thinking skills through an integrated and systematic approach. This would also make higher education more attractive to students and more useful for their future career development.

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EMPLOYABILITY AND CAREER DEVELOPMENT IN STEM EDUCATION

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ABSTRACT

Purpose *In the age of artificial intelligence and ChatGPT, STEM (Sciences; Technology; Engineering; Mathematics) educational institutions and universities started to have a crucial mission to equip their students with future career skills. Accordingly, this study assesses the employability skills perspective of employers and STEM students. Additionally, it evaluates the impact of career development education in STEM educational institutions on students' capability to construct their careers.*

Design/methodology/approach *This study adopted a longitudinal comparative mixed-method research approach. The quantitative data were collected using a survey to assess employers' and STEM education students' perspectives on employability and future career skills. Besides, the researchers qualitatively analyzed employers' mock interviews of STEM students to assess the effect of career development education on STEM students' career construction capabilities.*

Findings *There is no remarkable gap between employers' and STEM students' perspectives on future career skills and employability skills. Equipping STEM students with career education by teaching them one career development course enhanced their knowledge and led to enhanced STEM students' perspectives on employability skills matching it with the employer's perspective. This is not the only technique to enhance students' perspectives on future career skills. A longer or more than one career development course is needed to positively enhance STEM students' perspectives on employability and future career skills.*

Practical implications *This paper represents a guide for all higher education stakeholders on dedicating more resources to developing career development educational programs. Additionally, it is a call for them to construct career development programs to narrow the employability skills gap between employers and students, which will narrow the gap between graduates' competencies and job market requirements.*

Originality/value *This paper narrows the gap between employers and STEM students' perspectives on future career skills. Moreover, it evaluates the impact of career development education on STEM graduates and highlights the current gaps in career development education that exist in STEM educational institutions internationally.*

1. Introduction

In the age of artificial intelligence and ChatGPT, STEM educational institutions and universities started to perform a crucial mission to equip their students with future career skills. It is expected that artificial intelligence will have a massive impact on individual careers by changing the future of work and skills. Accordingly, it is expected that one-third of today's jobs will disappear by 2025 (Brougham & Haar, 2017). Thus, in today's paced world, success requires a range of abilities, practices and personal qualities that did not exist or was not important earlier.

This mission emerged due to the current changes and the new technologies emerging recently; accordingly, a huge development happened in the perception of employability generally and STEM students' perception of employability especially. In the meantime, developing and reinforcing STEM students' employability skills became one of the essential KPIs of educational institutions and universities worldwide. Educational institutions need to prioritize equipping their graduates with the job market employability skills and do not focus on developing their technical skills only. According to McGunagle and Zizka, (2020, P.2), STEM students don't need to possess knowledge in STEM fields only. Instead, they need to develop 21st-century skills that enable them to communicate their ideas clearly, understand principles in business and personal contexts, cultivate strong interpersonal skills and appreciate teams' diversity. More importantly, these students need to learn how to be lifelong learners throughout their career path (Sanchez Carracedo et al., 2018). All of these skills are not taught as part of STEM curriculums. Based on that, McGunagle and Zizka, (2020), stated that 21st-century skills include skills such as creativity, critical thinking, problem-solving and adaptability. In addition to communication and collaboration skills, digital literacy skills, and social responsibility skills (Siekmann and Korbel, 2016). Equipping students with these employability skills is the responsibility of universities and higher education institutions.

Despite the importance of developing STEM graduates' employability and the importance of bridging the gap between employers and STEM graduates, there has been a gap in the literature regarding two main folds. First, the impact of career education on STEM students' employability capability. Second is the employability perception for employers and STEM students in developing countries. As per Kinash et al., 2016, There is a huge gap between the skills and qualities appreciated by employers and higher education students.

Based on that, this research explores the gap between employers' perception and STEM students' perception of employability in the age of AI and revolution 4.0. It assesses the employability skills perspective of employers and STEM students in order to evaluate the student's knowledge about future job skills as desired by employers. Additionally, it evaluates the impact of career development education in STEM educational institutions on students' capability to construct their careers.

2. Literature Review

The concept of employability was discussed in the previous literature in different contexts. Employability skills are a complex concept that can be perceived in different methods depending on the context and the perception (Harvey, 2005;

Andrews & Higson, 2008). In the last decade, Various models, conceptual frameworks, and definitions regarding employability have emerged in the field of education (Williams, Dodd, Steel and Randall, 2015). Universities and various educational stakeholders started to give priority to the graduates' employability capabilities. Accordingly, universities and educational institutions started to design programs with the aim of enhancing the employability skills of different disciplines graduates.

Several scholars (Knight and Yorke,2002; Gilbert et al., 2004; Bridgstock, 2009; Gouda-Vossos et al., 2023) defined employability skills.For instance, In the perspective of Hillage and Pollard (1998, p. 2), employability revolves around the capacity to "attain and retain fulfilling work" (Dacre Pool and Sewell, 2007). While Knight and Yorke (2002, p.5), defined employability as "a collection of achievements, skills, understandings, and personal traits that enhance the likelihood of graduates securing employment and excelling in their chosen professions, benefitting not only themselves but also the workplace, the community, and the economy" (Harvey, 2005; Yorke, 2006; Maxwell and Armellini, 2018).

On the other side, (Gilbert et al., 2004; Bridgstock, 2009; Gouda-Vossos et al., 2023) stated that "Employability skills", in a wide general perceptive, are a set of transferrable skills that individuals develop throughout their education and career path. These transferrable skills are skills that are highly appreciated and desired by employers. Transferrable skills encompass a combination of skills that can be applied in different professional situations, such as communication skills, critical thinking, negotiation skills, interpersonal skills, and teamwork in addition to other job-related soft skills. Lowden et al. (2011) define employability as the group of skills, qualities, and characteristics that employers anticipate from employees. While the UK Higher Education Academy (HEA) (Pegg et al.,2012), has established an accepted description based on the earlier research of Moreland (2006). According to this definition, employability encompasses a combination of skills, achievements, insights and personal qualities that increase graduates' chances of finding suitable employment and succeeding in their chosen careers (O'Leary, 2016, p.3).

To summarize, employability is a set of skills, professional and personal qualities, insights and achievements that enhance job seekers' career profiles and make them more attractive to employers. These skills are known as soft skills or transferrable skills.

A crucial component of employability is self-perceived employability. Self-perceived employability means the perception of individuals about their employability skills. Self-perceived employability involves a mix of internal conflicts and external job market dynamics and trends that collaborate to shape an individual's self-view of employability capability (Rothwell et al., 2009).

Gouda-Vossos et al., (2023, P.1), stated that it is evident that graduates may have the skills, for employment but may not be fully aware of their own abilities (Tymon, 2013; Strachan, 2016; Jackson & Tomlinson 2020). Additionally, they might lack confidence in their employability after completing their studies (Durham et al., 2020). Moreover, the job market and the career paths of graduates are becoming increasingly uncertain (Tomasik et al., 2009; Schoon & Heckhausen 2019).

Considering the impact of the COVID 19 the rapid transition, to remote work graduates need a comprehensive set of skills to effectively navigate the challenges faced in todays workplace.

Accordingly, Individuals with lower self-perceived employability hold pessimistic opinions about the job market (Jackson & Tomlinson, 2020), possess reduced self-confidence, exhibit decreased career contentment (Dacre Pool & Qualter, 2013), encounter job fatigue (Kinnunen et al., 2011), and suffer from compromised mental well-being (Berntson, 2008). This can result in individuals feeling disempowered and struggling to manage the ever-evolving demands, potentially contributing to employer dissatisfaction. On the contrary, individuals with high self-perceived employability levels are more optimistic about the job market and more flexible in coping with job market trends and changes (Gouda-Vossos et al., 2023)

The importance of employability is not represented only by the individual contribution it makes to individuals' career construction. It also contributes to communities, labor market and the overall economy (O'Leary, 2016, P.3). Thus, the lack of employability skills does not only affect the graduates and employee's capability to get hired and build their career path. It also affects the overall economy.

By analyzing the literature of employability, many discrepancies and gaps need to be highlighted. For instance, despite the significance of employability skills as an essential component for achieving business competitiveness, prosperity, and equity (Maxwell et al., 2010), the employability concept is frequently undervalued and inadequately addressed within educational institutions, particularly within (STEM) education systems and universities. Accordingly, many scholars and job market stakeholders have urged universities to include strategies that focus on enhancing employability. These strategies should aim to develop skills and help students navigate the job application process. Additionally, there is a call for universities to take on the responsibility of guiding students, into the world (Tymon, 2013; Bandaranaike, 2018; Tomasson Goodwin et al., 2019; Gouda-Vossos et al., 2023).

This resulted in universities and educational institutions starting to set a goal of preparing their graduates for the world when they finish their studies and improving the employability of graduates (Bandaranaike, 2018; Winchester Seeto & Piggott 2020; Jackson et al., 2022). The goal of equipping students with employability skills resulted in discussions and debates between scholars regarding the responsibilities of universities in preparing students for the workforce, along with the exploration of approaches to emphasize skills (Bandaranaike, 2018; Winchester Seeto and Piggott 2020; Jackson et al., 2022; Gouda-Vossos et al., 2023, P.13).

The focus of universities on developing students' employability skills resulted in a discrepancy between various academic fields and disciplines (O'Leary, 2016). Besides, O'Leary, (2017) stated that students' perception of employability differs based on the disciplines between STEM and non-STEM students. Moreover, O'Leary, (2016) declared that there are differences between disciplines on how to develop and enhance graduates' employability capabilities. Accordingly, there is a research gap that needs to be further investigated.

Another gap is that many traditional programs continue to use methods and curricula, often overlooking the skills that today's and future job markets require. As a result,

there is a gap in employability skills like communication, teamwork and problem-solving abilities between what students are taught in their academic programs and what employers actually look for in new graduates (McGunagle and Zizka, 2020).

Besides, there is a shortage and literature discrepancies regarding career development educational programs in different disciplines. Based on the previous literature (Gouda-Vossos et al., 2023, P.4), it is evident that there are variations among disciplines when it comes to determining the most efficient method of offering employability support. The main point of contention revolves around whether this support should be optional or mandatory.

Another gap is related to the employability of students of STEM programs. STEM programs play a pivotal role in preparing the next generation of scientists, technology experts, engineers, and mathematicians to meet the contemporary demands of the global economy in the 21st century. Additionally, STEM graduates play a crucial role in ensuring a nation's economic success and societal well-being (Knight and Bennett, 2019; Siekmann and Korbel, 2016). Nevertheless, while STEM programs successfully produce proficient graduates in their respective disciplines, many seem to be lacking in imparting employability skills and the preparedness for careers that employers demand (Rayner and Papakonstantinou, 2016).

Tolands (2011) stated in his study about STEM in higher education that there are key skills that STEM graduates should equip and highlight when seeking employment. These skills include being able to work collaborate with others understand business and customer perspectives find solutions to problems communicate effectively use numbers proficiently and utilize information technology. It is important for these graduates to demonstrate their ability to apply both practical knowledge, in world industrial settings (O'Leary, 2016, P.6).

Moreover, according to a research conducted by The Royal Academy of Engineering in 2010 (Lamb et al., 2010), it has been found that engineering graduates need a combination of technical and transferrable soft skills to meet industry's demands (O'Leary, 2016, P.6).

In addition to the previous gaps, another gap is the gap between employers' perception of employability skills and STEM students of employability skills required for the future job market.

Gouda-Vossos et al., (2023, P.4) highlighted that in STEM field, there is evidence from cultures that recent graduates lack skills that employers expect. These skill gaps make it difficult for graduates to find employment successfully. Previous literature (Pauceanu et al., 2020) showed that there are gaps between the perception of employers and higher education students of employability skills. In other words, employers believe that some employability skills are more important that other skills and more important than technical skills. While higher education students believe that technical skills should be prioritized over transferrable soft skills. The perception gap between employers and students was tested in many disciplines in developed countries' educational programs and universities. However, in this study, we are aiming to assess the perception of both employers and STEM students in a developing country. As according to the OECD Survey of Adult Skills (PIAAC)

survey, around one-third of employees in developed countries are not qualified either because they are under-qualified or over-qualified for their current jobs.

Gouda-Vossos et al., (2023, P.4) confirmed that in the STEM field, it is widely observed across cultures that there are differences in the transferable skills possessed by recent graduates compared to the expectations and requirements set by employers.

Besides, chemistry graduates have raised concerns (Purcell et al., 2008), about whether their educational programs prepare them for employment. They specifically highlighted the lack of opportunities to develop skills like collaboration, team leadership, effective written and verbal communication, problem-solving abilities, managerial proficiency and creativity. According to this study employers acknowledged that chemistry graduates excel in thinking, numeracy skills, research capabilities, logical reasoning, attention to detail and precision. However, they often found weaknesses in areas such as written communication skills, teamwork abilities, interpersonal skills, leadership qualities and the ability to engage with people effectively (O'Leary, 2016, P.6).

Additionally, Gouda-Vossos et al., (2023, P.1) reported that employers have expressed their dissatisfaction, with graduates highlighting a gap between the skills acquired through education and the practical employability skills required in various fields (Bandaranaike, 2018; Eldeen et al., 2018). This concern regarding the lack of employability skills isn't limited to disciplines but also affects students in STEM fields (Rayner and Papakonstantinou, 2015; McGunagle & Zizka 2020). The gap poses a challenge, for STEM workforces worldwide (Sarkar et al., 2016; Wakeham, 2016; Ryan and Benson 2020;).

Based on the previously highlighted gaps, we tested the following two hypotheses:

H1: There is a gap between STEM students' and employers' perceptions of employability.

H2: Career development education has a positive impact on STEM students' employability perception.

we hypothesise that employers have a more realistic concept of employability and future job market skills. On the contrary, we hypothesise that STEM students' perception of future job market employability skills is less realistic and not up to date compared to the recent technologies emerging, such as artificial intelligence and ChatGPT. Hence, the current study investigates two main folds. First, the perception of employability of both STEM students and employers. Second, it explores the effect of equipping STEM students with career development education and how this impacts their career construction-capabilities.

3. Methodology

The researchers adopted a longitudinal comparative mixed-method research approach in order to assess both employers' and STEM perception of employability and to assess the impact of career development education on STEM students' employability capabilities. Data was collected from both STEM students in a government university and employers in the United Arab Emirates as an example of a developing country.

The researchers adopted a longitudinal comparative mixed-method research approach in order to assess both employers' and STEM perception of employability and to assess the impact of career development education on STEM students' employability capabilities. Data was collected from both STEM students in a government university and employers in the United Arab Emirates as an example of a developing country. The quantitative data were collected using a survey to assess employers' and STEM education students' perspectives on employability and future career skills. The employability survey items were modified and adopted from (Berntson, E. and Marklund, S., 2007) and an official UAE government report (Appendix 1).

Both the students and employers survey included (31) items, and employability was measured using a 5-point Likert scale ranging from "Not important/ Not Preferred" to "Highly important / Preferred".

For the STEM students, a career development course was designed for STEM students to assist them in addressing the identified skills gaps in skills based on prior research findings. Students enrolled in this module were invited to participate in this study, where data was collected in two waves. We asked STEM students to fill out surveys about their career skills knowledge before the module started (pre-intervention) and after completing the module (post-intervention). A total of 248 enrolled students in the career development module completed both pre- and post-module completion. Student's perceived employability skills were assessed during the (post-intervention) period.

The data of the first wave (pre-intervention) was collected from September to December 2022. While the data of the second wave (post-intervention) was collected during Fall 2023 semester. All of the 248 students were studying STEM-related degrees. Regarding employers, we were targeting around 50 employers. Data was collected from (32) (Response Rate 64%).

Additionally, the researchers qualitatively analyzed employers' mock interviews of STEM students to assess the effect of career development education on STEM students' career construction capabilities. The researchers observed the mock interviews and assessed employers' feedback on STEM students.

4. Discussion

The data was analyzed using SPSS software version 26. The demographic data analysis showed that the data was collected from 248 STEM students pre- and post-registering and completing a career development course. 166 students were females (66.9%), and 82 (33.1%) were males. The data was collected from 32 employers, where 16 participants were males and 16 participants (50%) were females (50%). The students were registered in different STEM-related majors.

In order to assess employers' experience in the job market, we checked employers' age. The employers' age groups were distributed as follows: 10 employers (31.3%) were in the age group of 31 to 35 years old, 9 employers (28.1%) age were above 40 years old, 8 employers (25%) age was from 25 to 30 years old and 5 employers (15.6%) age ranges from 36 – 40 years old. Regarding the employers' educational level, 16 employers (50%) had a master's degree, 13 employers (40.6%) had a

bachelor's degree, and only 3 employers (9.4%) had a doctoral or PhD degree. Regarding employers' career levels, 13 employers (40.6%) were at a management level. Moreover, 13 employers (40.6%) were in a mid-level position, and 6 employers (18.8%) were at an entry level. Additionally, the employers' experience breakdown showed that 11 employers (34.4%) had from 10 – 15 years of experience. While 9 employers (28.1%) had more than 15 years of experience, 8 employers (25%) had from 1 to 5 years of experience, and 4 employers (12.5%) had from 5 to 10 years of experience.

The geographical distribution of the employers was as follows: 14 employers (43.7%) were located in Abu Dhabi, 14 employers (43.7%) were located in Dubai, 2 employers (6.2%) were located in Umm Al Quwain and 1 employer (3.1%) was located in Sharjah and similarly 1 employer (3.1%) was located in Ras El Khaimah.

Employers' nationalities were distributed as 12 employers (37.5%) were Arabs and non-UAE nationals, 10 employers (31.2%) were from Asian nationalities, 9 employers (28.1%) were UAE nationals, 1 employer (3.1%) belonged to other nationalities.

Employer participants belonged to various industries such as energy (12.5%), Oil and Gas (9.3%), Healthcare (9.3%), other industries (15.6%), real estate, Products (beauty and personal care, foods and refreshment, and home care), Aerospace, Defence and military. (6.2%) respectively. Other employers' industries included telecommunications, logistics, financial accounting, investment, pharmaceutical, fintech, engineering, consultancy and information technology (3.1%). This diversity increases the generalizability of employers.' results. Additionally, 12 of the surveyed employers are private sector firms (37.5%), 11 of the surveyed employers are Public sector. In other words, 34.3% of the employers are Governmental or Federal firms. Finally, 9 employers (28.1%) are multinational firms.

The collected data is normally distributed as the skewness and kurtosis scores were all within the acceptable range, -2 and +2 for skewness and -7 to +7 for kurtosis (Hair et al.,2010). The Skewness score ranged from -1.238 to 2.012. While Kurtosis ranged from -1.010 and 5.256. Therefore, normal univariate distribution was proved in all cases except for the pre-competency's skills, where the Skewness score was slightly above the +2 cut-offs. Table (1) summarizes skewness and kurtosis scores.

Variable	Skewness	Kurtosis
Foundation Skills (Pre)	1.317	2.031
Character Qualities Skills (Pre)	1.683	2.978
Competencies Skills (Pre)	2.012	4.249
General Technical Skills (Pre)	1.687	3.127
Foundation Skills (Post)	1.396	4.238
Character Qualities Skills (Post)	1.606	5.256
Competencies Skills (Post)	1.198	3.350
General Technical Skills (Post)	1.057	3.141
Self Perceived Employability	-0.784	-0.239
Foundation Skills (Employer)	-0.085	-1.010
Character Qualities Skills (Employer)	1.084	3.089
Competencies Skills (Employer)	0.151	-1.081

General Technical Skills (Employer)	0.135	-0.898
Self Perceived Employability (Employer)	-0.841	0.890
Engineering Skills (Employer)	-1.238	2.081

Table (1)

Following this, we assessed the reliability of the variables. Table (2) highlights the reliability of Cronbach's alpha scores. All the variables reported high Cronbach's alpha scores. The scores of the employability skills prior to studying the career development course are as follows: pre-foundation skills score is 0.853, pre-character Qualities Skills is 0.931, Pre-Competencies Skills score is 0.898, Pre-General Technical Skills score is 0.831. The scores of the employability skills after studying the career development course are as follows: Post Foundation Skills is 0.642, Post Character Qualities Skills score is 0.894, Post Competencies Skills score is 0.935, Post General Technical Skills score is -.874 and finally, the Post Self Perceived Employability Skills score is 0.897. In addition, the for-employer Character Qualities Skills is .888, employer's competencies skills is .612, employer's general technical skills is .733, while employability skills is .655.

Variable	Score
Pre-Foundation Skills	.853
Pre-Character Qualities Skills	.931
Pre-Competencies Skills	.898
Pre-General Technical Skills	.831
Post Foundation Skills	.642
Post Character Qualities Skills	.894
Post Competencies Skills	.835
Post General Technical Skills	.874
Post Self-Perceived Employability Skills	.897
Foundation Skills - Employer	.633
Character Qualities Skills - Employer	.888
Competencies Skills - Employer	.612
General Technical Skills - Employer	.733
Self-Perceived Employability Skills - Employer	.655

Table (2)

The chi-square test was used to test the students' general knowledge of employability skills in regard to the employers' knowledge of employability skills. If the P-value is less than the significance cut off (0.05), we reject the null hypothesis. Otherwise, we accept the null hypothesis. In other words, if the chi-square value is less than 0.05, we conclude that there is no change in the students' career skills perception before the career development course and post the career development course. Table (3) highlights chi-square scores and hypothesis outcomes.

Variable	Score	Outcome
Pre-foundation Skills Vs. Post Foundation Skills	.035	Reject the null hypothesis

Pre-character Qualities Skills Vs. Post Character Qualities Skills	.480	Accept the null hypothesis
Pre-Competencies Skills Vs. Post Competencies Skills	.737	Accept the null hypothesis
Pre-General Technical Skills Vs. Post General Technical Skills	.108	Accept the null hypothesis
Students' Foundation Skills Vs. Employer Foundation Skills	.537	Accept the null hypothesis
Students' Character Qualities Skills Vs. Employer Character Qualities Skills	.768	Accept the null hypothesis
Students' Competencies Skills Vs. Employer Competencies Skills	.598	Accept the null hypothesis
Students' General Technical Skills Vs. Employer General Technical Skills	.991	Accept the null hypothesis
Students' Self-Perceived Employability Skills Vs. Employer Self-Perceived Employability Skills	.634	Accept the null hypothesis

Table (3)

Note: If the p-value is less than 0.05, we reject the null hypothesis; otherwise, we fail to reject the null hypothesis.

To summarize, regarding the STEM students' and employers' perceptions of employability, Chi-square test results showed that there is no difference in STEM students' and employers' perceptions of employability. All the scores are above the p-value significance level (0.05). Therefore, we accept the null hypothesis of (H1) and conclude that both STEM students and employers have the same perception of the future job market employability skills. The student's perception of employability skills enhanced and it matches with the employer's perception because they completed the career development course, attended career events which enhanced the student's level of knowledge.

Moreover, the quantitative results showed no significant change in STEM students' career skills, such as character qualities skills, competencies skills, and general technical skills, prior to registering for the career development course and after finishing the career development course which indicates the positive impact of careers' events and activates on student's career skills knowledge . The only change was in STEM students' foundation skills. As the p-value is (.035) and less than 0.05, we conclude that STEM students' foundation skills developed by the end of the career development course. Thus, we partially accept the null hypothesis of (H2) and conclude that all the career skills except foundation skills did not change between before and after finishing the career development course because of the different career preparations, workshops, and events students attended before the career development course

A total of ten employers participated in the mock interview and they assessed the STEM students' performance in the interview as highly promising and indicative of the rigorous career preparation they have received. Their technical acumen and problem-solving abilities were noteworthy, reflecting a solid foundation in their respective fields of study. What particularly impressed the employers was the student's aptitude for applying theoretical knowledge to practical scenarios, showcasing the practicality of their academic training. Communication skills were

another area of strength among these students. They exhibited exceptional proficiency in conveying complex concepts with clarity and precision, an essential skill set for STEM young professionals. Furthermore, the students displayed an admirable openness to feedback, emphasizing their commitment to continuous learning and growth.

From a professional standpoint, these STEM students excelled in terms of punctuality, appropriate attire, and overall demeanor. Their conduct throughout the interviews reflected a high level of professionalism, making them well-suited for the demands of the workplace. Additionally, their interpersonal skills and collaborative mindset are indicative of their potential to thrive in team-oriented environments.

As a qualitative assessment for academic research, this mock interview process not only sheds light on the students' preparedness but also underscores the significance of holistic career development programs in higher education. It highlights the symbiotic relationship between academic institutions and the industry, where the former plays a pivotal role in nurturing well-rounded STEM professionals. The findings from this assessment can inform further enhancements to academic curricula, ensuring that future STEM graduates continue to meet the evolving demands of the job market. In conclusion, the mock interview experience has reaffirmed the University's commitment to producing highly skilled and professionally competent STEM graduates who are poised for success in their chosen careers.

5. Conclusion

Regarding evaluating the impact of career development education, the literature (The Opportunities and challenges for employability-related support in STEM degrees, 2016, p.1) stated that students' employability skills can be improved by offering students career development curriculums and engaging students with external stakeholders such as guest speakers, industry experts, work placements, and mock interviews. However, the literature did not specify the length of the career development curriculum. Based on that, the current study proved that a short career development course may not be the only technique to positively impact STEM students' employability skills since the students get exposed to different career development events and activities aimed to enhance their career and employability skills.

Given that this career development course's main goal was to introduce students to employability skills required for the future job market, we did not expect a huge development in STEM students' employability skills. In order to change STEM students' perceptions, one career development course is not sufficient to develop their employability skills. However, the analysis showed that the career development course improved STEM students' perception of employability skills.

Overall the career development course had an impact on the students' foundation skills. The study results showed that the career development course helped the students enhance their written communication skills, information and communication technology skills, cultural and social skills, numeracy skills, initiative and entrepreneurial skills.

According to the current study findings and previous literature (Gouda-Vossos et al,2023), it is evident that higher education institutions and other higher education stakeholders need to design detailed career development intervention action plans to bridge the gap between STEM graduates and employers' perception of employability. The current study reassures previous literature findings. Collectively, these findings highlight the need for a career development intervention to specifically bridge these gaps for STEM students.

6. Implications

This paper represents a guide for all higher education stakeholders on dedicating more resources to developing career development educational programs. Additionally, it is a call for universities to restructure their current career development curriculums and consider embedding career development courses throughout the educational programs that last for 4 or more years and not only focus on career development education prior to starting internships and job placements. It is evident from this study that there is no impact on STEM students' career development capabilities when offered one course. Therefore, it is a call for all education stakeholders to construct longer career development programs to assist STEM students in constructing their careers.

Besides, the fact that there is no gap between employers' and STEM students' perception of employability highlights that universities and educational institutions have managed in the past few years to bridge the gap in employability perception. In other words, STEM students are fully aware of the required future job market employability skills. Therefore, educational institutions need to focus on equipping their students with these skills.

To summarize, this study's outcomes can be used to assess stakeholders in universities generally and STEM educational institutions specifically to prepare their graduates to face future job market challenges and to handle their ambiguity.

7. Limitations and Future Directions

Given the number of employers engaged in this study, future research studies need to include more employers in order to ensure the current study findings and maximize its generalizability. Moreover, based on the current study findings, further research needs to be conducted qualitatively to assess the causes of undeveloped employability skills such as Character qualities skills, competencies skills and general technical skills. Thus, further studies need to test the impact of the length of the career development curriculum on STEM students' employability skills. Additionally, future research may study the perceived employability skills of STEM students prior to and after completing a career development course.

Finally, comparative research is needed to assess the differences between STEM students and non-STEM student's employability capabilities and the impact of career development curriculum on both STEM and non-STEM students.

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26 YEARS OF ERASMUS IN ROMANIA

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ABSTRACT

Changing mentalities is no easy task! To aim at this, education seems to be by far the most effective way. But educators are often preys of their own mentality. So, first you should change educators. Educators can be changed by widening their field of knowledge. It is, indeed, a slow process.

Since 1987 the Erasmus Programmes provided the best conditions for acquaintance of new living and learning environments. Romania started this process in 1997, shyly at first, but with obviously better results each of the following years. And, indeed, what could be more efficient than finding out how other people do: how they live, how they learn, how they spend their money, how they earn their money, what organisation patterns they have...?

In Romania, interest in the Erasmus+ program is constantly maintained at high levels, well above the European average. According to the monitoring data of the European Commission, our country has the highest ratio between the number of submitted applications and the number of financed projects (3 to 1) among all the EU states participating in the program.

For 2021-2027 the program aims to boost the development of strategic approaches among organizations with a view to digital transformation, the inclusion of people with limited opportunities, as well as the integration of "green" sustainability principles.

NATIONAL AGENCY FOR COMMUNITY PROGRAMS IN THE FIELD OF EDUCATION AND VOCATIONAL TRAINING

The National Agency for Community Programs in the Field of Education and Vocational Training is a public institution subordinate to the Ministry of Education established by Government Decision no. 76/27.01.2005.[i]

Later, by Government Decision no. 67/2007, the Agency was designated as the implementation agency of the community programs "Lifelong Learning" (LLP), "Youth in Action" (YiA) and Erasmus Mundus, in the period 2007-2013. Through this document, the Europass National Center, the Eurydice National Unit and the Eurodesk National Office were included in the ANPCDEFP.

In 2013, by Government Memorandum no. 10988 / 09.12.2013 The Agency was designated as the Implementing Agency for the Erasmus+ program, in the period 2014-2020. Therefore, starting from 2014, ANPCDEFP coordinates the implementation in Romania of the Erasmus+ Program, which continues the previous generation of European programs in the field of education and professional training.

In addition, ANPCDEFP is the operator of the Education, Scholarships, Apprenticeship and Youth Entrepreneurship Program 2014-2021 financed through the EEA mechanism and also manages the European Solidarity Corps, and from 2022 it also takes over the organization and monitoring of e-Twinning activities.

ANPCDEFP's mission is to administer European funding programs that support the national project of changing for the better the communities, attitudes and mentalities of individuals for the better.

The action programs of the European Union in the field of education and professional training are coordinated at the local level by school inspectorates and higher education institutions. In each school inspectorate, for the management and institutional development functional area, there is a Department of community programs and European integration projects, with at least 0 school inspector norm for educational projects, with attributions in the implementation of the Erasmus+ program at the level of Bucharest county/municipality.

TRANSFORMATION THROUGH CONTINUOUS LEARNING

This year, Erasmus+, the European Union's longest-running, broadest and most successful educational program, turns 36.[ii] The attributes are justified considering that since 1987, more than 12 million citizens have benefited from this program. However, the impact of Erasmus+ is not only reflected on the direct participants, but has a mass effect, they become agents of propagation of a lasting transformation.

The effects of Erasmus+ are increasingly visible at the national level as well, where the European Union program celebrates its 26th anniversary this year. For more than a quarter of a century Erasmus has played a key role in transforming the educational environment, being the only European funding program that consistently records an absorption rate of over 99% and whose allocations prove to be insufficient year after year in relation to the number of applications submitted.

For example, only in the period 2014-2020, more than 520 million euros were absorbed through Erasmus+, in almost 5,000 ongoing projects. However, the number of beneficiaries is actually four times higher, with around 80,000 organizations involved in funded projects all over Europe.

However, these are only a few milestones, because the objectives of the new exercise of the Erasmus+ program are much more ambitious: for the period 2021-2027, the European Commission expects the number of beneficiaries to exceed 10 million European citizens. And to achieve these targets, the budget allocated to the program was increased by 80% compared to the 2014-2020 period, reaching 28 billion euros.

CHANGES ARE BEGINNING TO BE ASSIMILATED

In Romania, interest in the Erasmus+ program is constantly maintained at high levels, well above the European average. According to the monitoring data of the European Commission, our country has the highest ratio between the number of submitted applications and the number of financed projects (3 to 1) among all the EU states participating in the program.

Erasmus+ also comes with a series of substantive changes for the period 2021-2027, aimed at streamlining the implementation of projects and simplifying bureaucratic procedures. The program also aims to boost the development of strategic approaches among organizations with a view to digital transformation, inclusion people with limited opportunities, as well as the integration of the "green" principles of sustainability.

Thus, one of the most important changes introduced by the new version of the Erasmus+ program is the extension to the other fields of education of the Erasmus Charter model, used in higher education as a method of accreditation for universities. "The introduction of accreditation as a practice model taken from higher education and for mobility projects in the sectors of school education, adult education, VET, youth and the European Solidarity Corps (ESC) represents the most substantial improvement brought by the new edition of the Erasmus+ program. And this because it changes, in the medium and long term, the paradigm of institutional development through projects, taking it to a strategic level. For now, we are halfway through the first year of implementation of the projects carried out by the first organizations that obtained accreditation, and it is premature to discuss the impact. But one thing is certain: accredited organizations have understood how easy it is to access funding in this system, because they no longer have to write new projects and go through a selection process every year, with an uncertain result", emphasizes Monica Calotă.[iii]

LOCAL ORGANIZATIONS ADAPT QUICKLY TO THE NEW

There are other changes proposed within Erasmus+ for the period 2021-2027 being assimilated by organizations:

• Reduction of bureaucratic effort through simpler ways of reporting and through the digitization of work processes.

• The new financing method for cooperation projects by granting the budget in the form of a lump sum. "It is also a quality transformation, because at the time of reporting the focus shifts from presenting supporting financial documents and bureaucracy, to demonstrating - using indicators and evidence of target achievement - that the project has met all its assumed objectives. Of course, it will be difficult at the beginning, but it's a learning process, which will lead to institutional evolution", states the director of the Agency.[iv]

• Introduction of short-term mobilities. "Short-term mobilities, especially those «Blended Intensive Programmes», were a real success in 2021 and, if we go by the demand received in 2022 from universities, they will continue to be."

• Expanding the level of inclusion of people with limited opportunities. "At least for Romania, supporting inclusion and diversity is not necessarily new, since we have had our own national inclusion strategy since 2016, with good results in this regard. However, we are glad that in the new program there is additional financial support for the inclusion of people with limited opportunities."

• Encouraging the development of "green" components. "The promotion of sustainable development has been introduced as a horizontal priority of the European Commission for the selection of projects and we are satisfied with the increasing number of projects that address it".

RECOVERY OF THE LAST TWO YEARS

The last two years were marked by the recovery of the growth rate of the number of participants in the Erasmus mobility projects, by the rapid and successful assimilation of the novelties introduced in the new version of the program, but also by organizational changes at the agency level. The Erasmus program has been a collateral casualty of the prolonged health crisis we have been through, and this has been amply demonstrated in the last two years.

Since 1998, when the first 1,250 Romanian students entered mobility programs financed through Socrates, and until 2019 we have registered a constant increase in the number of participants in the program. In the year before the outbreak of the pandemic, we reached 8,000 students annually and planned, in the context of the anticipated increase in the budget at the end of the programming period, to reach 10,000 in 2020-2021.[v] Unfortunately, in 2019-2020 we dropped to 6,300 students, and in 2020-2021 we reached 5,034.

Of course, from an optimistic perspective, we can say that it is a remarkable result that we had so many students even at the peak of the pandemic, which clearly demonstrates the interest and popularity that Erasmus+ enjoys in Romania.

Last year we started to slowly return to growth – in 2021-2022 we had 6,467 students participating in mobility programs – and this year the evolution has been accelerated. We still do not have definitive data, but we estimate for 2022-2023 that 16,000 students and teaching staff participate in mobility, of which 5,000 are teachers.

On the one hand, the negative effects of the pandemic have disappeared and we have registered a strong demand for funding from Romanian universities participating in the Erasmus+ Program. On the other hand, the large number of enrolled students - over 11,000 - is also due to the fact that this year the international mobility component (to and from countries outside the EU or countries associated with the program - n.r.) was also added, which existed. until 2020, but not in 2021 - because the negotiation of external financing instruments, a process that takes place at each start of the programming period, took longer. Last but not least, the new tools included in version 2.0 of the Erasmus+ program had a consistent contribution to increasing the volume of mobilities.

In 2021, the budget was significantly lower than in 2020 because, due to the health crisis, the program was launched later. The deadlines for mobility moved from February to May, and the allocation was only 78.8 million euros. In 2022 we jumped to 92 million euros, and for next year a not very large increase is foreseen, up to 95 million. The moderate evolution will also be maintained in 2024, when the threshold of 100 million euros can be reached. The significant increase is scheduled, as in the previous version of the program, for the last programming years, namely 2025, 2026 and 2027.

Table 1

The budget allocated to Romania at the European level for the Erasmus+ Program

1995-2027	Budget allocated at European level
SOCRATES I	933 mil. ECU
SOCRATES II	1850 mil. Euro
Life Long Learning Programme	6970 mil. Euro
Erasmus+ ’14-‘20	14774 mil. Euro
Erasmus+ ’21-‘27	28200 mil. Euro

Source: Marketwatch, Nr. 250, December, 2022, http://www.marketwatch.ro/articol/17979/Erasmus_isi_reia_dinamica_ascendenta_in_Romania/, accessed on 23 April 2023

NEW TOOLS THAT SUPPORTED THE GROWTH OF THE MOBILITY PROGRAM

The main innovation in the field of higher education is represented by the possibility of "Blended Intensive Programs" (BIP) mobility and short-term mobility. The BIP represents a re-evaluation of the so-called intensive programmes, which were run before the Erasmus program through the Lifelong Learning Programme. The content, the transversal approach and the form of organization have been preserved, but a component of virtual activities has been added, which are dedicated to the preparation of the program, the subsequent follow-up stage, etc.

In turn, short-term mobilities were introduced because at the level of the EU member states - and in Romania - there has been a constant decrease in student interest in mobilities for several years, for various reasons.

In Romania, we believe that one of the main causes is the fact that students start working in their first years. Next in the ranking of demotivation is fear: of going abroad because you don't feel safe, increased fear of a pandemic or studying in a foreign language because you don't think you will do well in exams, etc.

Short-term mobilities have been specifically designed to help overcome these fears, giving students the opportunity to go, for example, just for a week to the universities they are interested in studying at. Or to do training or an internship for a short period, to see how they adapt to the new conditions, to convince themselves that nothing bad happens to them, that they can manage... This variant of mobility, reduced in time, is practical it works as a "teaser" and already shows results.

Motivating students who are already working becomes more and more difficult, because in 25 years generations have changed and the horizon of interest of young people has changed a lot, especially those in the last years of high school and students.

A concrete example: in '98-'99, when the first generation of Romanian students went to mobility programs, the 1,250 participants benefited from a scholarship of 200 ECU. The opportunity to study abroad, to make contact with the "outside world", but also the value of the scholarship itself, made the competition in the universities extremely high, and the candidate selection process was extremely difficult and strict, burden for years.

Currently, in version 2.0 of the Erasmus+ program, not only the budget allocated to universities has increased, but also the grants awarded to students. Thus, a student with limited opportunities, if he goes for example in a placement mobility, can reach a scholarship value of up to 1,000 euros. And yet, although the number of mobilities has increased, one cannot say that students show the same interest as at the beginning of the program in Romania. And that's because opportunities for study, personal and spiritual development are no longer in the Top 3 priorities of their lives.

Box 1

26 years of Erasmus+ in Romania

1,110 billion Euro The (decentralized) projects coordinated by Romanian bodies - 6,500 projects in the school field - 1,700 projects in the university field - 3,200 VET projects - 1,300 projects in adult education - 4,600 youth projects - 14,600 projects carried out in Europe with Romanian partners
- 110,000 students

- - 62,000 pupils and apprentices in VET
- 87,000 young people participating in exchanges and volunteering in the field of youth
- 50,000 mobility of university staff
- 26,000 mobility of teachers and auxiliary teaching staff in the pre-university field
- 3,300 adult education trainers
- 14,000 staff from VET schools
- 20,000 youth workers
- 180,000 people involved in partnership cooperation projects

According to EC monitoring data, before the pandemic, Romania had the highest ratio between the number of applications submitted and the number of funded projects among all EU states participating in the program, of 3 to 1.

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[i] *Mobility and internationalisation (europa.eu), accessed 23 April 2023*

[ii] *Ghiţulescu Radu, „25 years of Erasmus+ in Romania: transformation through continuous learning", MarketWatch, nr. 244, May, 2022. http://www.marketwatch.ro/articol/17712/25_de_ani_de_Erasmus_in_Romania_ transformarea_prin_invatare_continua/, accessed on 24 April 2023*

[iii] *Calotă Monica, „Opportunities and challenges in the new Erasmus+ Programme", MarketWatch, nr. 234, May, 2021. http://www.marketwatch.ro/articol/17326/Oportunitati_ si_provocari_in_noul_Program_Erasmus/, accessed on 24 April 2023*

[iv] *Ghiţulescu Radu, loc. cit.*

[v] *Monica Calotă, Marketwatch, Nr. 250, December, 2022, http://www.marketwatch.ro/articol/17979/Erasmus_isi_reia_dinamica_ascendenta_in_Romania/, accessed on 23 April 2023*