UNDERSTANDING STUDENTS' ONLINE LEARNING BEHAVIOR USING UTAUT MODEL – THE CASE OF NORTH MACEDONIA

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ABSTRACT
For most of the universities worldwide, online learning was one of the efforts to minimize the spread of Covid-19. However, today, almost two years after this dramatic experience in all aspects of living, working and learning/studying, as the global trend in online learning remains upward. Although some higher education institutions worldwide were shifting in the direction of online content delivery and online learning and before Covid-19, the pandemic both accelerated and forced a more universal move in this direction especially in developing countries. In the country, the online learning was implemented without planned prior preparation. Our educational system faced a state of emergency caused by the pandemic. As such, the experience and lessons learned from this forced adoption of online learning in the country is exceptionally valuable as basis for further improvement and leveraging the potential of online learning. The goal of this paper is to investigate the determinants of students' behavior in relation to the use of online learning in higher education in the country, on the sample of the Faculty of Economics, Ss. Cyril and Methodius University in Skopje. The basis for the research model in this study is the original Unified Theory of Acceptance and Use of Technology - UTAUT model. This fundamental model examines the crucial predictors/factors of technology adoption like: performance expectancy, effort expectancy, social influence, facilitating conditions, behavioral intention and usage behavior (acceptance). For the purpose of this research, the basic UTAUT model is extended by additional construct - perceived enjoyment recognized as important factor regarding young population technology adoption. Data were collected from more than 120 undergraduates during April and May 2022, while online learning was still undergoing. This research provides relevant theoretical and practical implications by elaborating that the analyzed factors are critical in students' behavior in relation to the use of online learning in our country context.

Key words: Online Learning, UTAUT, University Students, North Macedonia

JEL classification: D83, O33, I2

1. INTRODUCTION
The Covid-19 pandemic has caused widespread disruption, affecting virtually every aspect of human life. The temporary closure of educational institutions worldwide in that period, is a

telling example of the disruption caused by Covid-19. Students' educational continuity was moved online, ushering in a new era of online education. Lectures and all other learning activities have been carried out remotely. The Covid-19 crises did nothing more than speed up the inevitable. The widespread acceptance of the WHO's social distancing policy, which was proposed as a strategy to combat the spread of Covid-19, has caused universities to close their doors, disrupting traditional teaching and learning methods in order to achieve their goals. UNESCO (2020) reported that 91 % of students worldwide suffered because of the closure of educational institutions. Some universities engaged in digital transformation experienced a smooth transformation process, while others experienced a crisis-response migration process as a result of the pandemic.

In order to support the importance of e-learning and its growth, especially in the last 2-3 years we will mention some statistics. The worldwide e-learning market is projected to be worth $325 Billion in 2025 (Chernev, 2021). Stats from Skill Scouter show that the USA and Europe make up most of the global e-learning industry. Statistics show that the USA and Europe collectively account for 70 % of the world's e-learning market; a trend that shows that most e-learning activity is heavily focused in the US and Europe (Keegan, 2021). Since 2020, 98% of universities moved classes online, compared to 19.5% of undergraduates that took at least one online course before the pandemic in USA (Think impact, 2022). 20% of American online college students use solely their phones or tablets to complete all their course-related activities, 39% of American undergraduate students consider online college-level education to be superior to classroom learning and 52% of American graduate students considered online college-level education to be better than classroom learning (statista.com). Important fact is that e-learning courses produce 86% fewer greenhouse gases. This statistic reveals the impact that e-learning has on our environment, given that it can be done remotely and that there is no need for students to commute and the reduced travel also reduces the carbon emissions from transportations (Keegan, 2021).

In 2021, 39% of young people reported doing an online course and 49% used online learning material, compared with 23% and 27% among adults aged 25 to 34, and 20% and 23% among adults aged 35 to 44 (Eurostat, 2022). Approximately 18 % of individuals in the European Union did an online course of any subject in 2021. During this year, the Netherlands had the highest share of people doing an online course, at 41%, and Romania has the lowest number of 5% (Statista, 2022).

A distance learning strategy based on online systems is being developed and gradually implemented for decades. The advantages of e-learning include more flexible learning possibilities that are not time-or space-constrained, broader access to education, richer learning resources, improved learning processes, and improved learning experiences. Lessons learned during this period will almost certainly result in more online services, a better understanding of their impact on the student experience, and a greater need to diversify services to meet the needs of a wider range of student demographics. The transition to virtual learning and student services may result in increased engagement of all stakeholders. Educators are the driving force behind the widespread adoption of online learning, but students, on the other hand, should be asked to express their satisfaction with the online learning process.

This research focuses on the factors that influence the adoption of this technology as a new method of teaching/learning using UTAUT (Unified Theory of Acceptance and Use of Technology). The structure of the paper is as follows. Section 2 provides a short overview of the relevant literature concerning online learning concept and terminology. Section 3 elaborates the model specification with detailed constructs description, hypothesis development and data

collection. The detailed data analysis and discussion of the results are presented in Section 4. The final remarks and conclusions, as well as limitations of the research are presented in Section 5.

2. LITERATURE REVIEW

Several issues must be addressed in order to implement a technology-based new normal education. Siemens et al. (2015) define distance learning as "teaching and planned learning where the teaching occurs in a different place from learning, requiring communication through technologies and special institutional organization." Distance learning refers to the use of ICT is the broadest term. According to Bersin (2017), all serious learning organizations should provide learning solutions through simulations, collaboration, meeting new people, and learning from experts. Technology learning is referred to by the terms electronic learning (e-learning), mobile learning (m-learning), and digital learning (d-learning). E-learning can be utilized in place of or in addition to conventional education. On the other hand, mobile learning is a complement to both conventional and electronic learning. Even when students are not in their typical study setting, mobile learning enables them to interact with their educational materials. Tech-enhanced courses (TEC), minimum face-to-face courses (MNF2F), fully online courses (ONLINE), and hybrid or blended courses are the four basic categories under which online learning is divided. Classes that use technology, such as learning management systems (LMS), to support both teaching and learning are referred to as TEC classes. A syllabus and certain content are typically made available online so that students have constant access to them. MNF2F classes are virtually entirely conducted online, with little to no face-to-face interaction. The sporadic few things that do happen are introductions, reviewing work, and exams. ONLINE classes are entirely online. When it comes to student-professor contact, they are known to frequently use synchronous and asynchronous tools that are given through an LMS. A class is referred to as HYBR if at least 30% of the required in-person meetings are replaced by online course activities. A hybrid course is typically what happens when some classroom time is augmented by technologies used for teaching and communication outside of the classroom, reducing the amount of time spent in a classroom. Known also as hybrid learning or mixed technique, blended learning incorporates both in-person instruction in a classroom setting and online use (Singh et al., 2021). In order to deliver online education in a blended learning academic environment, many higher education institutions in the world have begun to construct web-based learning environments. The consensus among researchers is that hybrid learning educational institutions can adopt a more learner-centered method of teaching in which students are given the freedom and flexibility to engage in productive learning activities. In order to apply blended learning, a web-based application or learning management system (LMS) is frequently used, often using a specific course in an asynchronous mode. Compared with other forms of online learning hybrid, blended learning provides students with more fruitful channels of getting connected with their peers and instructors (Park and Shea, 2020). Blended learning is the most probable type of learning in the aftermath of the health crises provoked by the Corona virus.

A recent study of Adedoyin and Soykan (2020), points out several concrete challenges caused by the abrupt digital transformation of instructional operations during the period of the Covid-19 pandemic. Key challenges are related to technological infrastructure and digital competences, socio-economic factors (educational inequality), assessment and supervision, heavy workload, and compatibility. Universities' crisis-response migration methods can be divided into two categories: external-aided migration and external-integrated migration (Adedoyin and Soykan, 2020). External-assisted migration is a situation in which colleges use Web 2.0 platforms developed by third-party corporations or organizations. As part of the external-assisted migration,

some of these institutions provided data on students and faculty members for easy migration and implementation of various Web 2.0 platforms. External-Integrated Migration, on the other hand, refers to the integration of Web 2.0 platforms created by external corporate bodies or organizations into universities' own personal online learning platforms (ex. Google Classroom) (Ulanday et al., 2021). It's also worth noting that both External-Assisted Migration and External-Integrated Migration support video conferencing for instructional delivery and evaluation via video conferencing, assignment submission, forum discussion, and assessment, among other things.

Online education offers advantages and drawbacks. The obstacles will mostly be reduced by using technological advancements and improving the learners' overall experience in the decades to come. Benefits can be perceived from both the universities' and the students' perspectives. Due to their many benefits, which include new markets, financial gains, international collaborations, expansion in education, decreased time to market, and faculty education, most colleges have started to significantly engage in online instruction. Universities' (and other educational institutions') push to offer online courses fuels demand for them. Techers and students can interact both asynchronously and synchronously, which has proven to be extremely beneficial when online courses are offered. Furthermore, online learning is a useful strategy for removing barriers that prevent students from approaching their professors with questions. Students who find it difficult to speak in front of others may want to participate more in online discussions. Still, some findings show that students preferred the traditional mode over the online mode, which provides a potential for disruptive innovation by taking into account a live audience in university online courses (Yee et al., 2022). Students benefit from teachers being more accessible in online learning because, unlike in classroom learning, they can submit questions at any time and instructors can respond at any time without being confined to a desk or office, which is especially useful if a student's schedule conflicts with office hours and a question arise at the last minute. Despite the benefits mentioned above, online learning presents challenges to stakeholders. Students' achievement, experience, access to resources, and interactions are frequently influenced by their geographical distance from the college community (Al-Mawee et al., 2021; Barrot et al., 2021). The location of students and the college community can frequently have an impact on students' academic performance, life experiences, access to resources, and social connections. Because they don't interact with the professor, other students, and group members, students who take online courses may have less opportunities to improve socially and academically. Online connections lack nonverbal clues, which are crucial components of face-to-face communication. This may reduce the amount of asynchronous dialogue that occurs with noticeable delays in response. The assessment of student learning, which includes how instructors evaluate students' progress and distribute graded tasks throughout the course, is another issue that demands specific consideration. Online learning may therefore demotivate students who are unfamiliar with the assessment procedure. Other, more complex barriers exist, such as those related to computer access, broadband, and user skills.

The correlations between the participants' self-regulated learning capacity, online interactions, attitudes, and intention to learn online were also examined by the researchers, as well as changes in the participants' attitudes about online learning. It was discovered that (a) the participants' attitudes toward online learning were generally positive and improved after completing the course, and (b) four self-regulatory factors and attitudes, through perceived online social interactions, significantly predicted the participants' continued intention to learn online (Zhu et al., 2020).

3. RESEARCH BACKGROUND

3.1. Research model and hypothesis development

The phenomenon of acceptance of new technologies is relatively widely elaborated especially in the last two decades. In the literature, there are number of theories, frameworks and models that are in broad use to provide an understanding of the determinants of users' acceptance of a new technology. The Unified Theory of Acceptance and Use of Technology – UTAUT (Venkatesh et al., 2003) is a technology acceptance model and one of the most influential approaches used to explain and predict user acceptance of information systems.

The UTAUT model integrates determinants/constructs examined across eight models that earlier research had used to explain information systems usage behavior like: Theory of Reasoned Action, Technology Acceptance Model, Motivational Model, Theory of Planned Behavior, A Combined Theory of Planned Behavior and Technology Acceptance Model, Model of Personal Computer Use, Diffusion of Innovations Theory and Social Cognitive Theory. Formed in order to integrate these different theories and models, it represents an integrated theory of technology acceptance and therefore called unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003).

The goal of UTAUT is "to explain user intentions to use an information system and subsequent usage behavior" (Venkatesh et al., 2003). This theory defines four key constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions. In the model performance expectancy, effort expectancy, and social influence are directly assoiated with behavioural intentions while facilitating conditions are associated with actual usage. Gender, age, experience, and voluntariness of use are assumed to moderate the impact of the four key constructs on usage intention and behavior. The basic UTAUT model is presented in Figure 1.

Figure 1: The original UTAUT model, (Venkatesh et al., 2003)
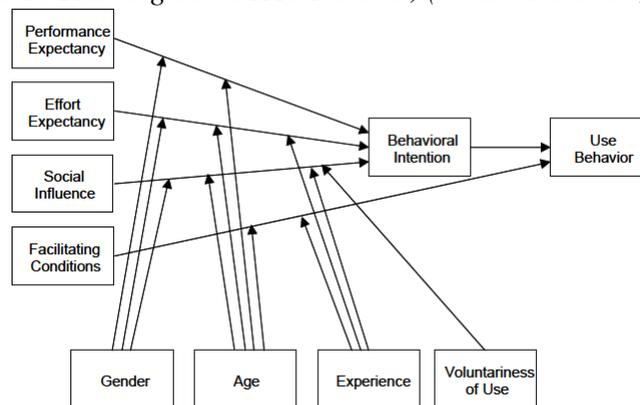
(Source: Venkatesh, V., Morris, M.G., Davis, G.B. and Davis, F.D. (2003), "User Acceptance of Information Technology: Towards a Unified View". MIS Quarterly, 27, 425-478)

In the context of online learning, UTAUT and its extended versions have been extensively used as theoretical frameworks in different studies to explain user acceptance of online learning (Chao, 2019; Chen and Hwang, 2019; Persada et al., 2019; Aliano et.al., 2019; Alyoussef, 2021; Ahmed et al., 2022; Batucan et al, 2022; and others).

The research model developed in this study aiming to understand students' online learning behavior is based on UTAUT (Venkatesh et al., 2003) extended by the construct perceived enjoyment. Venkatesh et al. (2003) consider performance expectancy as "the degree to which an individual

believes that using the system will help him or her to attain gains in job performance" and in the context of online learning it is the users' perception when using an online learning system to enhance their performance. Effort expectancy refers to "the degree of ease associated with the use of the system". Similarly in the context to online learning system this construct signifies the comfort of using online learning system among the students in the educational institutions while learning online. The construct social influence refers to "the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh et al., 2003). In the context of online learning, the social influence represents the acumen of the significance, which others associate with the user for using the online learning system. According to Venkatesh et al., (2003), facilitating conditions refer to "the degree to which an individual believes that an organisational and technical infrastructure exists to support the use of the system". In this sense, the online learning facilitating conditions are perceived as the accessibility of well-functioning technical inevitabilities to permit the users' handling of the system.

Perceived enjoyment is recognized as significant determinant of technology acceptance (Davis et al., 1992). It represents an essential motivation that indicates how much fun information technology, or an information system, can bring to the one, especially for young consumers (tech adopters). It means the extent that, in addition to any performance effect caused by system use, the activity of utilizing a particular system is evaluated as pleasurable by itself or as "the extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use" (Persada et al., 2019).

In the literature, perceived enjoyment is confirmed as a key external factor that significantly influences individuals' perceived usefulness, perceived ease of use, and usage intentions toward an information system as basic TAM model constructs (Batucan et al, 2022). Therefore, the challenge of this research is to test the importance and influence of this construct in the context of UTAUT. By including this factor in the model, this study will contribute to fulfilling the literature gap and giving answers whether it (perceived enjoyment) is as a key external factor that significantly influences individuals' performance expectancy, effort expectancy and behavioral (usage) intentions toward an information system as basic UTAUT model constructs that correspond to TAMs basic constructs (individuals' perceived usefulness, perceived ease of use, and usage intentions toward an information system).

The perceived enjoyment is usually used as an external TAM element (Law and Fong, 2020). However, few studies have examined whether perceived enjoyment is an influential external factor in the UTAUT model. With this research we contribute to fulfill this gap. In the UTAUT model, performance expectancy and effort expectancy are the two most relevant predictors derived from the original TAM model constructs - perceived usefulness and perceived ease of use (Cimperman et al., 2016). Davis et al. (1992) found that usefulness and enjoyment are significant determinants of behavioral intention and Venkatesh (2000) found that perceived usefulness is influenced by enjoyment via ease of use. Perceived enjoyment regarding use of online learning has significantly positive effects on performance expectancy and effort expectancy (Law and Fong, 2020; Persada et al., 2019). In the literature, it is also confirmed the significant and positive impact of perceived enjoyment with a behavioral intention, i.e. in the research of Chen and Hwang (2019), the perceived enjoyment is a vital construct, which positively impacts the perceived usefulness, perceived ease of use and behavioral intention as well. In this research, the perceived enjoyment is being used as an external construct of the UTAUT model to investigate the behavioral intention of online learning systems.

Based on the discussion above, in this empirical study, the proposed research model which is based on UTAUT as basic theoretical model is adjusted/extended with perceived enjoyment in

order to understand students' online learning behavior. The theoretical framework used in this research is a combination of the existing information available in the literature on online learning behavior and new insights regarding the emergent use of online learning systems as response to the Covid-19 pandemic restrictions. In this study, we contribute literature by testing the basic UTAUT constructs extending the research on the positive and negative effects of perceived enjoyment on online learning with three hypothetical relationships on performance expectancy, effort expectancy and impacts behavioral intention in developing country context. The expanded UTAUT model is presented in Figure 2. The model derives eight hypotheses (five from the basic model, and an additional three from the extended model with the construct of perceived enjoyment).

3.2. Data

For the analysis in this study, authors designed the research in two segments: the first step was to create a structured questionnaire entailing the extended UTAUT model, in order to create reliable constructs that can be used in the second segment, the regression analysis.

This study employs a quantitative research design and questionnaire was distributed by using electronic survey or e-survey via Google Form. A questionnaire was developed to be the instrument for data collection, adopted from basic UTAUT and extended by additional construct. The population of interest in this research are university students engaged in online learning (mostly students aged 18-25). Facing the pandemic restrictions and lock-downs, the data was collected by distributing online questionnaire on Google platform (April and May 2022).

All basic UTAUT factors were measured by the original items developed by the authors of the UTAUT model (Venkatesh et al., 2003). Regarding the new construct in the model in this research – perceived enjoyment, it is measured by five items, developed based on the well-established studies that have applied UTAUT to online learning and measured the impact of this construct on technology adoption and user behavior (Teo et al., 2011; Chen and Hwang, 2019; Persada et al., 2019; Alyoussef, 2021; Ahmed et al., 2022). Five-point Likert scale was included with level of agreement from 1-Strongly disagree, 2- Disagree, 3-Neither agree nor disagree, 4-Agree, and 5-Strongly agree.

4. DATA ANALYSIS AND RESULTS

This research uses data collected from 124 undergraduate students attending online learning, for the period April – May 2022, when the online teaching process was active at the Faculty of Economics in Skopje, Ss. Cyril and Methodius University. Basic demographic statistics provide the following information: respondents were predominantly female (67.5%), most of the respondents did not use online learning before the pandemic (68.1%), standard access for online learning is from home (99.1%), more than half of the respondents reside in the capital Skopje (55.8%), and the most preferred device for online learning is a laptop (80.7%), followed by desktop (8.8%), smartphone (8.8%) and tablet (1.8%).

As mentioned, the basic UTAUT model uses six constructs for analysis of the determinants of the technology adoption: performance expectancy, effort expectancy, social influence, facilitating conditions, behavioral intention and use behavior. In addition to these constructs, one more construct is introduced - perceived enjoyment. Thus, the basic model is extended by one more important factor.

All constructs are tested for their reliability using the most common measure Cronbach's alpha. The reliability analysis should confirm that the questions from the questionnaire consistently

reflect the construct they are supposed to be measuring (Field, 2009). The results from the reliability analysis for all seven constructs are presented in Table 1.

Table 1. Reliability statistics

Construct	Cronbach's Alpha
Performance expectancy	0.931
Effort expectancy	0.844
Social influence	0.854
Facilitating conditions	0.705
Behavioral intention	0.965
Usage behavior	0.866
Perceived enjoyment	0.963

(Source: Authors' calculation)

Calculated coefficients of reliability confirm that all constructs have high reliabilities. Facilitating conditions is a construct with the lowest reliability, with Cronbach's alpha = 0.705, which is acceptable. Kline (1999) says that when dealing with psychological constructs values below 0.7 can be expected due to the diversity of the constructs being measured. With the construct's reliability confirmed, the next step is to examine the hypotheses (relationships) from the UTAUT model. The expanded UTAUT model is presented in Figure 2.

Figure 2. Proposed theoretical/research model (Expanded UTAUT model)
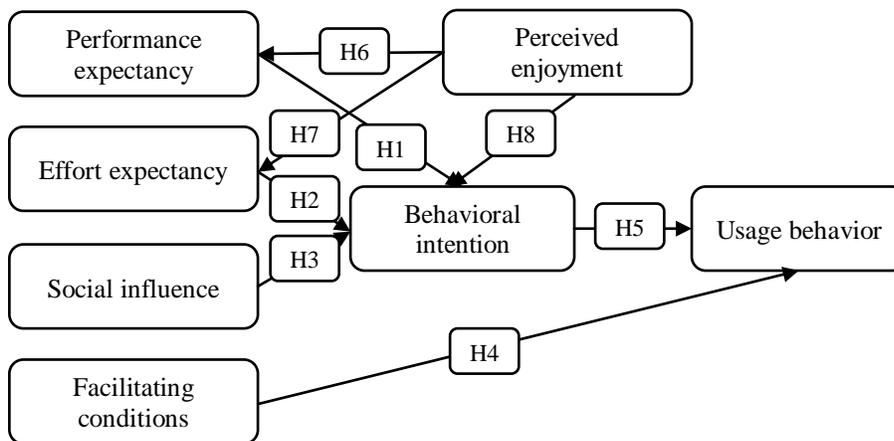
(Source: Authors' presentation)

The model derives the following eight hypotheses (five from the basic model, and an additional three from the expanded model with the construct of perceived enjoyment):
H1: Performance expectancy affects the behavioral intention;
H2: Effort expectancy affects the behavioral intention;
H3: Social influence affects the behavioral intention;
H4: Facilitating condition affects the usage behavior;
H5: Behavioral intention affects the usage behavior;
H6: Perceived enjoyment directly impacts performance expectancy;
H7: Perceived enjoyment directly impacts effort expectancy;
H8: Perceived enjoyment directly impacts behavioral intention.

The results from the estimated linear regressions that test the previous eight hypotheses are presented in Table 2.

Table 2. Estimated coefficients from the simple regression analysis

Hypothesis	Estimated β coefficient	Standard error	t-statistics	R^2	Durbin-Watson
H1: Performance expectancy affects the behavioral intention	0.899	0.070	12.797*	0.594	1.665
H2: Effort expectancy affects the behavioral intention	1.023	0.155	6.607*	0.280	1.716
H3: Social influence affects the behavioral intention	1.001	0.082	12.255*	0.573	1.739
H4: Facilitating condition affects the usage behavior	0.903	0.115	7.821*	0.353	1.863
H5: Behavioral intention affects the usage behavior	0.622	0.044	14.156*	0.644	2.205
H6: Perceived enjoyment directly impacts performance expectancy	0.678	0.058	11.750*	0.552	1.729
H7: Perceived enjoyment directly impacts effort expectancy	0.225	0.048	4.738*	0.167	1.869
H8: Perceived enjoyment directly impacts behavioral intention	0.818	0.065	12.616*	0.589	1.832

*Coefficient is significant at 0.01 level

(Source: Authors' calculation)

The presented results support the hypotheses from the extended UTAUT model. Performance expectancy has a positive and statistically significant effect on the behavioral intention(H1). Students expect online learning to improve their performance and productivity and to achieve their learning goals which lead to their intentions to further use online learning in future, and to recommend it to their colleagues.

Effort expectancy also positively affects the behavioral intention (H2). Easy use of online learning platforms leads to student intentions to use and recommend online learning in the future. When people close to the respondents, whose opinions they value, encourage online learning, respondents are more likely to continue and recommend online learning in the future. This is statistically confirmed in the regression model testing the third hypothesis (H3).

Facilitating condition is an important factor that determines the use behavior of a respondent (H4). Having the necessary resources and knowledge for online learning, especially via university campus, provides the respondent with the confidence that they are regular online users with tendencies towards online learning whenever possible.

Behavioral intention has a positive and statistically significant effect on usage behavior (H5). Accepting and integrating online learning and planning to use it in future learning activities contributes to the perception of a regular user of online learning platforms with preferences for online learning.

Perceived enjoyment, as a newly added construct to the UTAUT model, has a positive and statistically significant impact on performance expectancy, effort expectancy and behavioral

intention. When the online learning process is experienced as pleasant, enjoyable, fun, and entertaining it leads to increased performance expectancy (H6), meaning the online process is perceived as useful and can improve both students' performance and productivity.

Interesting online learning has a statistically significant and positive impact on effort expectancy (H7). When the process is perceived as enjoyable and fun it is also experienced as easy to use and operate, with clear and understandable interaction.

Perceived enjoyment positively influences behavioral intention (H8). The entertaining and fun perception of online learning contributes to the intention to further use online learning in future educational activities.

5. CONCLUSION

During the pandemic, the higher education in the country faced the challenge of online learning as emergent response strategy to the Covid-19 restrictions in order to provide continuity of higher education process. This study is among the first of its kind in providing empirical evidence regarding the effects of UTAUT based constructs and perceived enjoyment on online learning behavior of university students in the country. Perceived enjoyment as relevant predictor should be important incentive for the content creators of online courses. Perceived enjoyment depends on the instructor's skills as well as on the design, clarity and many aspects of the well-prepared lecture/course. The industry of content creation for online learning is booming, but courses on Macedonian language are scares, and although the market for such courses is limited, all stakeholders including the state should be aware and helping in the support of online learning by all means. This research employed an extended UTAUT model to examine the online learning behavior of the higher education students in North Macedonia. Since the use of online learning in the country occurred during Covid-19 pandemic as emergent case in order to keep the educational process ongoing, some disadvantages of the use of UTAUT model can be discussed for instance, this model did not take into consideration the fear, anxiety (not regarding technology which is generally lower in the case of younger users in the country, but regarding the pandemic overall pressure), self-efficacy, motivation, trust etc., which are the natural elements of intention, and attitude concerning employing technology.

This research provides relevant theoretical and practical implications. From a theoretical point of view, our study contributes to enrich the literature on the online learning system adoption among university students in developing country context, confirming the importance of defined determinants and their relationships. As well, the results of the research has confirmed that perceived enjoyment is as a key external factor that significantly influences individuals' performance expectancy, effort expectancy and behavioral (usage) intentions toward an information system as basic UTAUT model constructs and hence enrich current literature with its findings. The results of this study will serve as a solid base and after pandemic, in order to explore this phenomenon and give insights whether online learning can be used in order to improve the quality of higher education. There is no doubt, that Covid-19 pandemic has forced higher education institutions to use and rely on online learning systems/platforms more than before. Although some higher educations institutions have adopted online learning before pandemics, this was not a case for most universities in developing countries. For example, North Macedonia faced this challenge in this extent and time duration for the first time and hence lessons learned from this experience are valuable for all: students, teachers, higher education institutions authorities and higher education policy makers. The practical implications of this research provide relevant insights into this experience by revealing the characteristics affecting the behavior of university students to use online learning. The digital transformation in higher

education is complex but inevitable. Still, the challenges especially for developing countries are high. The results of this study are adding practical value to this challenge. Regarding the results, the authors underline the limitation of generalization of the results of this research since it uses a smaller sample. In future studies, it would be advisable to try to improve the representativeness of the sample and achieve generalization of the results from a larger sample nationwide. For future studies, when achieving larger samples, it is possible to analyze the moderating effect of demographic factors. Variables related to gender, age, social status, prior experience or user involvement with online learning systems, cultural differences of the respondents could be some of the options. The essence and nature of consumers' behavior is dynamic and complex phenomenon, and therefore further research can be focused on longitudinal studies to compare changes in consumers' behaviors and explain different predictors.

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