Online Teaching Methods and Student Satisfaction during a Pandemic

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Abstract—With the outbreak of the global pandemic of COVID-19, online education characterizes today's higher education. For some higher education institutions (HEIs), the shift from classroom education to online solutions was swift and smooth, and students are continuously asked about their experience regarding online education. Therefore, there is a growing emphasis on student satisfaction with online education, a field that had emerged previously, but has become the center of higher education and research interest today. The aim of the current paper is to give a brief overview of the tools used in the online education of marketing-related classes at the examined university and to investigate student satisfaction with the applied teaching methodologies with the tool of a questionnaire. Results show that students are most satisfied with their teachers' competences and preparedness, while they are least satisfied with online class quality, where it seems that further steps are needed to be taken.

Keywords—Online teaching, pandemic, satisfaction, students.

I. INTRODUCTION

HEIs have long been aiming to reach student satisfaction. It is considered hard for universities to satisfy student needs, as there is a continuously growing trend that university students expect high service quality from their chosen institutions [1].

With the global COVID-19 pandemic, it has become urgent for HEIs to move their classes online. This shift in practices has provided educators with the possibility to try new teaching methodologies online [2]. New educational methods might be able to enhance creativity of both students and teachers, boost motivation towards engaging in classes, and result in better learning outcomes. Teaching methodologies, such as co-creation and gamification, can be applied in the online classroom as well, and they might be reaching similar or even better results than their application offline [3].

Students' satisfaction with service quality provided by their universities is a key factor in the success of HEIs [1]. Many different factors are responsible for influencing student satisfaction, such as tangibles, student services, teaching quality and fulfilled expectations [4]. Nevertheless, enjoyable and inclusive online classes filled with new and interesting teaching methods might also result in higher student satisfaction. Satisfied students are key to student retention and loyalty, which might also influence the word-of-mouth recommendations of the HEI of students [1], [4]. Therefore, the aim of the current exploratory research paper is to reveal

how teaching methodologies used online might influence student satisfaction. After the introduction, the second chapter entails teaching methods applied online, such as co-creation and gamification, while the third chapter discusses student satisfaction. The theoretical chapters are followed by a primary research and its results, conducted at the University of Szeged, Faculty of Economics and Business Administration during the global COVID-19 pandemic.

II. ONLINE TEACHING METHODS

A. Importance of Innovative Methodologies

As student satisfaction has long been in the center of research interest of scholars, different key factors have been determined as antecedents of student satisfaction [5]. These factors include higher education teaching quality as a crucial aspect influencing students' perceived quality and satisfaction. Additionally, teaching quality includes more in-depth aspects, one of which is teaching methodologies. Therefore, the importance of these new and innovative teaching methodologies is unquestionable, especially during a global pandemic, where teachers and students both needed to convert their classes online to convey and acquire the knowledge online. Naturally, online education and massive online open courses are not newfound. However, online education was not commonly applied in undergraduate full-time education before [2], [3].

Well-chosen teaching methods can be influencing factors regarding younger generations' satisfaction. As the younger generations are born and raised in a technologically advanced environment, their educational surroundings should also be tailored accordingly. These younger students are more willing to take risks, to take control and share information and collaborate with their peers easier than previous generations. It is also important for them to receive an education that prepares them for future problems and workplaces that might not exist at the moment of their studies. Therefore, skills such as problem solving have a heightened importance [6].

There are a number of methodologies that are used in education and specifically higher education in order to motivate and grasp the interest of the young generations. This paper intends to examine some of these methods applied online, with special focus on one specific institution and its foreign students.

B. Co-creation

Even though the notion of co-creation first surfaced in the field of business [7], it is an emerging education methodological field in higher education. Initially companies

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have recognized the value behind involving their customers in the decision-making and value-creation process [5]. Co-creation is proved to enhance the relationship between the customers and the company, thereby strengthening customer experience [7].

Co-creation can be defined as customers' active participation in the value creation process together with the company [8], or as customers being active agents at concept development at the early stages of the value creation process [9]. While according to others co-creation is the generation of shared meaning [6], or a collective learning process [10].

There are numerous fields on which co-creation has appeared including for example product innovation [11] and design thinking [12]. Higher education is one of the fields on which co-creation appeared recently [6], [13].

Even though there are some outdated classrooms and methodologies that are present in education [10], there has been a growing need for innovative methodologies, and co-creation has proven to be an applicable one. The aim with co-creation is to involve both students and educators in the value-creation process, to motivate both parties and to enhance the whole study experience [13]. This new method can help prepare students for their future employment by not teaching them facts, but skills [6].

Specifically, in higher education, co-creation is widely applied and is defined as *'the process of creative (original and valuable) generation of shared meaning'* [6]. It is often applied together with other methods, such as problem-based learning or art-based methods [6]. When applied in higher education, co-creation has certain criteria to prove successful. These include respect for students, students being active and open during classes [14]. If these criteria are met, the co-creation process is fruitful and would enhance both student experience and students' cooperative abilities [13].

Different co-creation methods appeared in education, as different aspects of higher education could be co-created by students and educators. According to one categorization, shared meaning, user experience, shared value, technological solutions and ideas can be co-created [15]. While according to others, co-creation can appear when designing teaching approaches, course design, and curricula [16].

Regardless of which co-creation category we take a look at, either way it includes both teachers and students. Therefore, in the current paper, co-creation is defined as students and teachers creating added value together during the realization of the course.

C. Gamification

Gamification has received increasing research interest in the past years, and some believe that it is the tool to reach and educate younger generations in the future. Different notions of gamification appeared, some stating that gamification uses game mechanics to increase engagement [17] or using game design outside the gaming industry [18]. The most widely used definition declares that gamification is "the use of game design elements and game mechanics in non-game contexts" [19]. The current paper uses the latter definition of gamification.

With gamification's appearance in education, a differentiation between gamification and serious games is needed. As gamification was detailed previously, serious games need to be defined. Serious games are tools for applying gamification and include those games that were created for educational purposes [20]. The notion of 'serious games' and 'game-based' learning are often used interchangeably. However, serious games are usually developed for a specific purpose to reach a desired learning outcome [20].

Gamification elements usually include three main factors, such as game mechanics (what feedback is given and when, progression of the game), personal factors (such as visualizations, boards and player status) and emotional factors (such as game flow and psychological state of the player). These elements are incorporated and used together under the framework of gamification [21].

Gamification has been widely applied in educational contexts in the past few years [22]. The particular reason for using gamification in education stems from the fact that new generations have different needs. Being born digitally native, new pedagogical solutions and innovations in teaching methods is required for their successful learning activities, as traditional ways of teaching might not be effective for them [23], [24]. With the application of gamification in the educational context, students can be motivated, and their creativity, critical thinking, collaboration and communication could be enhanced [25].

Main gamification elements in education include clearly set goals, challenges, collectibles (points or badges), user status and a platform for feedback. With these elements students can be motivated and both students and teachers can keep track of their progress in the game [26].

There are several uses of gamification, one of them includes gamification in higher education, where it could be applied during a whole course, or can be implemented as shorter in-class activities [21]. Gamification seems especially crucial in today's pandemic-struck online teaching environment, into which gamification can be positively applied [27].

Applying gamification successfully in higher education has major elements to be considered. First of all, game mechanics, dynamics and aesthetics have to be taken into account. If these elements have a motivating effect, students will perform better, and they might have a positive attitude towards the course and the university [28]. Not only students, but higher education teachers' motivation can increase their engagement and willingness to incorporate gamification into the learning context [29].

Gamification has been used in different fields of studies, such and psychology, engineering and business studies [30]. Gamification is proved to be a useful tool in entrepreneurship education. Several digital serious games appeared on the higher educational market to educate students in entrepreneurship [31], [32]. In the current study, the effects of applying gamification online in the field of economics are investigated.

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D. Other Online Methods

In addition to co-creation and gamification, several other pedagogical methods and tools appeared in higher education. Modern online tools that were not necessarily made for higher educational purposes are now being applied successfully in the HEI classroom as well [33], [34].

Padlet has been revealed as an effective tool for teaching youngsters English as a foreign language. It has numerous features including complimentary usage, online presence, works on multiple devices, engages creativity and the cooperation of the whole class. Furthermore, it can be applied to be used by students individually or as a group exercise. Therefore, peer learning is also encouraged [33]. Padlet fosters safe and collaborative online learning practices and strengthens the relationship between students and teachers. Previous research has found that the majority of participants of a classroom using Padlet throughout a course agreed that Padlet was highly motivating, and it encouraged them to fully cooperate and interact with their peers in order to complete their coursework [34].

In the online education of today, Zoom has become a tool souring quickly to help convey knowledge. Since its recent appearance in education, Zoom, as a video and audio tool, has been widely studied. In a flipped classroom context, Zoom has been found to help keep up student motivation during online classes, engage in conversations and multi-task. Applying Zoom with other social media channels could also be beneficial to enhance peer collaboration [35]. It is argued that Zoom has been playing an extensive role in the historic online education era of the COVID-19 pandemic [36]. When taking a look at this period in retrospect, we might conclude that teaching as we had known before has transformed irreversibly [2].

Other audiovisual online tools appeared in education, among which are BigBlueButton (BBB) system, Microsoft Teams, and Google Meets. Researchers found that BBB is particularly useful as teaching with voice and video enhances learning outcomes, which also depends highly on students' readiness to learn online. Teaching speed should also be adjusted to prevent students from multitasking and help them concentrate more effectively [37]. Microsoft Teams is argued to be successful in collaborative learning especially while using the assignment tabulator, which would enable groups to share presentations and work in groups [38].

The audio and visual software tools are unquestionably irreplaceable in education. However, there is a real need and wide application of all these tools using the built-in chat function, as there are many students who refrain from switching on their microphones or their cameras but can be encouraged to type their answers or ideas in the chat box. Therefore, the application of chat boxes is crucial. There has been an increasing interest in the study of the chat functions in online education. The chat function of different tools can positively enhance the interaction between higher education students [39]. Moreover, it can also provide help when assessing students by enabling the teacher to create anonymous groups and thereby assess the individuals anonymously [40].

Having a look at all the different methodologies and online tools, this paper concentrates on examining how satisfied foreign students are with online education, which includes the usage of the BBB system, its chat function and co-creation.

III. STUDENT SATISFACTION

Satisfaction has been long studied and defined in the literature. It has most broadly been defined as the comparison of expectations and perceived service quality [41]. Customers' previous experience, opinion and others' word-of-mouth recommendations might have an influence on their satisfaction [42]. Customer satisfaction had an even more crucial role in case of services due to their particular nature [43]. Measurement methods range from the traditional SERVQUAL and SERVPERF scales [44], [45] to customer satisfaction indices [46], [47].

In higher education, student satisfaction is defined based on the expectations' disconfirmation theory [41]. Student satisfaction is the subjective comparison between students' expectations and experience [48], [49]. Others also stated that student satisfaction is expectations compared to service quality perceptions [1].

Measurement of satisfaction in higher education is varied. Quantitative measurement methods are based on customer satisfaction indices tailored especially for higher education [50], [51]. Several modifications of the SERVQUAL and SERVPERF scales have also appeared in higher education. The HedPERF scale examined satisfaction with the whole HEI service environment [52], while the CUL-HedPERF scale was supplemented with cultural factors [53]. The EDUQUAL methodology took culture's influence into account and involved Hofstede's cultural dimensions [54]. Other methods, such as the HEQUAM and the HESQUAL, both used modified SERQUAL scales [55], [56].

Qualitative methods for measuring student satisfaction have also surfaced. Critical Incident Technique was used [57] besides in-depth interviews [58] to uncover any differences between students' expectations and their perceived service quality. Focus group discussions were also applied [59], [60] and uncovered fields of student satisfaction not researched before. However, there is a newfound interest in investigating foreign students' satisfaction during the COVID-19 pandemic. Previous research has already been looking into different aspects of foreign students' lives and university studies, but only few of them are concerned with students' satisfaction with teaching and applying new methodologies online. Therefore, the current study aims to uncover whether foreign students are satisfied with special emphasis put on new online methods of learning.

IV. PRIMARY RESEARCH

The current primary research took place at the University of Szeged, Faculty of Economics and Business Administration, Hungary. The examined faculty is in a unique position, as their international education has been on the rise, with more

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and more international students coming to study there. The current situation hit the faculty as well, the pandemic prevented many students from traveling from different countries to do their studies physically in Hungary. Therefore, foreign students' education had to transfer fully online during the academic year of 2020 and 2021 as well. By this academic year, teachers have had the opportunity to equip themselves with new creative ways of conveying their knowledge online. Effective teaching and enjoyable classes are a must in online education, as students' knowledge and satisfaction might depend on it.

A. Methodology and Sample

To reach the aim of the current paper, an online questionnaire was circulated between foreign students of the faculty in the fall semester of 2020/2021. The faculty had around 150 foreign students at that time, and students' willingness to fill out any surveys declined significantly compared to previous years' questionnaires. Therefore, the sample consisted only of 26 international students, who participated in either the first, second, third or last year of their studies. Their language of instruction was English. Students' countries of origin were France, Pakistan, China, Jordan, to Azerbaijan and many more. Most scholarship holders arrive with the Stipendium Hungaricum scholarship provided by the Hungarian government. Table I shows the data of respondents.

TABLE I
PARTICIPANTS' DATA

Finances	Study program	Number of students
Fee paying	BSc	7
Fee paying	MSc	1
Scholarship	BSc	13
Scholarship	MSc	5
Altogether		26

Due to the limited number of available foreign students at the faculty, the current research is exploratory in nature. Scales from previous literature were used to measure students' satisfaction with tangibles, competence of teachers, teachers' preparedness, classes quality and the online study material [61], [62]. Respondents were provided 5-point Likert scales corresponding to the higher education literature but modified to fit the context of the currently ongoing pandemic. Each examined aspect and the survey results are introduced in the following chapter.

B. Results

Due to the limited number of respondents, mainly means and standard deviation were used to analyze the data. First of all, an overall satisfaction was investigated based on the responses of 26 foreign students on a 5-point Likert scale, where 1 is 'Not at all satisfied' and 5 is 'Extremely satisfied'. Results in Table 2 show that the overall satisfaction of how the university is handling the pandemic situation is a little bit better than average (M = 3.54; St.dev. = 0.81). This shows a lower satisfaction level compared to previous studies at the faculty.

TABLE II
OVERALL SATISFACTION

Likert-scale	Number of students
1	1
2	1
3	8
4	15
5	1
Mean	3.54

Students who gave 1 or 2 points on the Likert scale were mostly 3rd and 4th year Bachelor students, while 3 points and above were awarded by 1st and 2nd year Bachelor and Master's students. These results seem quite interesting, as one might expect first-year students to be less satisfied with not being able to attend in-class education.

Regarding their studies abroad, students were asked their overall satisfaction with their experience so far. Results are shown in Table III. It is interesting that the highest mean belongs to the item including 'students made the right decision when they chose this university', while the lowest is their experience with the university and the city itself. The city might have influenced their evaluation of this scale question.

TABLE III
STUDENT EXPERIENCE

Scale item	Mean	Standard deviation
My experience of the university and the city itself is very satisfactory even though a worldwide pandemic is afoot.	3.38	0.98
Overall, I am satisfied with my university and the city itself regardless of the pandemic.	3.92	0.93
I made the right decision when I chose this university and this city regardless of the pandemic.	4.08	0.93
I am satisfied with the service provided by my university during the pandemic (teaching, education, etc.).	3.46	1.07
Mean	3.71	

Looking closer at foreign student satisfaction, a comparison of scale means would make it possible to see what factors students were the most and least satisfied with during their online education amidst the pandemic. Factors such as tangibles, competence of teachers, teacahers' preparedness, living in the city class quality and online study material were investigated. As the current study focuses on online methodologies, the results are analyzed with special emphasis on teachers and classes.

Table IV shows that in case of all categories, students were rather satisfied with the examined categories. Every mean is above 3.6. However, they do not reach 4 in any case. The highest satisfaction mean can be seen regarding teachers' competences and preparedness. Surprisingly, online class quality is the lowest among the five categories. According to the aim of the paper, further analysis on these three categories is needed.

Overall, teachers' preparedness received the highest mean scores. Regarding this category, students were asked how much they agreed with the statements shown in Table V, on a five-point Likert scale. Respondents were most satisfied with

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how teachers present the course material (M = 4.00; St.dev. = 0.85) and generally least satisfied with whether teachers understand students' needs during the pandemic (M = 3.54; St.dev. = 0.99). It seemed clear to most students what evaluation criteria is used during the classes and they were satisfied with the reliability of teachers.

TABLE IV
STUDENT SATISFACTION

Scale category	Mean
Tangibles (4 items)	3.82
Teachers' preparedness (5 items)	3.84
Online class quality (4 items)	3.61
Teachers' competence (6 items)	3.86
Living in the city (4 items)	3.66
Mean	3.76

TABLE V
TEACHERS' COMPETENCES

Scale item	Mean	Standard deviation
University teachers understand students' needs during the pandemic.	3.54	0.99
Teachers are reliable (I can count on them to keep their promises) during the pandemic.	3.96	1.00
Teachers present the course material in a clear and informative way during the pandemic (e.g.: online) .	4.00	0.85
Teachers convey the essence of the study material effectively online.	3.88	0.95
Foreign students always know the evaluation criteria of a subject during the pandemic.	3.96	0.96
Students always get relevant feedback to their work even online (marks and written or explained).	3.81	0.90
Mean	3.86	

Teachers' preparedness also received high scores of student satisfaction. If we take a look at the scales in this category shown on Table VI, we can conclude that students were most satisfied with the language skills of teachers (M = 3.96; St.dev. = 0.87) and teachers' theoretical knowledge (M = 3.88; St.dev. = 0.99). Respondents were least satisfied with teachers' preparedness for students' online learning needs and practical knowledge conveyed online (M = 3.77 for both). However, their mean value can still be considered high.

TABLE VI
TEACHERS' PREPAREDNESS

Scale item	Mean	Standard deviation
Teachers are well-prepared for international students' online learning needs.	3.77	1.21
Teachers have excellent theoretical knowledge to be conveyed online.	3.88	0.99
Teachers have excellent practical knowledge they can convey online.	3.77	0.86
Teachers have the ability to convey their knowledge to students online.	3.81	1.17
Overall, the English language skills of our teachers are good.	3.96	0.87
Mean	3.84	

In contrast to the previously examined categories, online class quality got the lowest means of all examined factors. However, there are some discrepancies found in the items' means that can be found in Table VII. Even though this category had the lowest overall mean (M = 3.61), the highest mean of scale items could also be found here regarding the easy availability of online study material (M = 4.04; St.dev. = 0.77). The lowest mean value belongs to 'Online courses are pleasure to attend.' (M = 3.27; St.dev. = 1.34). However, the responses to this item could be highly biased, as it might not effectively measure whether the courses are of high quality, but it is also influenced by how students compare it to in-classroom lectures and how they generally feel towards online classes.

TABLE VII
ONLINE CLASS QUALITY

Scale item	Mean	Standard deviation
Online courses are pleasure to attend (I enjoy going).	3.27	1.34
Most classes are interesting even online (the material is interesting and is presented in a good way).	3.38	1.17
The online study material is well-developed.	3.73	1.08
The online study material is easily available.	4.04	0.77
Mean	3.61	

V. CONCLUSIONS

All in all, we can conclude that respondents were mostly satisfied with the examined factors, as each mean value of the examined categories was above 3.6. Examined foreign students were most satisfied with teachers' competences and preparedness, while they were least satisfied with online class quality.

Teachers' competences and preparedness were given high mean scores by the respondents. Therefore, teachers in the foreign programs at the faculty, who use the examined methods pedagogical tools got valuable feedback on their work. This also shows that their efforts pay off, when carefully designing their online classes, as now amidst the pandemic, they have had time to prepare for the upcoming semesters.

The measurement of online class quality might have been biased. As the results of this category are not consistent with high mean scores for teachers' competences and preparedness, the online class quality should be further investigated. Specifically, one item in the group seemed to have been biased, as it might have involved the specific feeling of students towards online education in general, and therefore failed to measure what it was intended to measure.

Further research would be necessary to examine teachers' online classes individually. Doing so would provide teachers information on their classes and a possibility for students to evaluate classes and the applied teaching methods separately. However, this would pose an additional burden on students to evaluate each and every class they had during a semester, which might not result in many responses for each and every course, lecture, seminar and teacher.

All in all, the results of the current research are important for the faculty and for the teachers as well for a number of reasons. First of all, teachers did not get an insight into how satisfied specifically foreign students are with online education during a worldwide pandemic. This research was

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among the first ones to examine foreign students and their satisfaction with online education at the faculty. Secondly, they got feedback on what their online classes are like and whether there is any need for improvement or modification, which is crucial as we do not foresee how long the pandemic might last. Last but not least, students might have felt involved and saw that their opinion matter for the faculty as they were asked how satisfied they had been during the pandemic, and in-depth discussions by faculty members have been now expanded with the current survey.

REFERENCES

[1] Alves, H., Raposo, M. (2009) The measurement of the construct satisfaction in higher education. Service Industries Journal, 29, 2, 203-218.
[2] Costello, E., Brown, M., Donlon, E. et al. 'The Pandemic Will Not be on Zoom': A Retrospective from the Year 2050. Postdigit Sci Education 2, 619–627 (2020). https://doi.org/10.1007/s42438-020-00150-3
[3] Rashid, A., Yunus, M. and Wahi, W. (2019) Using Padlet for Collaborative Writing among ESL Learners. Creative Education, 10, 610-620. doi: 10.4236/ce.2019.103044.
[4] Chui, T. B., Ahmad, M. S., Bassim, F. A., Zaimi, A. (2016) Evaluation of Service Quality of Private Higher Education using Service Improvement Matrix. Procedia – Social and Behavioral Sciences, 224, 132-140.
[5] Ribes-Giner, G., Perello-Marín, M.R., Díaz, O.P. (2016) Co-creation impacts on student behavior. Procedia – Social and Behavioral Sciences, 228, 72-77.
[6] Chemi,T., Krogh L. (2017) Co-creation in Higher Education. Sense, Denmark.
[7] Prahalad, C.K., Ramaswamy, V. (2004) Co-creation experiences: The next practice in value creation. Journal of Interactive Marketing, 18(3), 5-14.
[8] Lusch, R.F., Vargo, S.L. and O'Brien, M. (2007) 'Competing through service: Insights from service-dominant logic', Journal of Retailing, 83(1), 5–18.
[9] Witell, L., Kristensson, P., Gustafsson, A., Löfgren, M. (2011) Idea Generation: Customer Co-creation versus Traditional Market Research Techniques. Journal of Service Management, 22(2), 140-159.
[10] Iversen, A-M., Pedersen, A. S. (2017) Co-creating knowledge. In Chemi, T., Krogh, L. (eds.): Co-creation in Higher Education. Sense, Denmark, 15-30.
[11] Camargo-Borges, C., Rasera, E. F. (2013) Social constructionism in the context of organization development dialogue, imagination and co-creation as resources of change. Sage Open, 3(2), 1-7. https://doi.org/10.1177/2158244013487540
[12] Sanders, E.B.N., Stappers, P.J. (2008) Co-Creation and the New Landscapes of Design. Co-Design, 4, 5-18. http://dx.doi.org/10.1080/15710880701875068
[13] Dollinger, M., Lodge, J.M., Coates, H. (2018) Co-creation in higher education: towards a conceptual model. Journal of Marketing for Higher Education, 28(2), 210-231.
[14] Jensen, A. A., Krogh, L. (2017) Re-thinking curriculum for 21st-century learners. In Chemi, T., Krogh, L. (eds.): Co-creation in Higher Education. Sense, Denmark, 1-14.
[15] Degnegaard, R. (2014) Co-creation, prevailing streams and a future design trajectory, CoDesign, 10(2), 96-111, DOI: 10.1080/15710882.2014.903282
[16] Bovill, C., Cook-Sather, A., Felten P. (2011) Students as co-creators of teaching approaches, course design, and curricula: implications for academic developers, International Journal for Academic Development, 16(2),133-145, DOI: 10.1080/1360144X.2011.568690
[17] B. Terill, (2019) "My Coverage of Lobby of the Social Gaming Summit." Retrieved January 9, 2019, from http://www.bretterrill.com/2008/06/my-coverage-of-lobby-of-social-gaming.html.
[18] D. Helgason, (2019) "2010 Trends – Unity Blog". Retrieved January 9, 2019, from https://blogs.unity3d.com/2010/01/14/2010-trends/.
[19] S. Deterding, M. Sicart, L. Nacke, K. O'Hara, and D. Dixon, (2011) "Gamification: Using Game Design Elements in Non-Gaming Contexts. In Proceedings of the International Conference on Human Factors in Computing Systems", May 7-12, 2011 pp. 4–7. [CHI 2011, Extended Abstracts Volume, Vancouver, BC, Canada].
[20] T. M. Connolly, E. A. Boyle, E. MacArthur, T. Hainey, and J. M. Boyle, (2012) "A systematic literature review of empirical evidence on computer games and serious games.", 2012, Computers and Education, 59(2), 661–686. https://doi.org/10.1016/j.compedu.2012.03.004.
[21] Oxford Analytica (2017) "Gamification and the Future of Education". Oxford: Oxford Analytica, 2017, https://doi.org/10.1016/j.ymgme.2015.09.007.Obstructive.
[22] D. Gray, S. Brown, and J. Macanufo, (2015) "Gamestorming. A Playbook for Innovators, Rulebreakers, and Changemakers." St. Petersburg: Piter. 288p. Toyama, K. (2015) The looming gamification of higher ed. The Chronicle of Higher Education, https://www.chronicle.com/article/The-Looming-Gamification-of/233992.
[23] J. Hamari, J. Koivisto, and H. Sarsa, (2014) "Does Gamification Work? — A Literature Review of Empirical Studies on Gamification." In Proceedings of the 47th Hawaii International Conference on System Sciences, Hawaii, USA, January 6-9, 2014.
[24] D. Pappa, L. Pannese. (2010) "Effective design and evaluation of serious games: The case of the e-VITA project." World Summit on Knowledge Society. Springer, Berlin, Heidelberg, 2010.
[25] T.L. Kingsley, M.M. Grabner-Hagen, (2015) "Gamification Questing to integrate content knowledge, literacy, and 21st-century learning", 2015, Journal of Adolescent & Adult Literacy, volume 59, no 1, 51-61.
[26] D. Dicheva, C. Dichev, G. Agre, and G. Angelova, (2015) "Gamification in Education: A Systematic Mapping Study", Educational Technology & Society, 2015, 18(3), 9–22. https://doi.org/10.1016/j.infsof.2015.03.007.
[27] M. S. Kuo, Y. Y. Chuang, (2016) "How gamification motivates visits and engagement for online academic dissemination – An empirical study", Computers in Human Behavior, 2016, Volume 55, Part A, 16-27.
[28] I. Yildirim, (2017) "The effects of gamification-based teaching practices on student achievement and students' attitudes toward lessons", Internet and Higher Education, 2017, 33, 86-92.
[29] B. Taspinar, W. Schmidt, H. Schuhbauer, (2016) "Gamification in Education: A Board Game Approach to Knowledge Acquisition", Procedia Computer Science, 2016, Volume 99, 101-116, https://doi.org/10.1016/j.procs.2016.09.104.
[30] S. Subhash, E. A. Cudney, (2018) "Gamified learning in higher education: A systematic review of the literature", Computers in Human Behavior, 2018, Volume 87, 192-206, https://doi.org/10.1016/j.chb.2018.05.028.
[31] J. Fox, L. Pittaway, and I. Uzuegbunam, (2018) "Simulations in Entrepreneurship Education: Serious Games and Learning Through Play", Entrepreneurship Education and Pedagogy, 2018, 1(1), 61–89. https://doi.org/10.1177/2515127417737285.
[32] F. Bellotti, R. Berta, A. De Gloria, E. Lavagnino, A. Antonaci, F. Dagnino., M. Ott, M. Romero, M. Usart, I. S. Maye, (2014) "Serious games and the development of an entrepreneurial mindset in higher education engineering students", Entertainment Computing, Volume 5, Issue 4, December 2014, Pages 357-366, https://doi.org/10.1016/j.entcom.2014.07.003.
[33] Fuchs, B. (2014) The Writing is on the Wall: Using Padlet for Whole-Class Engagement. Library Faculty and Staff Publications. 240. https://uknowledge.uky.edu/libraries_facpub/240
[34] Rashid, A. A., Yunus, M. M., & Wahi, W. (2019) Using Padlet for Collaborative Writing among ESL Learners. Creative Education, 10, 610-620. https://doi.org/10.4236/ce.2019.103044
[35] Buheji, M., Ahmed, D. (2020) Implicants of Zoom and Similar Apps on 'Flip-class' Outcome in the New Normal. International Journal of Learning and Development, 10, 3.
[36] Stefanile, A. (2020) The Transition from Classroom to Zoom and How it Has Changed Education. Journal of Social Science Research, 16, 33-40.
[37] Murugesan, S., Chidambaram, N. (2020) Success of Online Teaching and Learning in Higher Education – Covid 19 Pandemic: A Case Study Valley View University, Ghana. International Journal of Applied Engineering Research, 15, 7, pp. 735-738.
[38] Martin, L., Tapp, D. (2019) Teaching with Teams: An introduction to teaching an undergraduate law module using Microsoft Team. Innovative Practice in Higher Education, 3, 3, pp. 58-66.
[39] Tyrer, C. (2019) Beyond social chit chat? Analysing the social practice of a mobile messaging service on a higher education teacher development course. International Journal of Educational Technology in

World Academy of Science, Engineering and Technology
International Journal of Educational and Pedagogical Sciences
Vol:15, No:4, 2021

Higher Education, 16, 13.

[40] Güler, C. (2017) Use of WhatsApp in Higher Education: What's Up with Assessing Peers Anonymously? Journal of Educational Computing Research, 55, 2, 272-289.

[41] Oliver, R. L. (1980) A cognitive model of the antecedents and consequences of satisfaction decisions. Journal of Marketing Research, 17, 460-469.

[42] Woodruff, R., Cadotte, E., Jenkins, R. (1983) Modeling Consumer Satisfaction Processes Using Experience-Based Norms. Journal of Marketing Research, 20, 3, 296-304.

[43] Zeithaml, V. (1981) How consumer evaluation processes differ between goods and services. J. H. Donnelly – W. R. George (Eds), Marketing Services, AMA, 9, 186-190.

[44] Cronin, J. J., Taylor, S. A. (1992) Measuring Service Quality: A Reexamination and Extension. Journal of Marketing, 56, 7, 55-68.

[45] Cronin, J. J., Taylor, S. A. (1994) SERVPERF Versus SERVQUAL: Reconciling Performance-based and Perception-Minus-Expectations Measurement of Service Quality. Journal of Marketing, 58, 1, 125-131.

[46] Fornell, C. (1992) A National Customer Satisfaction Barometer: The Swedish Experiene. Journal of Marketing, 56, 1, 6-21.

[47] Gronholdt, L., Martensen, A., Kristensen, K. (2000) The relationship between customer satisfaction and loyalty: Cross-industry differences. Total Quality Management, 11, 4-6, 509-514.

[48] Yousapronpaiboon, K. (2014) SERVQUAL: Measuring Higher Education Service Quality in Thailand. Procedia – Social and Behavioral Sciences, 116, 1088-1095.

[49] Chui, T. B., Ahmad, M. S., Bassim, F. A., Zaimi, A. (2016) Evaluation of Service Quality of Private Higher Education using Service Improvement Matrix. Procedia – Social and Behavioral Sciences, 224, 132-140.

[50] Eurico, S. T., Silva, J. A. M., Valle, P. O. (2015) A model of graduates' satisfaction and loyalty in tourism higher education: The role of employability. 16, 30-42.

[51] Savitha, S., Padmaja, P. V. (2017) Measuring service quality in higher education: application of ECSI model. International Journal of Commerce, Business and Management, 6, 5, Sep-Oct 2017.

[52] Faizan, A., Yuan, Z., Kashif, H., Pradeep, K., Nair, N., Ari, R. (2016) Does higher education service quality effect student satisfaction, image and loyalty? A study of international students in Malaysian public universities. Quality Assurance in Education, 24, 1.

[53] Randheer, K. (2015) Service quality performance scale in higher education: Culture as a new dimension. International Business Research. 8, 3, 29-41.

[54] Tsiligiris, V. (2011) EDUQUAL: measuring cultural influences on students' expectations and perceptions in cross-border higher education. In: 4th Annual UK and Ireland Higher Education Institutional Research (HEIR) Conference, Kingston University, London, 16-17 June 2011, London.

[55] Noaman, A. Y., Ragab, A. H. M., Fayoumi, A. G., Khedra, A. M., Madbouly, A. I. (2013) HEQUAM: A Developed Higher Education Quality Assessment Model. Proceedings of the 2013 Federated Conference on Computer Science and Information Systems, 739–746.

[56] Teeroovengadum, V., Kamalanabhan, T. J., Seebaluck, A. K. (2016) Measuring service quality in higher education. Quality Assurance in Education, 24, 2, 244-258.

[57] Douglas, J., Davies, J. (2008) The development of a conceptual model of student satisfaction with their experience in higher education. Quality Assurance in Education. 16, 1, 19-35.

[58] Patterson, P., Romm, T., Hill, C. (1998) Consumer satisfaction as a process: a qualitative, retrospective longitudinal study of overseas students in Australia. Journal of Professional Services Marketing, 16, 1, 135-157.

[59] Sultan, P., Wong, H. Y. (2013) Antecedents and consequences of service quality in a higher education context: A qualitative research approach. Quality Assurance in Education, 21, 1, 70-95.

[60] Winke, P. (2017) Using focus groups to investigate study abroad theories and practice. System, 71, 73-83.

[61] Owlia, M. S., Aspinwall, E. M. (1996) A framework for the dimensions of quality in higher education. Quality Assurance in Education, 4, 2, 12-20.

[62] Lenton, P. (2015) Determining student satisfaction: An economic analysis of the national student survey. Economics of Education Review, 47, 118-127.