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ANALYSING STUDENTS' SATISFACTION IN DISTANCE EDUCATION DURING FIRST WAVE OF COVID PANDEMIC

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ABSTRACT
The Internet has caused a paradigm change in distance education during the 21th century. At spring of 2020 during the COVID-19 pandemic, the formal, full-time education in Higher Education is also appeared in distance education. Thousands of students had to use the LMS systems instead of face-to-face learning. Decrease in student satisfaction and motivation in distance learning is among frequently observed problems. The research focus is full-time students' e-learning satisfaction at Széchenyi István University in Hungary, Győr. The study was carried out with 2350 undergraduate students using Moodle e-learning portal at Széchenyi István University. The research questions are as follows: Does technical System Quality/ or Information Quality/ or Teachers Behaviour positively influence the perceived satisfaction with the e-learning system? Our hypothesis gained empirical support. The full-time students perceive positive satisfaction with the Moodle e-learning system, and with the information quality, but most of them don't want to adopt this way of education in the future.

KEYWORDS
Distance learning, student satisfaction, Higher Education

INTRODUCTION

Why distance learning?

Twenty-first-century distance learning is an electronically driven, asynchronous and web based activity. Distance education is an organizational form of Higher Education (HE) in which instructional provisions, tutorial interactions, monitoring of practice, as well as individual control of learning may take place via media. The distance learning event may be recorded for asynchronous presentation [4, 5].
Before the pandemic the most common method is "blended learning", which is a mix of e-learning and traditional forms of education ("classroom learning" and "face-to-face learning"). It can also be called „fostered open learning" according to Juszczyk and Kim [7]. According to the definition of lifelong learning used by the EU, it includes "all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competences within a personal, civic, social and/or employment-related perspective" [9]. The lifelong learning often happens through distance learning.
The all day/any time availability of these courses offers maximum flexibility time wise for learning and is well suited for adults, working learners, and also suited for HE students during COVID pandemic [2]. There is usually more than one thread of electronic communication between the university and the students, who simultaneously read e-materials and communicate with their fellow students, e.g. over the phone or via email, chat, Messenger, Facebook or Twitter.

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In the opinion of Csepeli [3], with the rapid growth in the use of technological tools and the move of Generation Z into the online space the consequent social changes are unforecastable. He calls members of this generation 'digital natives', since they were born into the online space, the online reality, which is the primary space for them. This space can be shared with the "digital immigrants" willing to experience this reality. A significant ratio of correspondence students can be regarded as digital immigrants.
When the research was examined, it is seen that there are many factors affecting students' satisfaction. Interaction in online classes, feedback, student and teacher behaviours, activities, topics, online discussions, instructional and technical support, technological features, students' learning styles can be counted among some of these factors.

Mass HE in distance learning

In the past fifty years, the major part of discussions relating to higher education were linked to the appearance of mass education [6, 10], thus, for example, to the operation and accessibility of the system or to the management of ever-increasing student numbers. Martin Trow agrees with the opinion of research universities that the creation of mass higher education should be promoted and momentum should be given to Internet-based universal accessibility. He also expressed that expanded learning opportunities promoted by information and communications technologies (ICT) highlight opportunities for improving innovations and the quality of educational systems.
The Western Transdanubian Region involves three counties: Győr-Moson-Sopron, Vas and Zala Counties. The Western Transdanubian region is a rather developed region in Hungary and Győr-Moson-Sopron is the richest county (if we disregard the capital city of Budapest). (In 2018, GDP was 121.8% of the national average). The city of Győr is a county seat with a population of 130 thousand; it is a regional centre with a significant industrial base and a favourable transport geographical location that, is also home of Széchenyi István University. The 200-year-old agricultural university of Mosonmagyaróvár merged into Széchenyi István University (has 12,370 students) with its respective 602 students.
Within the region, training opportunities are offered by 6 higher education institutions, according to the distribution of students presented in the following figure (Fig. 1).

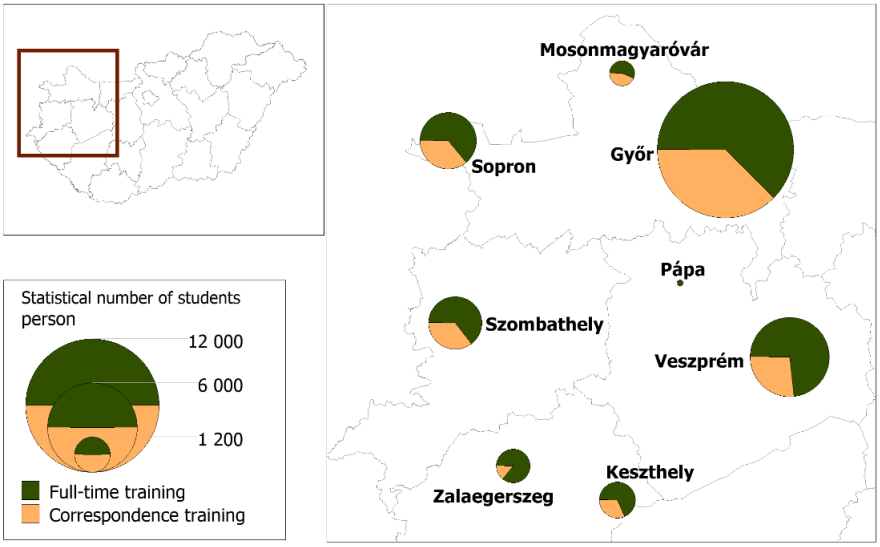

Figure 1. Student numbers in the Western Transdanubian Region and Veszprém county in 2018 [8]

Student headcounts have evolved in a very favourable manner at Széchenyi István University during the past 7 years. Overall student headcount was above 12 thousand during the last four years and the number of correspondence students exceeds 50% of the full-time student headcount, which puts the university in a special position, even on a regional scale.
In Győr the teaching of technical sciences has tradition for a long time. Nowadays the industry 4.0 solutions, the project based learning, the dual training are decisive at the Uni. The faculties of Technical Sciences had 3380 students at 2020, that had a largest headcount. Outstanding the vehicle engineer training at faculty of Audi with approximately 200 new entry students per year. (Audi Hungaria is a great factor in the labour market of Győr). The overall full-time students' headcount was 6823 (at 2020).
Because of the large distance learning headcounts, the Distance Education Centre has been operated at Széchenyi István University in Győr since 2004, therefore, the better utilization of infrastructure and human resources, the tasks of student trainings, such as separate student affairs management (training organization) for courses, course organization, timetable compilation, training material preparation, are carried out more efficiently. Distance Learning Centre delivers services to a significant number of students, launching 14,000 courses annually and running close to 150 course e-materials (SCORM, lessons in pdf, tests and sample of exams).
In Hungary the lockdown started on 12 March 2020, when thousands of students had to use the Moodle system instead of face-to-face learning. It was a big problem for organizers, teachers and students as well because of the mass headcounts. Expansion caused by the corona virus pushing full-time students into the "corridors" of distance learning. This is dangerous for students: drop-outs, lack of interest/motivation, and dangerous for teachers: overload, lack of ICT tools, time constraints (continuous meetings all day).
When the lockdown started we organized a monitoring systems to track students' activities. Three times a week we logged the students' entry into the Moodle courses, observed the dropout, and warning the students for risks in time (see Fig.2). Students' motivation decreased in week 5, and low participation may mean that the course material is of poor quality or that online participation is not necessary for students. Some students feel "mission impossible" to pass the courses.

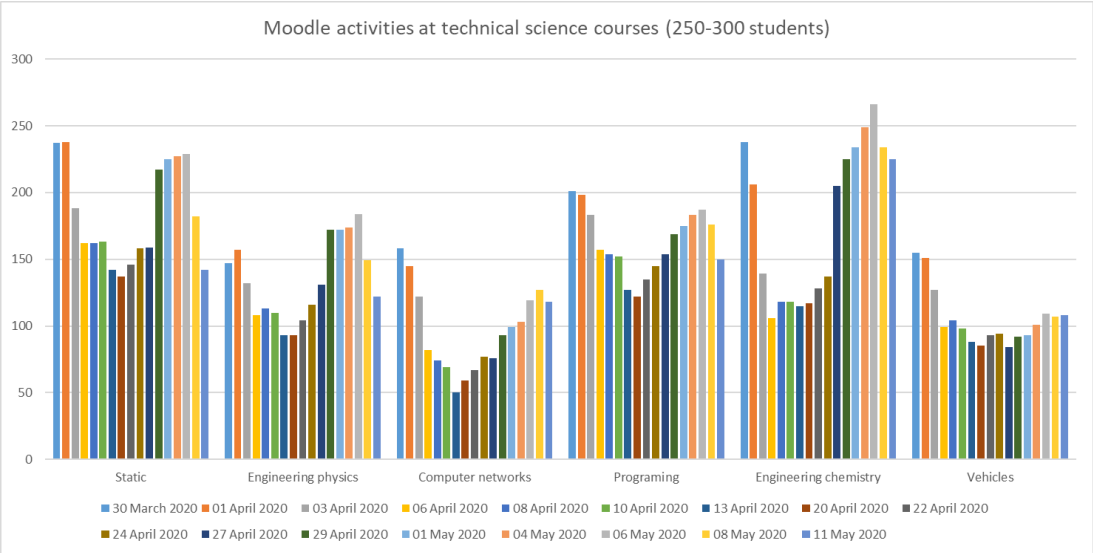

Figure 2. Moodle activities at technical science courses in 2020

METHODOLOGY

Participants

The participants of the study were 2350 undergraduate full-time students at Széchenyi István University during spring semester in 2019-2020 academic year. These students as participants of the study are studying in the Faculty of Technical Sciences (51%), Business Administration Sciences (22%), Law (7%), Healthcare and Sport Science (6%) and Humanities Sciences (14%). Data in the study were collected using online form sending out in NEPTUN student's administration module.

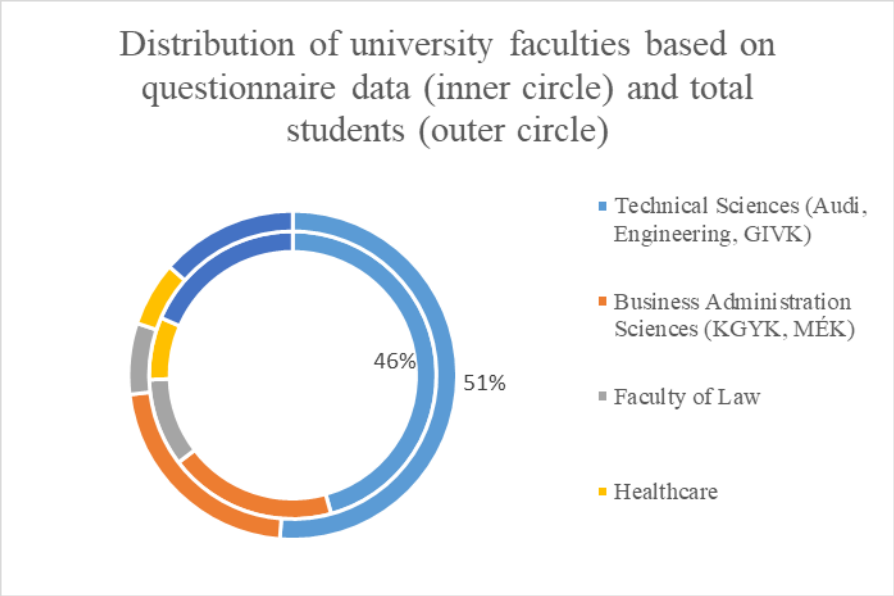

Figure 3. Distribution of SZE faculties

Data analysis

Descriptive statistics (e.g., frequency, percentage, correlation) were conducted for the data analysis (Tab1). Cronbach's Alpha values were calculated for conformity assessment of the model to the data.

Table1. Sample Characterization

Sample Characterization		Frequency	Percent
Level of education	higher-level vocational training (ISCED5)	131	5,6%
	BA/BSc (ISCED 6)	1797	76,4%
	MA/MSc (ISCED 7)	239	10,2%
	University level programme (ISCED 7)	183	7,8%
	Total	2350	100%
Type of education	Full-time	1756	74,7%
	Part-time (Distance learning)	594	25,3%
	Total	2350	100%
Number of study years	1	720	30,6%
	2	618	26,3%
	3	404	17,2%

	4	151	6,4%
	5	121	5,1%
	5+	336	14,3%
	Total	2350	100%

Results

Based on a study by Al-Fraihat et al. [1] our questions can be grouped into three categories: information quality (INQ), system quality (SQ) and student satisfaction (SS). Internal consistency reliability results (calculated with Cronbach's alpha $\alpha \geq 0.70$) are INQ: 0.915, SQ: 0.941, SS: 0.885.

Students tried to find information about distance learning news from a diversity of sources, with the student government (34%) and the Szelearning Moodle portal (23%) being the most popular.

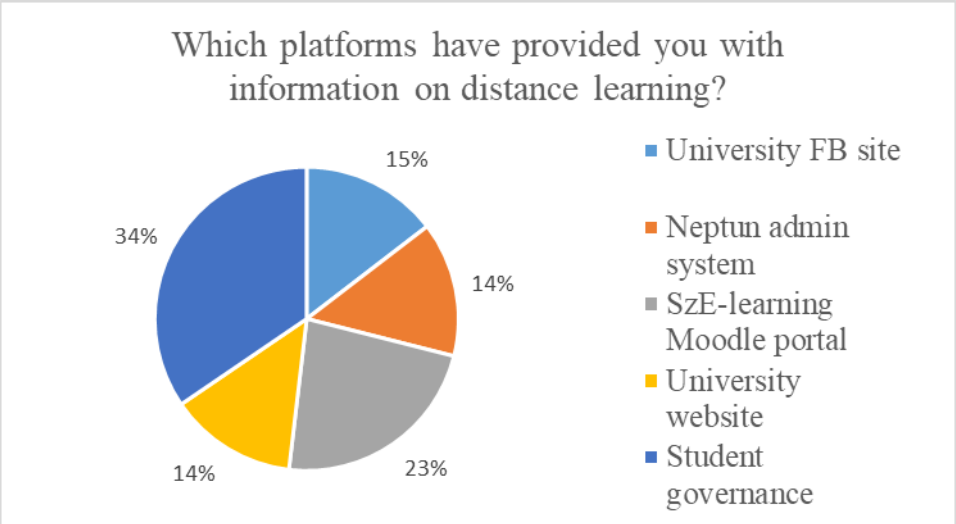

Figure 4. Source of information on distance learning

The hypotheses were as follows:

H1 System Quality positively influences the perceived satisfaction with the e-learning system.
H2 System Quality positively influences the perceived usefulness with the e-learning system.
H3 Teachers' helpfulness positively influences the perceived satisfaction with the e-learning system.

To confirm the hypotheses, the answers to the following questions was analysed:

SQ1 How satisfied are you with distance learning methods?
SQ3 How satisfied are you with the helpfulness of the teachers?
SS2 I prefer distance learning.
SS3 The platform szelearning.sze.hu (moodle) is useable.
SS4 If the teacher held an online class, I would attend more than the classroom.
INQ5 How often did the trainers reply to your question? I received a reply the same day.

With cross tabulation analysis the correlation between SQ1 and SS2 question is significant, the Pearson Chi-Square is 1522,36 and the p Value less than 0.00. Both of questions is represented on 6 point Likert scale (1 – strongly disagree to 6 – strongly agree).

Table 2. Cross tabulation between SQ1 and SS2

Cross tabulation		SS2						Total
		1	2	3	4	5	6	
SQ1	1	463	44	30	34	22	12	605
	2	199	61	44	35	22	13	374
	3	121	56	58	52	33	17	337
	4	64	31	52	70	51	22	290
	5	41	37	51	96	176	152	553
	6	2	3	5	11	25	145	191
Total		890	232	240	298	329	361	2350

The findings show that students like distance learning and are satisfied with the distance learning methods (the quality of the system).
The students gave a score of 4.49 on a 6-point Likert scale to the question of how usable the e-learning portal is. 78,29% of students *perceived positive usefulness with the e-learning system.* Correlation between SQ1 and SS3 question is significant, the Pearson Chi-Square is 791,72 and the p Value less than 0.00.
In e-learning systems, the helpfulness of the tutor in the learning process is very important. Students were most satisfied with the helpfulness and flexibility of the teachers, the questions and mean scores are shown in the table 3 below.

Table 3. Cross tabulation between SQ1 and SS2

How satisfied are you with…	mean score
the distance learning methods?	3,11
the amount of learning material received?	3,37
the helpfulness of the trainers?	**3,97**
the flexibility of the trainers?	**3,95**
the requirements of the new subject matter?	3,84
the compliance with the requirements of the new subject matter?	3,85
the examination methods?	3,73
the examination requirements?	3,67

Students were asked how often the tutor answers their questions. According to 59.73% of students, they always got an answer to their questions. 69.27% said that most of them received an answer on the same day. When the students gave fewer times receiving information from the teacher late, more preferring distance learning (INQ5 and SS2 correlation).
The cross tabulation analysis also showed a correlation to confirm hypothesis H3, but here only nearly half of the students (49%) say that they would attend online classes more than in the classroom if the situation remained as it is.

Table 4. Hypothesis test

Hypothesis	Questions	Pearson R value	p Value	Support**
H1	SQ1-SS2	0.666	0.00	Accepted
H2	SQ1-SS3	0.475	0.00	Accepted
H3	SQ3-SS4	0.195	0.00	Accepted
H3	INQ5-SS2	-0.324*	0.00	Accepted

** opposite relationship, **the cut off R levels are: 0.190 weak; 0.333 moderate; and 0.660 substantial.*

SUMMARY AND ACKNOWLEDGMENTS

A cross tabulation analysis of the answers showed that hypotheses gained empirical support. E-learning system quality, information quality and the teachers' helpfulness positively influences the perceived satisfaction and usefulness with the e-learning system. Students were asked "how successful will your semester be?", on a 5-point Likert scale the mean score is 3.32.

47% of students strongly disagree that "they have acquired the same amount and quality of knowledge through distance learning" (mean score is 2.54). At the same time, the Moodle platform of the university is considered usable by the majority (mean score is 4.49). Universities with a tradition of distance learning, a usable LMS platform, and experience in electronic examinations perform better during the epidemic.

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