



UNIVERSITY STUDENTS' FIRST EXPERIENCES FROM ONLINE COURSES IN COVID-19 PERIOD

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Abstract:

Prior to Covid-19 era, undergraduate courses were not allowed to be delivered online in Greece, which implies that University students may have encountered difficulties to get adjusted to the new form of courses implemented at the start of the pandemic. This research aims to investigate University of the Aegean students' adjustment and satisfaction from online courses during spring semester 2020. The results show that both students' adjustment and satisfaction, affected by factors recorded in literature, were moderate by the mid of semester which highlights the importance of online readiness. However, three specific factors (cohabitation causing difficulties to students in courses' attendance, motivation to attend courses being linked more with students' need to have a way out of the quarantine routine and sense of belonging in the University's community) indicate that, in cases of implementation of emergency online education, social needs and external factors are of high importance.

Keywords: Covid-19, distance education, online courses, higher education

1. Introduction

In March 10, 2020, the Greek government suspended face-to-face teaching in all educational settings, in the frame of the measures taken against the spread of Covid-19. The suspension period expanded until the end of the spring semester. To confront this situation, Greek Universities exploited immediately online tools for synchronous distance education to continue the courses.

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The period of lockdown was the very first time in Greek Universities' history that undergraduate courses were delivered online, considering that until March 2020 the Greek legislation didn't permit the implementation of online education in undergraduate studies. Although Universities had more experience in online postgraduate programmes and Lifelong Learning Programmes, the transition to undergraduate online courses was hurried. This leads to the assumption that Universities couldn't probably take advantage of all the affordances the well-designed online education provides (Hodges et al., 2020). In this context, Universities may have confronted problems in organizing undergraduate online courses (e.g. students and faculty's inexperience with online courses).

Greek undergraduate students having no experience with online courses, had to comply fast to these if they wished to keep on. In fact, in comparison to what would have happened under normal circumstances, students had not the choice to select the form of courses (online or face-to-face) they would attend. Simultaneously, as all other people, students had to face several problems in their daily quarantine routine. These facts are assumed to impact on students' adjustment and satisfaction from online courses.

In the frame above, this research aims to explore undergraduate students' adjustment and satisfaction from online courses, which were implemented as a response to the emergency state of the pandemic during the spring semester of 2020. The paper is structured as follows. Section 2 refers to previous researches exploring the factors that impact on students' persistence and satisfaction from online courses. Section 3 presents the research methodology, while Section 4 records the results. Section 5 discusses research findings and concludes the paper.

2. Related work

During the last decades, online courses have become a trend globally. Although they provide time and space flexibility addressing to students' needs and provoke less financial burden in terms of relocation or retaining employment (O'Shea et al., 2015), concerns regarding online courses' effectiveness, students' feelings of social isolation and lack of preparation for learning online, still remain. In this frame, researches have paid attention to students' satisfaction from online courses exploring the factors that affect it in the perspective of pedagogical theories (e.g. constructivism) or approaches coming from other fields (e.g. Technology Acceptance Model).

2.1 Technology self-efficacy and technical support

Attitude towards ICT has been explored in the frame of students' satisfaction. Students' attitude towards computers is important in order to use them in instructional settings (Alzahrani & O'Toole, 2017), while Internet experience affects online learning performance (Morris, 2011). On the other hand, anxiety regarding computers, Internet and Learning Management Systems (LMS) usage in online courses impacts negatively on students' satisfaction (Bolliger & Halupa, 2012). Considering that online learning presupposes students' self-confidence to perform ICT-related actions, low confident students are more probable to engage less with online learning activities or interact less

with the instructor and classmates which may lead to online learning dissatisfaction (Liang & Tsai, 2008; Tsai et al., 2011; Sun & Rueda, 2012). Besides students' technological skills, access to technology and internet connectivity (Dray et al., 2011; Herrador-Alcaide et al., 2019) have been also reported to impact on online learning.

Technical quality addressing to technical support and adequacy of equipment has been shown to affect students' decision to participate in online learning. Technical support namely assistance with computers and technology in general, is crucial considering that students' technology skills vary. In this frame, Institution's support (technical support, computer availability, learning material accessibility) (Selim, 2007; Ozkan & Koseler, 2009; Bhuasiri et al., 2012), tutorials (Bunn, 2004), instructional (guidance provided by instructors) and peer support (occurring during interaction) (Lee et al., 2011) impact on students' satisfaction.

2.2 Quality of the online course and previous experience

Factors related to course quality affect students' satisfaction as well. In this frame, the e-learning environment (synchronous and asynchronous communication), instructors' characteristics (teaching style, timely response, informativeness, self-efficacy, technology control, interaction), the course and its content (well-designed course, course structure clarity and flexibility, relevant and interactive content) (Selim, 2007; Ozkan & Koseler, 2009; Bhuasiri et al., 2012; Cole et al., 2014; Harsasi & Sutawijaya, 2018; Placencia & Muljana, 2019) have been reported as quality keys affecting students' satisfaction.

Previous experience from online courses affects attitude towards web-based courses (Abuhanassna et al., 2020) and relates to students' satisfaction (Mittelmeier et al., 2019). Previous online learning experiences positively affect online learning strategies (Wang et al., 2013) resulting in students' higher motivation and self-efficacy (Bates & Khasawneh, 2004; Lim et al., 2006), while along with training provided by instructors decrease students' anxiety in online technologies (Bates & Khasawneh, 2004).

2.3 Motivation

Motivation (perceived usefulness and clear direction) is one of the learners' characteristics (Bhuasiri et al., 2012). Perceived usefulness of online courses combined with ICT ease of use has been explored (Pituch & Lee 2006; Wang et al., 2013) revealing that if students have the skills to use online tools and consider online learning useful, their satisfaction will be promoted (Sahin & Shelly, 2008). Intrinsic motivation includes self-motivation, personal challenge and responsibility and relates to course persistence and its completion (Ivankova & Stick, 2005; Park & Choi, 2009; Joo et al., 2011). Motivation positively affects technology self-efficacy also, which can be promoted by instructors introducing students to the learning platform usage (Wang et al., 2013). In the frame of social constructivism, motivation has been highlighted as an important factor for the creation and enhancement of a sense of community in online learning platforms (Hartnett, 2016).

2.4 Social connectedness and sense of belonging

Social presence or social connectedness is the feeling of being with others and being connected during computer-mediated communication. The degree of online social presence relates not only to the characteristics of the medium and users' perceptions (Sung & Mayer, 2012), but mostly to interaction. Interaction between students and instructor is a significant predictor of engagement in online learning (Veletsianos, 2010; O' Shea et al., 2015), course persistence (Ivankova & Stick, 2005; Liu et al., 2009) and students' satisfaction (Shea et al., 2003; Bolliger & Halupa, 2012; Hart, 2012; Sung & Mayer, 2012; Kuo et al., 2013, 2014; Ritsardson et al., 2017). On the contrary, lack of interaction highly impacts on students' dissatisfaction (Cole et al., 2014). Gillingham & Molinari (2012) showed that, in terms of collaborative learning, students rated higher the interactions with instructors in comparison to their peers. Consequently, teaching presence affects positively social connectedness (Garrison, 2007; Shea & Bidjerano, 2009; Joo et al., 2011).

Social connectedness contributes in its turn to the creation or development of a sense of belonging in a community (Rivera & Rice, 2002; Ivankova & Stick, 2005) decreasing isolation (Joo et al., 2011; Shackelford & Maxwell, 2012). Isolation is one of the major concerns in online courses, which may create feelings of social disconnection (Moore & Kearsley, 2005) resulting in students' dropout or in the perception of a learning experience inferior to others (Liu et al., 2009). On the contrary, the feeling of belonging relates to students' persistence in online courses and consequently to their completion (Hart, 2012).

2.5 Support and time flexibility

One of the factors that impact on students' satisfaction from online courses is support provided by peers, friends or family. Faculty and classmates' support (Holder, 2007; Müller, 2008; Hart, 2012) affects positively course persistence. Abuhanassna et al. (2020) exploring students' satisfaction revealed that faculty and administrative support tend to influence their participation in online learning courses, while Ivankova & Stick (2005) and Park & Choi (2009) highlighted that persistent students think of their family and friends to be supportive to them and their educational endeavors.

Flexibility, lack of time and place restrictions are of the advantages that learners perceive in online learning (Wei & Chou, 2020), since an online course provides the autonomy to plan study and better balance life, especially regarding working students. Thus, time management has been shown to be related to the persistence in online courses and their completion (Hart, 2012) as well as to students' satisfaction.

Many of the factors mentioned above have been included under the umbrella of *online learning readiness concept*; self-regulated learning, motivation, computer/Internet self-efficacy, online communication self-efficacy and interaction (Bernard et al., 2004; Hung et al., 2010; Kuo et al., 2013, 2014; Yu & Richardson, 2015). These factors along with technical support, previous experience and course quality affect students' persistence and satisfaction from online courses.

3. Research methodology

This research aims to explore Greek undergraduate students' adjustment and satisfaction from the online courses they attended during spring academic semester 2020. The undergraduate students of the University of the Aegean were selected as a case study. University of the Aegean is situated on six islands of the Aegean Archipelago, Greece. Before the lockdown, the University was using LMS for both undergraduate and postgraduate courses, providing educational material and facilitating students' communication with the faculty.

3.1 Research questions

Previous researches have explored the factors affecting students' persistence and satisfaction from online courses. What is significant in this case though is that students did not select ex ante the form of courses they would attend according to their preferences, interests and needs. In this frame, it is interesting to explore how students responded to online courses investigating their adjustment and satisfaction from these, while assuming that having no previous relevant experience students encountered difficulties. On the other hand, it is equally possible that students being familiar with other digital environments (e.g. social media) would have adjusted more easily than expected. In this frame, the research addresses to the following questions:

RQ1: To what extent have undergraduate students adjusted to online courses (spring semester 2020)?

RQ2: To what extent are undergraduate students satisfied from online courses?

RQ3: Does students' adjustment and satisfaction from online courses differentiate according to their demographic and academic characteristics?

RQ4: Which are the factors that mostly impact on students' adjustment and satisfaction?

RQ5: Are students' adjustment and satisfaction from online courses related?

3.2 Procedure and instrument

The research, lasting 3 weeks, was conducted at the end of April 2020, six weeks after University's lockdown. The spring academic semester had started the last week of February.

A two-section structured [questionnaire](#) built upon literature regarding the factors that impact on students' satisfaction from online courses was developed by the researches, including also items that address to the situation of pandemic within which courses took place. Questionnaire's design followed the rules set by Javeau (1996). The participants were informed about the research purpose in the introductory note (Babbie, 2011) and researchers' contact details, being also asserted about the anonymity of their responses.

Section A: General Information

It includes 11 close-ended questions regarding students' demographic and academic characteristics (gender, age, department, year of studies, frequency of courses attendance, previous experience from online courses, working status).

Section B: Online courses attendance and satisfaction.

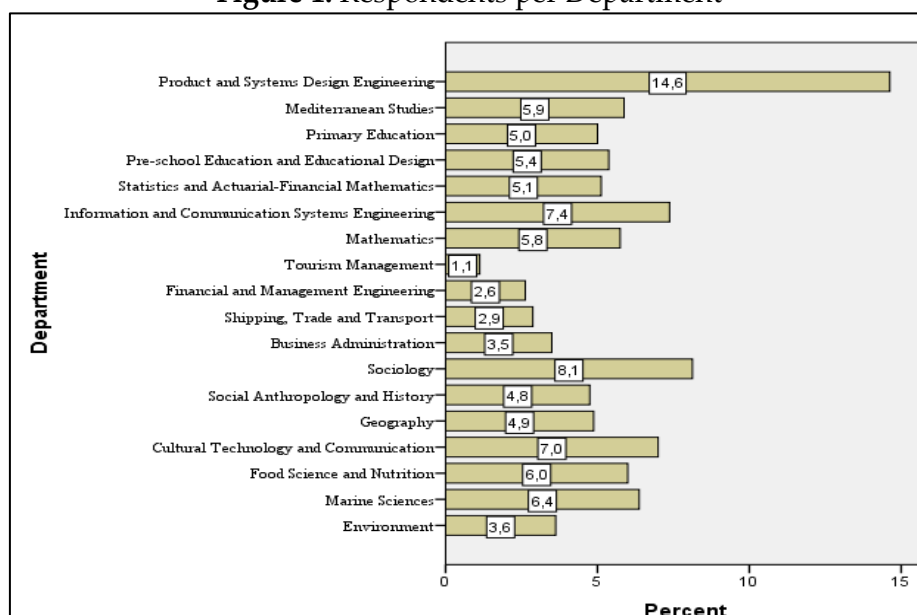
The Section has two sub-sections. The first (B.1-Adjustment to online courses) (14 items) explores students' adjustment to online courses addressing to technology self-efficacy (B.1.1, B.1.6, B.1.10), access to technology (B.1.2-5), online courses previous experience (B.1.7), University's technical support (B.1.8-9), social connectedness (B.1.11), motivation (B.1.13-14) and support (B.1.12). The second sub-section (B.2-Satisfaction from online courses) explores students' satisfaction. It includes 17 items that investigate students' emotional factors (B.2.14-17), course quality (B.2.2-3) social connectedness (B.2.8-9), sense of belonging (B.2.10-11), technology self-efficacy and access (B.2.4-6), support (B.2.7), motivation (B.2.1, B.2.13) and time flexibility (B.2.12). For all questions a 5-point Likert scale was used, ranging from "Not all" (1) to "Very much" (5), while the option "Not valid" was available in the case the scenario didn't respond to the particular situation of the student.

The questionnaire was checked for its language, clarity, difficulty and reliability in a pilot survey addressed to ten students, before receiving its final form. The survey link was sent to all undergraduate students of the University of the Aegean (N=18.954) via their institutional email account. The participation was voluntary. Students' names and email addresses were not required. Data collected were analyzed using SPSS v.21.

4. Results

A number of 800 undergraduate students (Fig. 1) filled the questionnaire. The response rate is 4.22%. Confidence level is set at 95% and the margin of error is estimated at 3.39%.

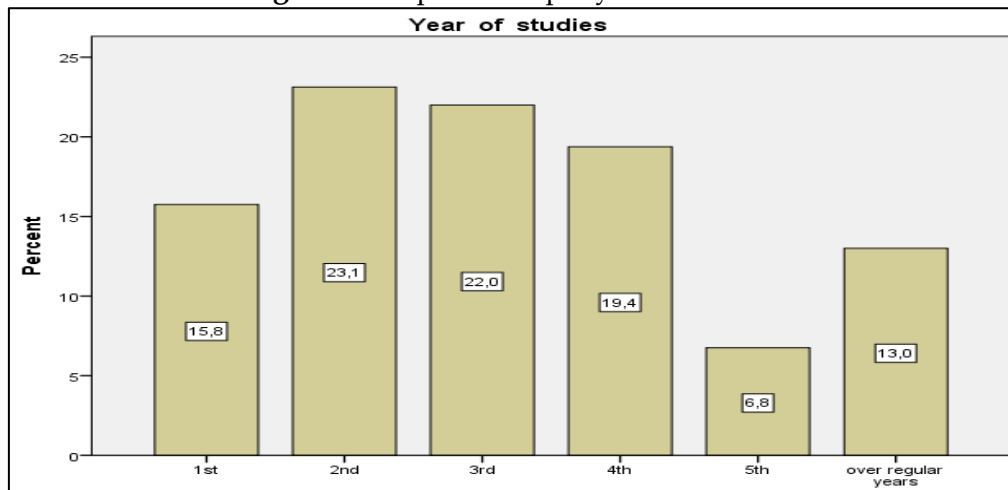
Figure 1: Respondents per Department



Section A: General Information

According to the data, 75% of the participants are women and 25% men with mean age of 22.18 years (min: 18, max: 52). Fig. 2 presents data regarding the year of studies. In Greece, undergraduate studies last four years with the exception of Engineering Departments that last five.

Figure 2: Respondents per year of studies



Before the lockdown, 90% of the students were living on the island where their department is located attending face-to-face courses and of those 20.8% were working. Only 15.9% of all students stated having previous experience in online education.

Table 1 presents courses attendance frequency before and during the lockdown, revealing that the percentage of students attending one or two days a week increased during lockdown, while that of those attending four or five days decreased. The percentage of students not attending at all also increased. The results are interesting, considering that students were expected to attend more frequently online courses.

Table 1: Frequency of courses' attendance

| | Before lockdown (%) | | During lockdown (%) | |
|------------|----------------------|--------------------------|----------------------|-------------------------|
| | All students (n=720) | Working students (n=150) | All students (n=800) | Working students (n=68) |
| Not at all | 1.1 | 3.3 | 7.3 | 11.8 |
| One day | 2.9 | 6.0 | 5.1 | 7.4 |
| Two days | 5.7 | 12.7 | 10.4 | 13.2 |
| Three days | 19.3 | 22.0 | 19.4 | 23.5 |
| Four days | 29.9 | 26.0 | 23.3 | 14.7 |
| Five days | 41.1 | 30.0 | 34.5 | 29.4 |

Section B: Online courses attendance and satisfaction

Sub-section B.1

In sub-section B.1, students should at first select whether the statement/case was applying to their situation and then –if valid- to self-assess it using a 5-point scale. Results are presented in Table 2. Two of the students stated “not valid” for all cases proposed.

Table 2: Students self-assessment regarding factors related to online courses adjustment

| | This statement is valid for me | | | | | This statement is not valid for me % |
|---------------|--------------------------------|-------------|-------------|-----------|----------------|---|
| | Not at all % | Little % | Fairly % | Much % | Very much % | |
| B.1.1 | 1.8 | 6.9 | 18.5 | 20.6 | 50.0 | 2.3 |
| B.1.2 | 7.1 | 6.4 | 6.9 | 3.0 | 5.0 | 71.6 |
| B.1.3 | 8.4 | 15.4 | 12.1 | 6.3 | 6.6 | 51.3 |
| B.1.4 | 7.1 | 13.4 | 12.0 | 6.3 | 7.6 | 53.6 |
| B.1.5 | 7.6 | 26.8 | 19.0 | 8.5 | 17.3 | 20.9 |
| B.1.6 | 2.8 | 12.9 | 26.5 | 20.6 | 32.5 | 4.8 |
| B.1.7 | 5.3 | 8.4 | 8.4 | 4.3 | 3.6 | 70.1 |
| B.1.8 | 4.9 | 17.4 | 32.5 | 19.5 | 18.4 | 7.4 |
| B.1.9 | 26.1 | 17.5 | 16.3 | 10.8 | 16.5 | 12.9 |
| B.1.10 | 4.1 | 15.8 | 28.1 | 20.0 | 29.6 | 2.4 |
| B.1.11 | 5.8 | 14.1 | 26.1 | 20.8 | 30.4 | 2.9 |
| B.1.12 | 19.8 | 23.9 | 14.9 | 8.5 | 18.0 | 15.0 |
| B.1.13 | 18.4 | 16.6 | 14.9 | 9.8 | 21.3 | 19.1 |
| B.1.14 | 15.3 | 19.5 | 23.8 | 12.8 | 18.4 | 10.4 |

Cumulative percentages for “much” and “very much” exceeding 50% in B.1.1, B.1.6 and B.1.10 reveal students’ technology self-efficacy. Regarding (non) access to technology (B.1.2-5) the percentages for “much” and “very much” do not exceed 15% with the exception of B.1.5 and reveal, if combined with the respective “not valid” percentages (B.1.2-4), that students have access to devices and the necessary equipment to attend online courses. However, for approximately half of students’ bad internet connection (B.1.5) causes at least moderate difficulty to attend courses. As expected, few students have previous experience from online courses (B.1.7) and fewer stated that this was useful. Regarding technical support (B.1.8-9), most of the students assessed as at least fairly helpful the instructions given by the University, while 26.1% stated they don’t know where to turn for technical support although University had informed them. Half of the students (51.2%) can easily interact (“much” and “very much”) with teachers and classmates (B.1.11) which indicates they gradually adapt to online education as cognitive and social interactions seem to be facilitated. Cohabitation (B.1.12) causes for 41.4% of the students at least some difficulty to attend online courses, although cohabitation is assumed to result in support by cohabitants. Returning to their homes after the lockdown, students coexisted with others (family members) and this probably led to negative results (e.g. noise, household works, lack of autonomy) creating a non-friendly studying environment. B.1.13-14 results reveal that online courses constitute a motivation for approximately 30% of students to attend more frequently and complete their studies, while also being a way out of the daily routine of the pandemic.

The mean value of students’ adjustment is estimated at 34.13 (RQ1) (maximum expected value 70), which indicates that at the time students filled the questionnaire they had rather moderately adjusted to online courses. The level of students’ adjustment having previously attended face-to-face courses at least one day per week (Table 3) slightly lags.

Table 3: Students' level of adjustment

| | All Students | Students having attended face-to-face courses |
|----------------|--------------|---|
| N | Valid | 798 |
| | Missing | 2 |
| Mean | 34,13 | 33,93 |
| Std. Deviation | 7,497 | 7,384 |
| Minimum | 9 | 12 |
| Maximum | 63 | 63 |

Regarding demographic and academic characteristics' impact on adjustment (RQ3), no significant gender differences were found [$t(796)=.029, p=.977$] with the mean estimated at 34.15 for men and 34.13 for women. No relationship was found between the years of study and adjustment ($\rho=.019, p=.0599$). On the contrary, age was shown to be positively related to adjustment at a low degree though ($r=0.118, p=.001$). In other words, as age increases, students' adjustment also increases. A statistically significant difference (Table 4) in adjustment was revealed between students having previous experience from online courses and those who had not (A.11) [$U(126,672)=31455.00, p=.000$]. Moreover, paradoxically students working during the lockdown had better level of adjustment (mean=35.90) comparing to not working students (mean=33.97) [$t(796)=2.016, p=.044$] (A.10).

Table 4: Previous experience impact on online courses adjustment

| | Previous experience from online courses | N | Mean Rank | Sum of Ranks |
|------------------|---|-----|-----------|--------------|
| Total Adjustment | Yes | 126 | 485,86 | 61218,00 |
| | No | 672 | 383,31 | 257583,00 |
| | Total | 798 | | |

Table 5: Correlations between items of adjustment

| B | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 1.10 | 1.11 | 1.12 | 1.13 | 1.14 |
|---|--------|---------|---------|--------|---------|--------|--------|---------|--------|---------|---------|---------|---------|---------|
| 1.1 | | -.253** | -.210** | -.135* | -.192** | .493** | .280** | .366** | .245** | .530** | .503** | -.214** | .313** | .273** |
| 1.2 | | | .517** | .427** | .445** | | | | | -.150* | -.225** | .507** | -.284** | -.143* |
| 1.3 | | | | .540** | .415** | | | | | -.175** | -.212** | .410** | -.134* | -.124* |
| 1.4 | | | | | .368** | | | | | -.117* | -.171** | .433** | -.263** | -.166** |
| 1.5 | | | | | | | | -.122** | -.119* | -.162** | -.142** | .452** | -.164** | -.143** |
| 1.6 | | | | | | | .381** | .369** | .266** | .434** | .409** | | .292** | .267** |
| 1.7 | | | | | | | | .338** | .229** | .385** | .329** | -.199** | .272** | .337** |
| 1.8 | | | | | | | | | .466** | .378** | .373** | -.189** | .343** | .298** |
| 1.9 | | | | | | | | | | .390** | .327** | -.140** | .243** | .263** |
| 1.10 | | | | | | | | | | | .600** | -.237** | .347** | .298** |
| 1.11 | | | | | | | | | | | | -.265** | .402** | .344** |
| 1.12 | | | | | | | | | | | | | -.344** | -.290** |
| 1.13 | | | | | | | | | | | | | | .599** |
| 1.14 | | | | | | | | | | | | | | |
| Total | .307** | .269** | .225** | .234** | .278** | .469** | .417** | .414** | .441** | .393** | .387** | .151** | .385** | .435** |
| ** . Correlation is significant at the 0.01 level (2-tailed). | | | | | | | | | | | | | | |
| * . Correlation is significant at the 0.05 level (2-tailed). | | | | | | | | | | | | | | |

Table 5 above reveals that most of correlations between adjustment items are low. The higher positive are between: a) technology self-efficacy and social connectedness (B.1.10 and B.1.11) and b) motivation items (B.1.13-14). Support (B.1.12) contributes less to adjustment score, while technology self-efficacy (B.1.6) more (RQ4).

Sub-section B.2

Sub-section B.2 explores the factors affecting satisfaction from online courses. Students followed the self-assessing procedure described previously. Table 6 records the results.

Table 6: Students self-assessment regarding factors related to satisfaction from online courses

| | This statement is valid for me | | | | | This statement is not valid for me % |
|--------|--------------------------------|----------|----------|--------|-------------|--------------------------------------|
| | Not at all % | Little % | Fairly % | Much % | Very much % | |
| B.2.1 | 30.8 | 20 | 12.3 | 7 | 7.3 | 22.8 |
| B.2.2 | 22 | 20.3 | 19.6 | 12.1 | 12.3 | 13.8 |
| B.2.3 | 10.1 | 25.5 | 31.9 | 13.6 | 13.8 | 5.1 |
| B.2.4 | 8.5 | 25.3 | 36.6 | 15.6 | 9.1 | 4.9 |
| B.2.5 | 52.3 | 19.3 | 4.3 | 1.3 | 1.3 | 21.8 |
| B.2.6 | 10.3 | 37.8 | 21.8 | 10.6 | 12.1 | 7.5 |
| B.2.7 | 4.9 | 18.5 | 40.5 | 20.3 | 13.5 | 2.4 |
| B.2.8 | 38.6 | 17.1 | 11.3 | 4.1 | 2.8 | 26.1 |
| B.2.9 | 27.9 | 22.3 | 19 | 9.1 | 5.4 | 16.4 |
| B.2.10 | 13.6 | 22.6 | 23.6 | 13.4 | 14 | 12.8 |
| B.2.11 | 15.3 | 16.9 | 18.3 | 12.9 | 22.5 | 14.3 |
| B.2.12 | 19.6 | 21 | 20.3 | 8.6 | 11.9 | 18.6 |
| B.2.13 | 13.1 | 17 | 24.3 | 15.8 | 23.9 | 6 |
| B.2.14 | 18.4 | 16.8 | 16.4 | 12.5 | 18.6 | 17.4 |
| B.2.15 | 7.4 | 14.4 | 23.1 | 15.9 | 31 | 8.3 |
| B.2.16 | 27.3 | 24.6 | 15.5 | 6.3 | 9.8 | 16.6 |
| B.2.17 | 27.3 | 19 | 14.9 | 6.4 | 12.1 | 20.4 |

The results reveal that students' interest to attend the courses was merely increased (B.2.1) compared to the higher value of the motivation to complete the courses (B.2.13). Although students generally have technology (platform-related) efficacy, there are technical problems making courses attendance difficult (B.2.4-6), probably relating to Internet connection as shown in B.1. Regarding course quality (B.2.2-3), most of the students think at least helpful the material uploaded, while less than half stated that online courses are at least as comprehensible as face-to-face ones. Low percentages were recorded for "much" and "very much" regarding social connectedness (B.2.8-9), which may explain the higher percentage of those that feel cut off from the University's community (B.2.11) in comparison to those they feel belonging in the community (B.2.10). Time flexibility (B.2.12) is rather not supported. These findings explain the percentage of students stating tiredness due to online courses, more pleasure from face-to-face courses and less preference to attend online courses in the future (B.2.14-17).

The mean value of students' satisfaction score is estimated at 39.75 (RQ2) (maximum expected value 85), revealing that at the time students filled the questionnaire, they were not even moderate satisfied by online courses. The level of students' satisfaction having attended face-to-face courses slightly lags behind the general mean (Table 7).

Table 7: Students' level of satisfaction

| | | All Students | Students having attended face-to-face courses |
|----------------|---------|--------------|---|
| N | Valid | 799 | 712 |
| | Missing | 1 | 0 |
| Mean | | 39,75 | 39,34 |
| Std. Deviation | | 9,608 | 9,292 |
| Minimum | | 6 | 9 |
| Maximum | | 65 | 65 |

As in the case of adjustment, no statistically significant gender differences were found regarding students' satisfaction [$t(798)=-.951, p=.342$]. The mean was estimated at 39.14 for men and 39.89 for women. Although no relationship occurred between the years of study and students' satisfaction ($\rho = -.039, p=.272$), the latter was found to be positively related to age at a very low degree ($r=0.093, p=.009$). Furthermore, no statistically significant difference in satisfaction from online courses was revealed between working (mean: 41.40) and not working students (mean: 39.55) during the lockdown [$t(73,469)=1,140, p=.258$]. Results above address to RQ3.

Table 8 records correlations between satisfaction items. Very few are high. The higher positive are between a) motivation (interest) and emotion of pleasure (B.2.1 and B.2.16) and b) emotional factors' items (B.2.16-17). Motivation (B.2.1) and sense of belonging (B.2.10) impact positively on satisfaction score more, while sense of isolation (B.2.11) and tiredness (B.2.14) affect score negatively (RQ4).

Table 8: Correlations between items of satisfaction

| B. | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 | 2.6 | 2.7 | 2.8 | 2.9 | 2.10 | 2.11 | 2.12 | 2.13 | 2.14 | 2.15 | 2.16 | 2.17 |
|------|-----|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2.1 | | .613** | .535** | .501** | -.189** | -.260** | .341** | .620** | .594** | .578** | -.481** | .561** | .494** | -.533** | -.431** | .704** | .687** |
| 2.2 | | | .613** | .556** | -.281** | -.318** | .426** | .518** | .559** | .564** | -.513** | .491** | .573** | -.552** | -.387** | .585** | .588** |
| 2.3 | | | | .626** | -.244** | -.275** | .432** | .433** | .486** | .547** | -.410** | .462** | .509** | -.435** | -.292** | .496** | .467** |
| 2.4 | | | | | -.279** | -.289** | .465** | .476** | .499** | .542** | -.402** | .436** | .512** | -.381** | -.229** | .457** | .449** |
| 2.5 | | | | | | .345** | -.155** | -.180** | -.155** | -.220** | .243** | -.128** | -.209** | .246** | .161** | -.191** | -.175** |
| 2.6 | | | | | | | -.194** | -.296** | -.251** | -.308** | .426** | -.213** | -.280** | .381** | .325** | -.246** | -.244** |
| 2.7 | | | | | | | | .360** | .405** | .464** | -.216** | .284** | .368** | -.254** | | .256** | .257** |
| 2.8 | | | | | | | | | .700** | .555** | -.495** | .462** | .401** | -.370** | -.369** | .515** | .486** |
| 2.9 | | | | | | | | | | .627** | -.501** | .480** | .437** | -.395** | -.340** | .543** | .516** |
| 2.10 | | | | | | | | | | | -.509** | .499** | .510** | -.485** | -.276** | .549** | .534** |
| 2.11 | | | | | | | | | | | | -.383** | -.400** | .570** | .528** | -.547** | -.557** |
| 2.12 | | | | | | | | | | | | | .452** | -.481** | -.388** | .543** | .530** |
| 2.13 | | | | | | | | | | | | | | -.361** | -.235** | .507** | .521** |
| 2.14 | | | | | | | | | | | | | | | .571** | -.564** | -.576** |
| 2.15 | | | | | | | | | | | | | | | | -.543** | -.568** |
| 2.16 | | | | | | | | | | | | | | | | | .823** |
| 2.17 | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|--|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|---------|--------|--------|---------|---------|--------|--------|
| Total | .655** | .593** | .613** | .592** | -.099* | -.130** | .487** | .584** | .619** | .654** | -.352** | .563** | .610** | -.327** | -.202** | .606** | .570** |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | | | | | | | | | | | |
| *. Correlation is significant at the 0.05 level (2-tailed). | | | | | | | | | | | | | | | | | |

According to Table 9 below (RQ5), a positive relationship is recorded at moderate degree between adjustment and satisfaction score.

Table 9: Correlation between adjustment and satisfaction score

| | | Adjustment score | Satisfaction score |
|--|---------------------|------------------|--------------------|
| Adjustment score | Pearson Correlation | 1 | ,500** |
| | Sig. (2-tailed) | | ,000 |
| | N | 798 | 798 |
| Satisfaction score | Pearson Correlation | ,500** | 1 |
| | Sig. (2-tailed) | ,000 | |
| | N | 798 | 799 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | |

5. Discussion

This research investigated undergraduate students' level of adjustment and satisfaction from the online courses provided by the University of the Aegean during spring academic semester 2020. The transition from traditional to online courses was the result of the nationwide lockdown due to the Covid-19. The majority of the students, lacking relevant previous experience, were unprepared and this was expected to impact on their adjustment to online courses and their satisfaction, consequently. The online research took place at the end of April 2020 and lasted three weeks.

Results revealed that undergraduate students showed moderate adjustment to online courses (RQ1). Consequently, the assumption that students who engage with several online activities daily would adjust more easily, is not supported. Moderate adjustment indicates students' non-preparedness to enter online learning activities, highlighting the importance of online learning readiness. Although higher level of adjustment would be more desirable, students' moderate adjustment to online courses achieved in a period of 1.5 months after the beginning of the courses is rather encouraging for the rest of the semester. Students' satisfaction from online courses was less than moderate (RQ2). As in the case of adjustment, students having previously attended face-to-face courses slightly lag in the level of satisfaction comparing to all others, which may relate to their familiarity with the established practice of traditional form of courses (face-to-face) since primary school. Better adjustment to online courses would result in students' higher satisfaction level. However, a relationship at a moderate degree was revealed between adjustment and satisfaction (RQ5).

Regarding students' characteristics impact on adjustment and satisfaction (RQ3), age was shown to affect positively both, at a low degree though, indicating that older students had better adjustment to online courses and higher satisfaction comparing to younger. Age has already been shown to predict students' need to have support in distance education (Owusu-Mensah et al., 2020). Although working status may impact

on students' learning experience, since full time job may result to less time for learning (Kim et al., 2011), our results revealed that students working during online courses had better adjustment than the non-working ones. This may be attributed for instance to experience with online formal environments (e.g. teleworking) or students' need to complete their studies. However, these students didn't show respective satisfaction level, which may be due to the effort to reconcile work with studies. Year of studies did not affect students' adjustment or satisfaction. Online courses previous experience was related positively to adjustment. So, students having previous experience showed better level of adjustment comparing to those who had not, verifying thus that previous experience impacts positively on students' online learning strategies (Wang et al., 2013) and enhances their motivation and self-efficacy (Bates & Khasawneh, 2004; Lim et al., 2006).

Although, all items explored had up to a moderate impact on students' adjustment score, five items were revealed to affect it more (RQ4); a. technology self-efficacy (B.1.6), b. motivation (B.1.14), c. University's support (B.1.8 and B.1.9), and d. previous experience (B.1.7) supporting previous literature. Besides previous experience from online courses already discussed, technology self-efficacy is important for adjustment, having a positive impact on online learning activities engagement (Liang & Tsai, 2008; Tsai et al., 2011; Sun & Rueda, 2012). Assistance with technology is crucial for students (Gillingham & Molinary, 2012). In this frame, Institution's technical support affects students' participation in online learning as already shown (Selim, 2007; Ozkan & Koseler, 2009; Bhuasiri et al., 2012). University of the Aegean had provided students with instructions for the platforms usage and information about the technical support team. Motivation has been explored as a learners' personality trait (Bhuasiri et al., 2012) being related to course persistence (Ivankova & Stick, 2005; Park & Choi, 2009). In this case motivation did not address to the perceived usefulness of online courses in the frame of students' clear direction in studies, but was connected with an external situation, that of pandemic. Attending online courses was a motive for students to overcome daily routine, probably giving them the illusion of normality.

Five items were shown to affect satisfaction negatively (RQ4) at a low degree; a. sense of isolation (B.2.11), b. emotional factors (tiredness from online and preference to face-to-face courses) (B.2.14 and B.2.15), and c. technology self-efficacy and access (B.2.5 and B.2.6). All other items had a moderate positive impact. Sense of belonging (B.2.10), motivation (B.2.1 and B.2.13), social connectedness (B.2.9), course content quality (B.2.3) and preference to online courses (B.2.16) had the higher impact. As revealed, the sense of belonging or isolation has a key role in students' satisfaction, since it delimits the perception of the learning experience (Liu et al., 2009). Social needs and the feeling of belonging are recorded as basic needs in Maslow's hierarchy indicating that interactions and being part of a group is of high importance for people (Eggen & Kauchak, 2016). The sense of belonging is promoted by social connectedness (Rivera & Rice, 2002; Ivankova & Stick, 2005). The research showed that online interaction with instructors, substituting up to a degree the absence of face-to-face interaction, which was disrupted suddenly, led to the perception of social connectedness resulting to satisfaction, as shown in previous

researches, too (Shea et al., 2003; Bolliger & Halupa, 2012; Hart, 2012; Sung & Mayer, 2012; Kuo et al., 2013, 2014; Ritsardson et al., 2017). Course quality with emphasis on content impacts positively on students' satisfaction, as literature has shown (Ozkan & Koseler, 2009; Bhuasiri et al., 2012; Harsasi & Sutawijaya, 2018). Tiredness due to online attendance and preference to face-to-face or online courses was shown to impact on satisfaction. It is worth to note that tiredness is captured in the decrease of students attending online courses four or five days a week and the increase of those not attending at all. Motivation affected students' satisfaction as well. In comparison to adjustment, motivation in this case addressed to interest enhancement and perceived usefulness of the online courses, which are revealed to impact positively on course persistence (Joo et al., 2011), increasing students' satisfaction (Sahin & Shelly, 2008; Wang et al., 2013).

Both students' adjustment and satisfaction from the online courses they attended were moderate. However, the results may have been different by the end of the spring semester 2020 in comparison to these captured in the mid, considering that adjustment is an ongoing process relating to satisfaction. Generally, the lack of online courses' experience and the unpreparedness of students within the sudden transition from face-to-face to online courses led to these results, despite the fact that students belong to a generation acting in digital environments. What differentiates the current research from previous, having explored students' satisfaction from online courses, is that previous addressed to online courses by design that students consciously decide to attend, while in the case explored the courses were not *ex ante* scheduled to be provided online, but were delivered in this form in order for students' education to be continued. Thus, students had to comply with them. This explains the reason for which factors of online learning readiness that determines the level of adjustment and persistence to online courses, and students' satisfaction consequently, had an up to moderate impact. However, it is important to highlight three points of interest; Cohabitation, which is assumed to result in support by family, was revealed to cause inconvenience and difficulty for students to attend the courses in comparison to previous researches underlining the importance of support of relatives and friends. Motivation in the case of adjustment did not mainly relate to students' educational goals, but to their psychological and social needs, since courses were considered as a way out of the routine of pandemic. Finally, it is worth to note the major role of the sense of belonging or isolation in students' satisfaction comparing to other factors. Institutions should take under consideration these three remarks when employing emergency online courses. Without overlooking other factors acknowledged to impact on students' satisfaction, Institutions should emphasize on ensuring conditions for enhanced social connectedness in order for students not only to achieve the learning goals, but mainly to fulfil their social needs cultivating or sustaining the feeling of belonging in an educational community. This can work as an intrinsic motivation probably compensatory to difficulties students encounter.

Although this research is a case study and its results cannot be generalized, it provides interesting findings regarding students' adjustment and satisfaction from online courses provided in this form due to external emergency conditions, not allowing

thus students to pre-select the form of courses according to their needs and skills. Future research should explore students' satisfaction from online courses at present, when these courses have turned to be the common practice.

Conflict of Interest Statement

The authors declare no conflicts of interests.

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