Total Transition to Online Learning: Students’ and Teachers’ Motivation and Attitudes

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Abstract. In this paper, we analyzed students’ and teachers’ motivation factors and attitudes towards total transition to online learning. To collect the data on students’ perceptions we conducted two online surveys (in the beginning of transition and after the 9 weeks of online experience). To get results on teachers’ perceptions we conducted two online interviews (in the beginning of transition and after the 9 weeks of online experience). According to the obtained results students’ motivation factors and attitudes toward online learning improved after 9 weeks of online experience that was mostly impacted by a relevant combination of e-learning tools and teachers’ support. Interviews with teachers showed the positive trend in their motivation and attitudes to online learning due to convenient online platform, however they complained about high workload. We can conclude that adaptation period was successful, students and teachers got used to work in online environment that reflected in their motivation level and positive attitude.

Keywords: Online learning motivation · Attitude toward online learning · Online environment

1 Introduction

Due to the situation with COVID-19 almost all universities around the world were transferred to distance learning in March 2019, including Peter the Great St. Petersburg Polytechnic University (SPbPU). Only 4% of all university’s courses were online, 14% were partly online and 82% were in the face-to-face format, so urgent changes had to be done [1, 2].

The total transition to online learning took 3 weeks. In the first week teachers tried to establish communication with students through e-mail by sending various tasks and topics that had to be done and learnt. Later it was attempt to make an online conference in Skype with students to discuss the materials, but many faced problems with connection because of the network congestion. The final scheme of online working was defined in the third week – all courses were created on the university Moodle platform, where teachers can leave the tasks and exercises as well as upload necessary books and other teaching materials. Also a webinar room for each seminar and lecture of all
courses was made. Students enter the webinar room by clicking on the link in the online timetable, and teachers through their personal account on the Moodle. The usage of the combination of tools allowed building a holistic system of online learning that is presented in the Fig. 1. The university technical departments developed precise regulations on how to work in this system that really helped to adapt (see Fig. 1).

![Fig. 1. The system of online learning in SPbPU](image)

The purpose of the study is to evaluate the level motivation among students and teachers in changing conditions of coronavirus pandemic as well as their attitudes toward these changes.

2 Literature Review

To date, much attention is paid to online learning as a means of providing alternatives to traditional full-time instructor-led education [3, 4]. Online learning offers great opportunities to expand the learning environment for different groups of students [5]. Pituch and Lee [6] argue that students will receive a variety of study guides and communication methods from online learning. This is due to the fact that online learning involves a wide range of technologies, including computer-based learning, web-based learning, virtual classes and digital collaboration [7]. Sun, Tsai, Finger, Chen and Yeh [8] define students’ attitudes toward “the impression of students participating in electronic learning events using a computer.” In order to understand what makes a student participate in online learning, this study believed that student behavior plays an important role.

Ho and Kuo [9] argue that student computer settings play an important role in the convenience of online learning. Previous studies have shown that attitudes and self-efficacy have been identified as important factors affecting student motivation, interest, and effectiveness in an Internet-based learning environment [10]. Sun et al. [8] cited...
Piccoli et al. [11] found that when a student is not afraid of complexity in information technology (positive attitude), the student will become more satisfied and effective in online learning. Their review also shows that attitude affects learning interest [12].

Students’ attitudes toward online learning also depend on system characteristics. Pituch and Lee [6] from their empirical studies indicate that the student is more likely to use the system if the system is user-friendly. Their research also shows that a system that allows the student to interact effectively and offers access to the course content while the student is affecting the use of the system for learning. As noted by Selim [13], students’ attitudes toward online learning are also related to the student’s previous knowledge of computer use. In addition, student attitudes toward the Internet are also important in determining student motivation, interest, and effectiveness in an online learning environment [14].

Daniels [15] explained that student motivation is an important learning criterion. Johnson and Aragon [16] suggested using the online learning environment as a task to address individual differences, motivate students, and encourage social interaction. When students are confident and motivated, a high level of participation is maintained and thus a better understanding of the material is achieved [17–22]. Motivation is reported to be an important prerequisite for student learning in a web environment [23, 24], and the relationship between learning motivation and attitudes towards online learning has been positively correlated [25–27].

Due to the fact that the full transition to online learning is associated with a pandemic and was carried out in an emergency, students and teachers were in a stressful situation. To successfully overcome stress and adapt to new learning conditions, students and teachers must be resilient. Many definitions of stability with somewhat different terminologies have appeared in the literature, but no universal definition has been found [28, 29]. This term seems to be a complex and multifaceted concept, requiring a holistic approach to professional activity and the quality of education [30, 31]. Although studies linking resilience to occupational settings are still limited in scope, resilience is often referred to in the context of the educational environment. There is growing evidence that sustainability is not a static or innate feature, but a contextual and dynamic process [28, 32]. In addition, the term sustainability is commonly used to describe the ability to turn challenges into opportunities and learn in difficult situations [33, 34]. Despite a wide range of partially different understandings of the term, there seems to be a striking agreement on the adaptive nature of sustainability, reflected in several definitions as the ability to respond appropriately to disasters and recover [32, 29]. In a literature review Aburn et al. [28] refer to many studies linking understanding of sustainability with the ability to “bounce back”. In addition, the “bounce back” is associated with “recovery”, that is, the restoration of the initial state of health or well-being after accidents or injuries. Thus, we can consider the concept of resilience as the ability of students and teachers to recover from the shock due to a sharp transition to online learning and continue learning by adapting to new conditions.
3 Methodology

The research is based on the analysis of data collected through 2 online surveys for students and 2 online interviews for teachers. The sample is 254 students and 7 teachers from Humanitarian Institute of Peter the Great St.Petersburg Polytechnic University. The survey consisted of 20 questions (10 items on motivation and 10 items on attitude to online learning). The answers were based on 5-point Likert scale responses (5 = strongly agree, 4 = agree, 3 = neither agree nor disagree, 2 = disagree, 1 = strongly disagree) that made it possible to implement a quantitative evaluation. Two interviews were conducted with 7 teachers in a semi-structured format. Teachers were asked to answer 6 open questions (3 on motivation and 3 in relation to online learning). All interviews were recorded with the consent of the teachers, their answers were analyzed to obtain a qualitative evaluation.

The study sought to answer the following questions:

- What is students’ and teachers’ level of motivation towards online learning?
- What is students’ and teachers’ level of attitude towards online learning?
- What does mostly influence students’ and teachers’ motivation and attitude in online classes?

4 Results and Discussion

To answer the first and the second research questions, all students of Humanitarian Institute were offered twice to complete motivation and attitude questionnaires anonymously (the first survey was after the first week of total transition to online learning; the second survey was after 9 weeks). All students passed these surveys through the online platform Moodle. Interviews were conducted with 7 teachers twice as well as surveys for students. Interviews were conducted online using MS Teams application.

4.1 Motivation Questionnaire of Students

The closed-ended questions were designed to explore the students’ motivation towards online teaching and learning defining five indicators: Desire to continue e-learning (Q1-Q2), Anxiety (Q3-Q4), Positive perception of fully distance environment (Q5-Q6), Self-esteem (Q7-Q8) and Self-demand (Q9-Q10).

Results of both surveys are presented in Fig. 2.

Generally the analysis of results showed that students’ were more motivated after 9 weeks of total transition to remote learning that can be connected with adaptation processes. Nevertheless the indicator of “Positive perception of fully distance environment” was low in both surveys, so we can assume that face-to-face communication is playing a great role in educational processes. Also we conducted t-value analysis to identify whether the difference between indicators of two surveys were significant or not (see Table 1).
According to the t-value test the difference between first and second survey results was significant. To a greater extent, students changed their perceptions regarding anxiety to online learning.

**Fig. 2.** The results on students’ motivation factors

**Table 1.** Descriptive statistics of students’ motivation factors

| Motivation factors                                   | Survey  | Results | SD   | t-value |
|------------------------------------------------------|---------|---------|------|---------|
| Desire to continue e-learning                        | First   | 2,3     | 0,49 | 7,1***  |
|                                                      | Second  | 3,4     | 0,44 |         |
| Anxiety                                              | First   | 4,1     | 0,51 | 8,67*** |
|                                                      | Second  | 2,7     | 0,45 |         |
| Positive attitude to fully distance environment      | First   | 2,5     | 0,56 | 2,24*   |
|                                                      | Second  | 2,7     | 0,51 |         |
| Self-esteem                                          | First   | 3,1     | 0,41 | 6,53*** |
|                                                      | Second  | 3,8     | 0,43 |         |
| Self-demand                                          | First   | 3,4     | 0,59 | 5,87*** |
|                                                      | Second  | 3,9     | 0,48 |         |

Note: * p < 0,05; ** p < 0,01; ***p < 0,001

According to the t-value test the difference between first and second survey results was significant. To a greater extent, students changed their perceptions regarding anxiety to online learning.

### 4.2 Attitude Questionnaire of Students

To investigate students’ attitude toward online learning we created 10 questions that defined the following indicators: The quality of online interaction (Q1-Q2), Effectiveness of online learning (Q3-Q4), Interest to online learning (Q5-Q6), Teacher’s
The analysis showed that students’ attitude to online learning improved over 1.5 months of experience. Students’ perception may have been influenced by the appropriate combination of online platform used in the educational process that allows not only connecting with teachers, but also actively cooperating and working in video conferences.

Table 2. Descriptive statistics of students’ attitudes to online learning

| Students’ attitude                | Survey  | Results | SD  | t-value |
|----------------------------------|---------|---------|-----|---------|
| The quality of online interaction| First   | 3,6     | 0,49| 2,33*   |
|                                  | Second  | 3,82    | 0,44|         |
| Effectiveness of online learning | First   | 2,9     | 0,51| 7,15*** |
|                                  | Second  | 3,8     | 0,45|         |
| Interest to online learning      | First   | 3,12    | 0,56| 2,36*   |
|                                  | Second  | 3,35    | 0,51|         |
| Teacher’s support                | First   | 3,21    | 0,41| 3,21**  |
|                                  | Second  | 3,67    | 0,43|         |
| Ease of Using Online Learning    | First   | 3,29    | 0,59| 6,87*** |
|                                  | Second  | 4,11    | 0,48|         |

Note: * p < 0,05; ** p < 0,01; ***p < 0,001
The indicators that showed the highest difference were “Effectiveness of online learning” and “Ease of Using Online Learning” (the difference was significant at the p < 0.001 level).

4.3 Motivation and Attitude Interview with Teachers

To explore teachers’ motivation and attitude towards online teaching we asked them to answer 6 open questions:

1. Are you worried about the quality of online education?
2. Do you strive to improve the process of online student learning? If so, how?
3. If you do not pay attention to the pandemic, how do you feel about the idea of switching to distance learning?
4. We had to start working with a large number of new services and applications. How do you rate the quality of their work?
5. What problems of distance learning have you encountered?
6. When the pandemic is over, would you like to continue online education?

During the first interview, the teachers were noticeably nervous. Most of them were worried about the transition to online education, worried about the quality and convenience for students. All teachers agreed that in a pandemic, this necessary measure is justified. However, they were confident that the quality of education would suffer due to a sharp shift to online learning.

Each of the teachers sought to improve the educational process, but they lacked well-functioning work. All the teachers were united in that they needed online conferences for live communication with students, answers to their questions “here and now”. Teachers prepared various tasks for students. Although online teaching took them more time than usual. But the motivation of the teachers in the first week was stronger than fatigue. Teachers noted that the situation was perceived by them as a challenge that they wanted to overcome. Thus, teachers noted a high degree of motivation in the first week of distance learning.

Despite all of the above, teachers were skeptical of the idea of continuing online education after the pandemic. All teachers agreed that working in the classroom with students is more comfortable and effective.

The situation changed significantly during the second interview, after a month and a half. During this time, the distance learning model described previously was developed. The teachers got comfortable and the level of anxiety decreased. Work with students has been established, the process has stabilized. Teachers emphasized that even if the quality of education suffers during the period of online education, it will be insignificant and in the next semester they will catch up.

The developed model of online learning met the needs of students and teachers. Teachers adapted the usual teaching materials for the online environment, and also developed new materials suitable for distance education. Most respondents noted the convenience and ease of use of MS Teams, since this program combines many of the necessary functions - video conferences, chat, the ability to give assignments, download training materials and receive feedback.
5 out of 7 teachers faced a problem that negatively affected their motivation. The problem is the excessive laboriousness of distance learning. Teachers not only teach online classes, but also check a large number of students’ homework sitting in front of a computer for more than 8 h a day. In addition to this, teachers work with theses, correspondence students and engage in scientific work. All this activity takes place exclusively at home in front of the computer and takes more than 8–9 h a day. Teachers noted visual impairment, as well as back pain and general fatigue. In addition, teachers point to the feeling that they are always at work. All these factors of remote work demotivate teachers.

Due to this problem, many teachers do not want to continue distance learning in the next school year. However, many teachers note the possibility of using elements of online education in the future.

5 Conclusion

In a short time, the whole world suffered a pandemic due to the spread of the COVID-19. This entailed global changes in all areas of society, including in the field of education. Universities were forced to fully switch to distance learning. St. Petersburg Polytechnic University moved to distance learning on March 16, 2020. The online learning preparation process required more time than University had. Thus, the adaptation process and the search for the best distance learning scenario took place both before and after the transition to the remote work format.

In this study, we studied the motivation and attitude of teachers and students to the distance learning format. Undoubtedly, both students and teachers pointed out that in this situation, online learning is the only possible solution.

Students and teachers participated in the study twice - a week after the introduction of the remote mode and 9 weeks later. The study showed a positive dynamics in the motivation of both students and teachers. Also, the attitude towards the distance learning format has improved over the period under review. We assume that this is due to the creation of the optimal and most convenient model of distance learning, the selection of resources and online services. Accordingly, the level of resilience among students and teachers is high.

However, there are drawbacks in this format of work, namely, very heavy workload of teachers. This has a great influence on the motivation of teachers, as fatigue increases and it becomes more difficult for teachers to work in a remote format.

Many researchers have studied the attitude to distance education and its impact on motivation and academic performance. However, our study considers a very rapid transition from blended learning to fully distance learning. Thus, as a limitation, one can single out the fact that the organization of online education was quite spontaneous. We also did not take into account the general emotional background of students and teachers in the framework of the pandemic and its impact on other areas of respondents’ lives.

We hope that our research will form the basis of many other works on the analysis of the attitude and motivation of students and teachers during a pandemic.
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