The Effect of Remote Classroom Attendance on Students’ Course-Satisfaction

Nataliya G. Koroleva, Anna V. Vozdvizhenskaya, Anna Kh. Vsevolodova, and Aleksandra Y. Vikhareva

North-Western State Medical University Named After I.I. Mechnikov, Kirochnaya ul. 41, 195271 Saint-Petersburg, Russia
nataliya.koroleva@szgmu.ru

Abstract. Introduction of a totally remote classroom in Russian and foreign higher educational institutions became a methodological response to COVID-19 educational disruption. This new, unfamiliar format of teaching and learning was enforced by universities’ authorities and had to be adopted quickly by both, teachers and students. This research investigates students’ response to new educational environment in terms of two criteria: changes in overall course satisfaction, and the most preferable format of training. To get students’ feedback we conducted an anonymous survey in LMS Moodle for 350 first year students at North-Western State Medical University named after I.I. Mechnikov. The survey measured 3 key parameters of the course satisfaction: course expectations fulfillment, learning environments satisfaction, and achieving personal goals. Analysis of the survey outcomes shows that educational process was not disrupted despite the abrupt and rapid character of the introduction of the totally remote classroom. Since students had been familiar with learning digital tools, their goals and needs in education did not change. Psychological aspect gives reasons for the biggest concern: students miss safety and comfort of a conventional classroom. In general, course satisfaction and students’ motivation were not affected largely by the introduction of the totally remote classroom. At the same time, we conclude that students perceive it as a temporary measure and there is a need at higher educational institutions to return to conventional in-classroom learning with digital tools as an additional method to realize educational program.

Keywords: Course satisfaction · Totally remote classroom · Digital teaching and learning

1 Introduction

Nowadays educational systems of all cycles are facing disruption due to a world pandemic of Coronavirus disease 2019 (COVID-19). Higher educational institutions (HEIs) in many countries went online and, consequently, a need for change of all pedagogic approaches to teaching and learning evolved. The most significant shift, that we observe now in HEIs, is an introduction of totally remote classrooms with digital tools of teaching and learning and termination of all in-classroom activities.
'Digital teaching and learning’ is a crucial term for describing remote classroom education. Over recent years, new digital communication technologies have influenced modern society and have become a part of training at all cycles of higher education [1–4]. Digital teaching and learning is defined as any type of teaching and learning accompanied by technology, or as a training practice with the effective use of technology driving students to choose the time, place, methods and speed of learning [5].

By 2020 we observed harmonization of conventional education with digital teaching and learning and emergence of the phenomenon of blended education [6]. This blended educational environment involved the following tools: digital audio and video, mobile devices, podcasting, student response systems, computer-mediated communications, Internet applications, etc. [7, 8].

It is important to note that digital teaching is not the goal in itself, but serves to condition the learning process. Digital teaching offers a lot of advantages: it can improve learning experiences, expand lecturers’ time, help teachers to adapt learning to students’ needs, track students’ progress easily, etc. [8, 9].

North-Western State Medical university named after I.I. Mechnikov (NWSMU), Saint Petersburg, Russia, incorporated most of the digital teaching and learning tools into training practices before the pandemic of COVID-19 and the shift to remote classroom education. Digital teaching and learning tools were used widely to organize self-directed work, offer additional material and information, assess students’ in-classroom and remote classroom performance (testing tools incorporated into LMS Moodle), etc.

In March 2020 along with other HEIs, NWSMU turned to a totally remote classroom with the purpose to compensate for COVID-19 educational disruption. A cohort of leading researchers define a ‘remote classroom’ as digital teaching and learning environment where students and their lecturers are not located in the same place. It has two models: synchronous and asynchronous learning [10, 11].

In synchronous learning there is a real collaboration and interaction as a lecturer teaches live through videoconferences, webinars, etc. Lecturers can share their screen and engage students into discussion. The session can be recorded and available after the lesson. In this model proper Internet connection is very important. In synchronous learning, such tools as videoconferencing via Skype, Zoom, Trueconf and other services, online chats can be used [10, 11].

Asynchronous learning refers to a type of class when instructions and learning do not happen at the same time. It is more flexible for students to plan their schedules, timing, and other obligations, but has little engagement from both, teachers and students. Digital options and tools that are employed in asynchronous learning differ from the ones of synchronous learning [10, 11]. The examples of asynchronous learning tools are course projects and communications through web, email, community forums, etc. In NWSMU we adopted synchronous and asynchronous teaching and learning which we define as remote classroom attendance.

Since March 16, 2020, NWSMU has used LMS Moodle (a free and open-source learning management system) and Zoom as primary remote classroom platforms. Thus, synchronous and asynchronous learning are combined for better teaching and learning outcomes: virtual student-to-teacher interaction in Zoom is supported by exercises, tests and tasks in LMS Moodle.
The hallmark of the switch to totally remote classroom attendance in NWSMU and other HEIs in 2020 is its abrupt character. We should bear in mind that COVID-2019 educational disruption was unexpected and universities in Russia and abroad were unprepared for it. All higher institutions now use synchronous and asynchronous remote classrooms as the only channel of student-to-teacher academic communication and learning. However, RF university community recognizes that a switch to a total remote classroom attendance is an unwilling and temporary measure. The most desirable expectation of the academic community is: once the lockdown is ended, we will come back to the habitual pedagogic environment with face-to-face classrooms and asynchronous remote tools of learning for self-directed study.

Changes in key teaching and learning practices lead to shifts in the way we teach. Pedagogic environment affects such important parameters as planned learning outcomes, students’ progress and motivation, overall course satisfaction. At the same time, it gets to be affected by teachers’ proficiency in new pedagogical approaches and quality of teaching and learning.

A very disturbing factor for remote classroom attendance practices is students’ motivation and course satisfaction. Both phenomena influence learning outcomes greatly and indicate if the proposed teaching and learning tools have been efficient [12, 13].

We presuppose that students’ motivation is a wide concept and a wide scope of courses should be analyzed to evaluate it. In this research we focus on one aspect of motivation – course satisfaction. The questionnaire was compiled for the students to assess their course satisfaction with ‘English Language for Medical Purposes’ discipline. We analyzed the trends in students’ course satisfaction before and during COVID-19 educational disruption to evaluate aptness and productivity of remote classroom attendance tools.

The aim of this research is to assess course satisfaction at students undertaking English Language for Medical Purpose course before and after the introduction of totally remote classroom attendance.

2 Methods

Students’ motivation is one of the key factors in overall course satisfaction. Modern concept of “motivation” appeared in A. Maslow’s works in the middle of the 20th century. Nowadays there exist a few motivational theories based on psychological, sociological and other types of classifications. Self-determination theory (SDT) by E.L. Deci and R. Ryan is the defining theory for this paper. In SDT, motivation affects learning outcomes while being influenced by the educational environment [14].

SDT categorizes motivation into amotivation (total absence of intention to do something) and intrinsic/extrinsic motivation [14].

Intrinsic motivation is defined as an activity aimed at inherent satisfaction. Three basic psychological needs are necessary for successful students’ intrinsic motivation: the need for autonomy, competence and relatedness (the sense of belonging) [15, 16].
Intrinsic reasons for learning a foreign language may include pleasure from the learning process itself, inner learning drives (intention to learn many foreign languages, importance of learning foreign languages by everyone, etc.), academic curiosity, success orientation, accomplishment, etc. [17].

Extrinsic motivation is an outer reward-driven activity. Extrinsic goals can be short-term (fear of academic failure, encouragement by lecturers, friends or parents, participation in competitions, etc.) and long-term (possibility of receiving scholarships, peer and family respect approval, good job opportunities, higher social status, etc.) [12, 17].

Overall course satisfaction is one of the factors that affects students’ learning outcomes. Students’ unhappiness and dissatisfaction in courses can lead to decrease in the motivation to study [18]. In turn, satisfaction is related to the quality assessment. These terms appeared in the field of marketing and then were retaken and adjusted to education in the ‘Assessment of the quality in education’ approach. As an example, C. G. Hernández and M.J. Pacheco assessed satisfaction of the students in a preparatory course of mathematics using the expectation and satisfaction hypotheses and the dimensions of the theory of didactic suitability: negotiation, availability, adaptation, representativity, proximity and involvement [13]. This research findings drive us to assess aptness and productivity of remote classroom attendance tools employed for the delivery of English Language for Medical Purposes discipline at NWSMU.

Course satisfaction assessment is usually carried out to get students feedback toward courses and teaching for improving purposes, course design and teaching [19]. Paramount factors that affect students’ course satisfaction are: the quality of in-classroom teaching and learning practices, the quality of the textbooks chosen for the course, course goals, course content, course recommendations, students’ expectations, learning environments, university facilities and different characteristics of teacher’s performance [20–22].

Course satisfaction is such an important criterion for education quality assessment in HEIs, and academic staff have to maintain the highest level of it in any type of learning environment, involving habitual and novel mode of teaching and learning.

This research measures 3 key parameters of course satisfaction: (i) course expectations fulfillment, (ii) learning environment satisfaction, and (iii) achieving personal goals. We have chosen these aspects, since we presupposed that they a) could have the greatest changes in English for Medical Purposes discipline delivery due to COVID-2019 educational disruption, and b) reflect changes in course satisfaction most swiftly. Figure 1 shows constituents of the 3 key-parameters of course satisfaction selected as essential for this research.
Current research employs two methods: data collection and critical analysis. For each of the 3 key parameters we used a specific design of questions to better reveal their nature.

To measure the first parameter ‘course expectation fulfilment’ students were asked to give 1–5 points (from 5 points if they were ‘totally satisfied’ to 1 point if they were ‘totally unsatisfied’) to show their satisfaction in 5 indicators related to different aspects of teacher’s performance, e.g. ‘Teacher presents new material well’ or ‘Teacher is creative in organizing the lesson’.

Students were asked to assess the given indicators for two-time spans - before and after the adoption of remote classroom attendance by the NWSMU curriculum (March 2020). This allowed us to estimate the change in course expectation fulfilment through students’ feedback to teachers’ performance in a remote classroom.

To measure the second parameter ‘learning environment satisfaction’ students were asked to choose one format of course delivery that is most preferable for them. This parameter also responds to COVID-19 education impact on learning as students never had the option of solely online format of work before.

The third parameter ‘achieving personal goals for overall course satisfaction’ shows students’ motives and drives for foreign language learning. Possible motives were included in random order into the questionnaire according to the classical intrinsic/extrinsic classification of motivation (SDT theory). Students could choose unlimited number of indicators among the following intrinsic motives: ‘I will need English in my career and everyday life’, ‘I like learning subject’, ‘I want to practice...’
abroad’, ‘English is necessary for everyone in the 21st century’, etc., and the following extrinsic motives: ‘English is a part of curriculum, I have to learn it’, ‘I want to have a good reputation among teachers’, ‘I don’t want to study worse than my peers’, ‘Parents approve of me learning English’, etc.

Critical analysis of the results of the survey defined the degree of students’ satisfaction with English for Medical Purposes course delivery. Detailed outcomes of the survey are presented in the following section.

3 Research Outcomes and Discussions

For this research, data were collected from the survey among first-year students of NWSMU. It involved 350 first year students of General Medicine and Preventive Medicine faculties who are undertaking the English for Medical Purposes Course. Students were asked to participate anonymously through LMS Moodle. Thus, we got their objective assessment of the parameters we defined as crucial for the assessment of course satisfaction.

3.1 Course Expectations Fulfillment

Figures 2 and 3 demonstrate students’ feedback to the suggested indicators of the first parameter - course expectations fulfilment.

![Assess your teacher's work before the shift to totally remote classroom](image)

**Fig. 2.** Satisfaction with teacher’s performance before the shift to totally remote classroom.

To make the analysis of students’ satisfaction with conventional and totally remote classroom attendance more objective we applied the method of High/Low Exclusion, i.e., we excluded the minimum and maximum values (or outliers) in students’ answers. We presupposed that points 5 and 1 can involve students’ emotional load and mar the results of the survey since these outliers may signal personal attitude to the course or the teacher. Average values (2, 3, 4 points) were subject to analysis since they express fewer emotions in students’ opinions and bring us to more objective conclusions.
We assumed that such indicators as teacher’s creativity, high standards for learning, ability to keep students interested, clear and concise explanations and ability to adapt learning material to each student are crucial for both, an in-classroom course and remote classroom. Students should not have pedagogical qualifications to assess these indicators and teachers always try to keep up with them in their practice [8].

The level of five indicators of average values (blue, orange and red colors in Figs. 2 and 3) reports relevantly high students’ course expectations from teaching and learning tools in traditional face-to-face classrooms and in totally remote classroom attendance. We say “relevantly high” (even though the percentage is lower than 65–70%), since we excluded maximum and minimum values (given in light green and dark green, see Figs. 2 and 3).

According to the survey outcomes, teachers’ creativity is lower in the habitual learning environment in comparison with remote classroom attendance: the sum of average values for conventional classrooms is 40%, while the similar value for remote classrooms constitutes 42.6%. It might be explained by a strong desire of teachers to sustain the quality of their lessons despite COVID-19 educational disruption. Teaching staff at HEIs is experimenting with new teaching and learning practices, raising their proficiency in new pedagogical approaches and digital tools of education.

Surprisingly, students assessed learning standards for remote and in-classroom attendance nearly equally (the sum of average values is 32.6% and 32%, respectively). The answer to this phenomenon lies in the area of teaching staff’s experience in the delivery of the discipline through remote teaching tools and also in the fact, that HEI curriculum was not changed with COVID-19 educational disruption in terms of planned learning outcomes. In NWSMU, we did not change or adapt learning outcomes and our expectations from students’ performance remained high.

Face-to-face classrooms arouse less interest at students than totally remote classrooms (34% and 37.2% in the sum of average values, respectively). It was also quite surprising, though at the same time promising for viability of remote classrooms. On the one hand, we expected higher interest of students in face-to-face classrooms, since

**Fig. 3.** Satisfaction with teacher’s performance after the shift to totally remote classroom.
the content, goals and pedagogical approaches of English for Medical Purposes discipline require active teacher-to-student, student-to-student interaction. On the other hand, our students belong to the generation of digital era and they are already skillful in remote channels of communication, which makes the prospects of digital tools of education positive [1].

Teachers’ clear and concise explanations and their ability to adapt learning material to all students are intricately connected with the quality of learning outcomes. It drove us to include these indicators into the course satisfaction study. We found out that the students’ satisfaction with these indicators raised quite significantly (from 31.5% to 38%) in the sum of average values. We can explain it by objectively high illustrative capacity of the didactic material applied by teachers in the remote classrooms (with such functions of synchronous education as sharing the screen, video content, schemes, etc., and LMS Moodle didactic capacity).

Putting the data together, we can conclude that an abrupt and sudden switch to totally remote classroom attendance at HEIs did not damage the process of education. We, surely, face a number of difficulties in our teaching and learning practices but we do not observe a complete collapse of the educational system.

3.2 Satisfaction with Learning Environment

The second key-parameter we measured was satisfaction with learning environment. Students were asked to choose one format of course delivery that is most preferable for them. Thus, we measured students’ satisfaction and readiness to be involved into remote classroom, conventional training and the mix of synchronous and asynchronous types of learning (see Fig. 4).

![Preferable learning environment](image)

*Fig. 4. Preferable learning environment.*
According to Fig. 4, asynchronous type of learning through LMS Moodle is the most preferable environment for learning for majority of students - 39% of them have chosen this indicator. There are two possible ways to explain this. First of all, as we mentioned above, prior to COVID-19 educational disruption LMS Moodle had been successfully incorporated into English Language for Medical Purposes course to organize students’ self-directed study. Thus, before the switch to totally remote classroom attendance students were already familiar with LMS Moodle as a tool of self-development in English: they were accustomed to the type of tasks, the format of assessment, deadline meetings, etc. Another important reason for students to choose LMS Moodle as the most preferable environment is a geographical aspect. 70% of NWSMU students come from different parts of Russia (from Kaliningrad to Vladivostok) as well as other countries. Time zones differ greatly, so having a synchronous remote classroom through videoconferencing might be uncomfortable or even physically exhausting for students in the east or west.

A quarter (25% of respondents) chose a conventional classroom as the preferable environment for studying. They see it as a safe, comfortable and contributing way for learning English for Medical Purposes. English course itself and the expected learning outcomes are directly connected to the professional medical area where communication is usually face-to-face. It is easier for the students to adapt psychologically and imitate real-life conditions in conventional classrooms with a teacher as a trainer and mentor.

Surprisingly, a relatively low number of students stands for blended learning (face-to-face classroom combined with performing tasks in LMS Moodle) and remote synchronous learning (online classes combined with performing tasks in LMS Moodle) - 20% and 16% respectively. There is a common assumption that modern students who were born into the digital world find learning with and through various devices more comfortable. However, the results of the survey make us conclude that psychological comfort of being among peers, opportunity to ask questions directly and the well-formed habit of learning in a classroom make face-to-face training preferable for students.

To sum up we can see that remote synchronous learning is the least preferable educational environment for students because 1) they are psychologically unprepared to switch to a totally remote classroom, 2) communicative nature of English language course itself and its learning outcomes are delivered better in a face-to-face lesson, 3) vast geography and 11 time zones of Russia make it difficult for students to go online at the time of university class.

3.3 Study of Students’ Goals

The third parameter we analyzed to assess the dynamics of course satisfaction at students was students’ personal goals in learning English at the medical HEI. This parameter involves students’ motives and drives for foreign language learning (see Fig. 5).
This question was aimed at obtaining data on prevailing intrinsic and extrinsic motives of students to learn English, in accord with SDT [9]. The indicators were offered to students in random order to make them take a fast decision that would reveal the objectivity of their assumptions, expectations and judgements. Students could choose more than one indicator/goal, that is why the sum of all indexes exceeds 100%.

As follows from the chart, career and academic perspectives are the strongest motives for learning English at university: 75.1% of students opted for indicator ‘I will need English in my career and everyday life’ and 70.3% chose ‘English is a part of curriculum, I have to learn it’. In general students prioritize professional needs in English over everyday purposes: ‘I want to practice abroad’ (41.6%), ‘I want to get a high score in the exam’ (48.6%). These needs are associated with either long-term career prospects or with academic needs that compound students’ professional goals.

Among intrinsic motives to learn English, students equally mentioned the interest in subject (42.7%), intention to practice abroad (41.6%), necessity of English for everyone (43.02%). These motives are also the part of students’ academic needs and demonstrate their intention to advance in academic performance despite the mode of learning and teaching practices being used now.

Such extrinsic motives as approval of parents (17.8%), reluctance to study worse than peers (13.6%) and good reputation among teachers (11.1%) are associated with

| Indicator                                                                 | Percentage |
|---------------------------------------------------------------------------|------------|
| English is a part of curriculum; I have to learn it                        | 70.30%     |
| I will need English in my career and everyday life                        | 75.10%     |
| I like learning the subject                                               | 42.70%     |
| I want to have a good reputation among teachers                           | 11.10%     |
| English is necessary for everyone in the 21st century                     | 43.02%     |
| I want to practice abroad                                                 | 41.60%     |
| I don’t want to study worse than my peers                                 | 13.60%     |
| I want to get a high score in the exam                                   | 48.60%     |
| Parents approve of me learning English                                   | 17.80%     |

**Fig. 5.** Students’ goals in learning English.
personal attitudes of students. Relatively low indicators - from 11.1% to 17.8% from all respondents - reveal that professional and academic needs in learning English affect students’ motivation and, consequently, course satisfaction quite conditionally.

Putting the data together, we can conclude that intrinsic factors, in general, dominate over extrinsic. We consider it a positive trend, due to the fact, that intrinsic motivation is more effective for learning outcomes. It also drives us to a positive conclusion: the mode of teaching and learning practices and lower course satisfaction triggered by an abrupt switch to totally remote classroom attendance do not prevent students from advances in academic performance.

### 4 Conclusions and Summary

In the course of our study, we concluded that a shift to totally remote classroom education since March, 16, 2020 had an abrupt character despite the fact that all the described digital options and tools, except for videoconferencing in Zoom, had been used in NWSMU. It was necessary to find a response to the question of how efficient the new learning environment (totally remote classroom education) was. For this reason, we conducted a survey among first-year students of NWSMU to assess the dynamics in their course satisfaction.

As it has been said, course satisfaction is a very important criterion for the quality of education in HEIs that must be retained despite COVID-19 educational disruption and introduction of totally new and unconventional teaching and learning practices.

To understand the efficiency of totally remote classroom education we used 3 key measuring parameters: course expectations fulfillment, learning environments satisfaction, and achieving personal goals. Having collected and analyzed the data, we can conclude that:

(i) Currently, COVID-19 educational disruption is not resulting in a collapse of educational systems at HEIs. However, remote classrooms attendance adopted by all Russian HEIs should be adapted to students and teachers’ expectations, their proficiency in digital tools, psychology and even geographical presence and time-schedule.

(ii) Integration of digital teaching and learning practices into HEI curricula before COVID-19 turns to be crucial in conditions of totally remote classroom attendance now, since students and teaching staff have already adapted to the mode, format and style of training through LMS Moodle and other digital tools, and started to benefit from them in terms of adaptivity to deadlines, time management and didactic bonuses.

(iii) An abrupt shift to a totally remote classroom did not affect students’ extrinsic learning motives connected with future career prospects and academic performance. It means that students keep moving on with their education and self-development despite a drastic change in the format of learning.

(iv) Students tend to prefer asynchronous mode of remote classrooms. It is psychologically more comfortable and physically less demanding, since they are now in different geographical locations and time-zones. They do not consider
videoconferencing as efficient as in-classroom learning activities or digital learning tools (e.g. LMS Moodle).

(v) There is no significant decrease in students’ course satisfaction with the switch to totally remote classrooms, as, obviously, students perceive this mode of learning as a temporary measure and they are expecting to come back to classrooms with their peers and teachers to communicate and learn face-to-face.

On the whole, we can conclude that measures taken at NWSMU due to COVID-19 educational disruption were apt and efficient since students’ expectations and course satisfaction were not affected largely. We have come up with positive outcomes of the application of digital teaching and learning practices, and prospects for future enhancement of educational process.

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