UDC: 378.018.43:004(497.751)
Original scientific paper

INTERACTION IN DISTANCE LEARNING

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Abstract

The main purpose of this paper is to describe and identify the level of teacher-student interaction in the context of online learning during the COVID-19 pandemics in the universities of the Republic of North Macedonia. The paper presents findings on learning from a distance, discovers the weaknesses, the strengths and gives insights regarding the transition from the regular in-person teaching to online teaching. The study also has a secondary purpose to address students' satisfaction with online learning. Quantitative methods have been used to achieve these goals. The quantitative study was conducted with 312 students of the University of Tetova. The results of this study help to evaluate the effectiveness of interaction during on-line learning and provide recommendations on how educational institutions could increase the level of interaction during the process of learning from distance in order to provide high quality teaching. Based on the findings of this research, recommendations that could enrich the teacher-student interaction and provide a satisfactory distance learning are offered. Every educational institution should invest in capacity building related to online teacher-student interaction. Teachers should be provided with technical support that will help their performance during the teaching process, enable them to use their online communication skills and this will affect the emergence of a modern and contemporary teaching process in education. Students need to be trained for the use of different applications and online tools so that they can use them properly and benefit from these online services.

Keywords: interaction, distance learning, online tools, capacity building

1. Introduction

The COVID-19 pandemic forced educational institutions around the world to shift from a classical teaching form to the online one. This preventive measure against the spread of COVID-19 had a tremendous impact worldwide. Educational institutions within an extremely short period of time, had to shift teaching to the online format and change the ways of their functioning and communication with the teaching staff and students.

Studies conducted during the COVID-19 period, emphasize that the spread of COVID-19 has significantly affected students around the world. The findings highlight the difficulties associated with coping with travel restrictions, social distance, isolation, quarantine, dormitory closure, and border closure (Quacquarelli Symonds, 2020). It is reported that the created circumstances have influenced the priorities of the students as well as the level of their interest to attend the lessons in the online format. While some students have reported an interest in online courses, others, due to the impact of closing educational institutions on their lifestyle, have reported lack of motivation and negative attitudes toward online learning (Quacquarelli Symonds, 2020). Home quarantine during COVID-19 and the closure of educational institutions have made students feel disconnected from society and their social circles (Killan, 2020). In these newly created circumstances, the Republic of North Macedonia decided to transition to distance learning, which has shown to be different and with its own unique specifics differing from learning with physical presence. With the increasing online learning in all segments of education and training, research has also begun to focus on identifying best practices and the validity of successful approaches. In particular, many studies have identified teacher-student interaction as a key to student learning and satisfaction because "learning means communicating, communicating means interacting, interacting is learning" (Hefzallah, 2004). In online learning, the conceptual system remains largely the same as in the classroom, but functionally there are major differences and changes.

2. Research objectives and research questions

Given that the Covid-19 Pandemic imposed distance learning it is very important to research and analyze this problem in order to secure a quality and successful learning environment and process for future students. In accordance with the purpose of this study our main objective set is *"Research the literature on teacher-student interaction and distance learning"*, that will be answered by the research question *"What is the degree of teacher interaction in public higher education?"*.

3. Research methods, techniques and instruments

The thesis of this paper is treated from a theoretical and empirical point of view. In the first phase of this paper, literature on teacher-student interaction and online learning was selected and collected. The literature is spread over a considerable number of authors. Based on this literature, research questions were generated and a questionnaire was constructed from the collected data, which would have deepened the knowledge in this field. The instrument used in the research was constructed from two questionnaires that measured students' perceptions regarding the interaction of teachers during online learning and their attitude towards distance learning.

4. Literature review

Notion "Distance learning"

Distance learning is a form of education, which is realized through modern communication technologies, in order to realize the educational process for students from different places and distances outside the traditional learning environment (classroom). Distance learning programs enable interested parties and teachers to interact with each other through computers, the Internet, artificial satellites, telephones, televisions, and other technologies. While distance learning refers to the experience of formal or non-formal learning, distance education means formal guidance provided by a teacher, who plans, guides and ultimately evaluates the learning process (Guce, n.d).
Accurately defining distance learning can be challenging because there are a number of different types and models of distance learning that need to be covered. Certain terms, such as 'e-learning' and 'online learning' on the other hand represent synonyms of distance learning in some contexts. Nevertheless, all forms of distance learning are bonded to some common features, and their objectives are usually the same (Viewsonic, 2020, March 10).

Notion "Interaction"

From the etymology itself, the term "interaction" leads to the idea of a reciprocal action. When applied to human relations, this notion forces us to look at communication as a circular process, where each message, each behavior of one protagonist acts as a stimulus on the addressee and evokes a reaction, which in turn, becomes a stimulus for the first one. This explains the notion of Feedback (behind the action). At the same time, it implies a joint presence and consequently leads us to a face-to-face situation. This last aspect allows us to distinguish the notion of interaction, from the less rich or less meticulous ones: of relationship, connection or relationship.
Interaction is not limited to verbal communication: any behavior (attitudes, gestures, facial expressions), being performed in the presence of the other, pushes the other to have a behavior, which in turn will affect the giver's behavior. Finally, the notion of interaction emerges quite clearly inseparable from the context. The environment in which communication is involved is the bearer of rules and codes, which tend to give it uniqueness: we do not communicate in the same way as in the office, in a classroom, in an evening with friends,

on the street.

5. Methodology of research

This research uses quantitative methods to produce the findings. The research uses the survey method in order to study the level of teacher-student interaction. The survey was conducted through a questionnaire which was divided into three sessions. The first session refers to an overview of participants' demographic data. The second session includes a self-assessment questionnaire in which students had to assess the level of interaction with their teachers during on-line learning. While the third session includes a self-assessment questionnaire in which students express their perceptions about distance learning. The measurement of interaction perceptions is realized by means of 38 questions measured according to the Likert scale (1 = do not agree at all, 5 = completely agree) while the perceptions of distance learning are measured by 10 statements measured according to the Likert scale (1 = do not agree at all, 5 = completely agree). The survey focused on a sample of students at the State University of Tetova. The sample included students from all active faculties at SUT, first cycle, second cycle and third cycle. The study included a sample of 312 students. The selection of students was random, giving every student the opportunity to have an equal chance of becoming part of the study. The survey was conducted online using the Google form application. The analyzed sample has the answers given by 312 students, which were calculated with a 95% reliability coefficient and a 5% error margin.

6. Description of the research instrument

The “Interaction in Synchronous Distance Education" scale (Chiou & Chung, 2003) was used to assess teacher-student interactions during synchronous distance education. As explained by Chioi & Chaung (2003), this scale is constructed referring to the studies of Christophel (1990), Thomerson and Smith (1996), Gunnawardena and Zhang (1998), and Chen and Willits (1999). The scale consists of 38 statements and the Likert Scale was used to assess levels of learning interaction. Higher scores demonstrate a higher level of interaction for the measured statement, and lower scores demonstrate a lower level of interaction for the measured statement. The reliability of the questionnaire was tested by measuring internal consistency through the calculation of the Cronbach Alpha coefficient. The measurement of the internal stability of the instrument, based on the calculations for the Cronbach Alpha coefficients, was at a value higher than 0.7 (permissible rate) indicating the stability of the instrument. Adherence to the reliability standards with alpha above 0.7 of the measurement scales enabled the application of instruments throughout the sample selected in the study.

7. Data analysis procedure

The SPSS 20.0.0 software for statistical data analysis was used for data analysis. The questionnaire was coded before entering the data in SPSS. All questions were graded using the Likert five-point scale, wherein value one (1) represented low degree of motivation, and high degree of professional consumption and value five (5) represented high degree of motivation and low degree of professional consumption. After the data were entered into the SPSS data system, tests for reliability and descriptive statistics were performed.

8. Research results

Demographic characteristics of the study participants

A total of 312 first and second cycle students of higher education at the State University of Tetova participated in the study, of which 88.5% were attending the first cycle of studies, while 11.2% attended the second cycle of studies. In this sampling 78.8% of them were female and 21.2% of them were male with a statistically significant difference between them, wherein female participants hold the highest number of participants. This gender gap can be taken as a good indicator of the inclusion of women in higher education in the Republic of North Macedonia.

Regarding the age and gender of the participants, the data is presented in the following tables (Tables no.1 and no.2)

Table 1: Age statistics

Age		Frequency	Percentage
Valid	<24	257	82.4
	25-29	39	94.9
	30-34	10	98.1
	>34	6	100.0
	Total	312	100.0

According to the age, 82.4% of respondents were under 24 years old, 12.5% were aged 25-29 years, 3.2% were 30-34 years old and only 1.9% were over 34 years old. 52.6% of respondents came from rural areas, whilst 47.4% from urban areas.

Table 2: Gender statistics

Gender		Frequency	Percentage
Valid	Male	66	21.2
	Female	246	78.8
	Total	312	100.0

Regarding the study cycle, 277 (88.8%) students attended the first cycle of undergraduate studies, 35 or 11.2% of them attended postgraduate studies and no surveyed student was pursuing doctoral studies.

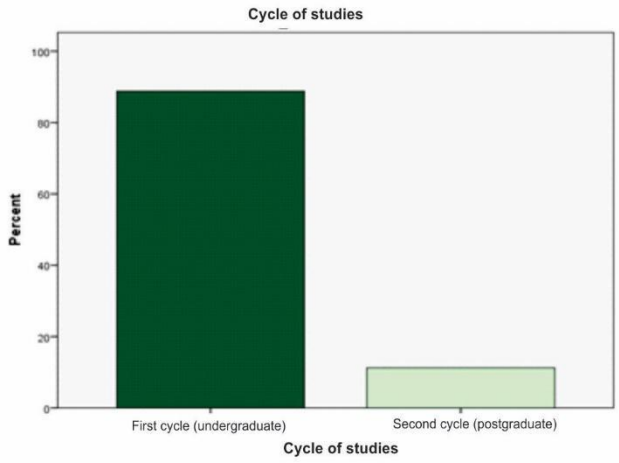

Fig 1. Participants' study cycle

Figure 2 shows that the surveyed students attend different faculties. 23.7% of them attend the Faculty of Pedagogy, 20.2% the Faculty of Medical Sciences, 12.2% the Faculty of Economics, 9.3% the Faculty of Philology, 5.13% the the Faculty of Law, 1.3% Arts, 1.2% Business Administration and 1.6% the Faculty of Physical Education.

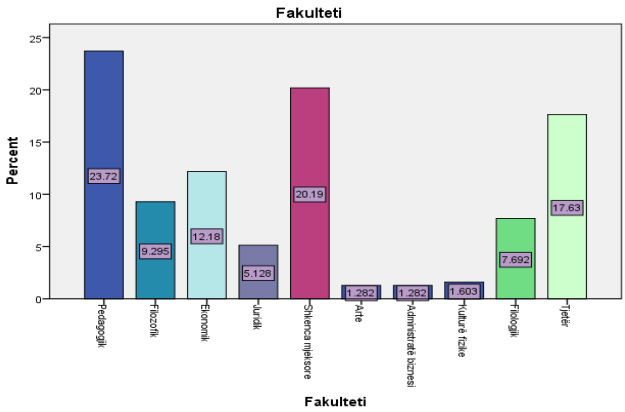

Fig 2. Faculties attended

9. Analysis of results

The findings of this study provide us with direct answers to specific research objectives and research questions. Objective no. 1: Recognize and understand the evaluation of teacher-student interaction through technology. This objective is achieved through the research question:
Research question no.1: *What is the degree of teacher interaction in public higher education?*
The results found from the distance interaction measurement are given in the table below starting from their importance.

Table 3. Assessment of the teacher-student interaction in distance learning

Alternatives	Completely do not agree	Do not agree	Neutral	Agree	Strongly agree	Arithmetic mean
During the online lecture the lecturer responds appropriately if I or other students requests it	3.2	4.2	10.9	37.5	44.2	**4.1538**
In online learning students actively ask questions about the difficulties and uncertainties they have in relation to the learning topics	12.2	17.0	25.0	29.8	16.0	**3.2051**
During online teaching students actively answer the lecturer's questions	8.3	20.8	27.2	22.8	20.8	**3.2692**
During online lectures students have the opportunity to discuss the topic of the lecture	10.3	8.3	22.8	30.8	27.9	**3.5769**
Students have the opportunity to share their views while learning online	9.6	11.9	18.3	34.0	26.3	**3.5545**
The lecturer smiles during the online lecture / exercises	19.2	16.0	25.0	26.3	13.5	**2.9872**
The lecturer uses the appropriate body language during the online lecture	13.1	17.0	22.1	22.8	25.0	**3.2949**
The lecturer uses different tones of voice during the online lecture	17.6	13.5	28.8	25.0	15.1	**3.0641**
The lecturer uses the right volume of voice during the online lecture	5.8	10.3	16.7	32.4	34.9	**3.8045**
The lecturer uses various audiovisual tools to support the online lecture	12.8	12.8	26.0	29.5	18.9	**3.2885**
The lecturer adapts the flow of the online lecture according to the feedback received from students	11.5	13.1	28.5	28.8	17.9	**3.2853**
The lecturer uses humor to improve the atmosphere in the virtual classroom	14.4	14.1	25.0	28.2	18.3	**3.2179**

The lecturer asks questions to encourage students to talk during the online lecture	4.5	7.4	16.3	36.9	34.9	**3.9038**
The lecturer encourages students to express their opinion or to participate in the discussion during the online lectures	7.1	10.3	19.6	31.7	31.4	**3.7019**
The lecturer encourages students to communicate with each other during the online lectures	23.4	18.6	21.2	25.6	11.2	**2.8269**
The lecturer makes remarks about the tasks/activities during the online lectures	8.0	11.5	22.4	39.4	18.6	**3.4904**
The lecturer talks about mistakes in assignments or students' views during the online lectures	9.9	11.9	25.3	32.7	20.2	**3.4135**
The lecturer offers online meeting opportunities after the lecture	30.1	20.5	18.9	17.0	13.5	**2.6314**
The lecturer adjusts the meeting time online if requested by the students	15.4	11.9	23.7	25.6	23.4	**3.2981**
Students are given the opportunity to talk or do things that are not related to the lecture during online lectures	36.2	22.4	16.3	16.0	9.0	**2.3910**
Students have the opportunity to nap (fall asleep) during online lectures	11.1	17.0	12.8	27.9	31.2	**2.8109**
Lecturers send updated information via email.	12.5	17.0	26.0	24.7	19.9	**3.2244**
Students send emails to lecturers for any questions related to the subject	11.5	13.5	18.6	27.6	28.8	**3.4872**
Lecturers try to respond within 24 hours to students' emails	21.2	17.0	24.4	20.2	17.3	**2.9551**
Lecturers comment on student performance in online platforms	12.8	16.0	30.4	24.7	16.0	**3.1506**
Students are given the opportunity to comment on other students' projects / works on the online platform	13.1	11.2	21.5	30.1	24.0	**3.4071**
Lecturers use Google classroom to post assignments	7.4	6.7	14.1	23.7	48.1	**3.9840**
Students post their papers in Google Classroom and others have the opportunity to read and comment	18.6	16.0	23.7	15.4	26.3	**3.1474**
The lecturer has posted information about the subject in Google Classroom	9.3	7.7	16.7	22.1	44.2	**3.8429**
The lecturer has posted the syllabus in Google Classroom	11.9	5.1	14.4	21.8	46.8	**3.8654**
The lecturer keeps the camera open during the online lecture	12.2	10.9	27.9	21.2	27.9	**3.4167**
Students keep their cameras open during online lectures	35.3	25.0	20.5	11.5	7.7	**2.3141**
The lecturer uses the chat as a discussion tool during the lecture	24.7	19.6	21.2	23.4	11.2	**2.7692**
The lecturer uses Google drive to distribute and work collaboratively	34.6	16.0	21.8	16.7	10.9	**2.5321**
The lecturer uses applications like WhatsApp, Viber for online interaction	41.3	13.1	17.6	14.7	13.1	**2.4519**

Table no.3 gives the students' assessment regarding their perception on the interaction of teachers during distance learning, where the alternative *"During the online lecture the lecturer responds appropriately if I or other students requests it"* marks 81.7% of the agreement and where only 7.4 % have expressed disagreement. If we look at the level of agreement on the possible alternatives, we can see that with a compliance of 71.8% students say that the *Teacher asks questions to encourage students to talk during online learning.* A high compliance of 62.1% indicates that Teachers during online lectures encourage students to express their opinion or participate in the discussion. Students have the opportunity to share their views (60.3% agreement) and discuss the topic of the lecture (58.7% agreement). Another form of interaction used by teachers is posting tasks in Google classroom, an alternative which has a 71.8% of positive response. Regarding this platform, students say that they are given the opportunity to comment on fellow students' papers

and projects in order to interact and develop discussions, with a consensus of 54.1%. Google classroom is presented as one of the most used platforms by teachers to interact with students. On this platform teacher post the syllabus (68.6% agree) and provide information about the subject/lectures (66.3% agree). But this platform is not used as much by students to post their papers/projects. The consent rate if Students post their papers in Google Classroom is 41.7%. As a result, there is a 40.7% agreement on the alternative *"Teachers comment on the performance of other students on the online platform"*. This comes as a result of the low usage of this platform by the students to post their work, consequently teachers are not given the opportunity to comment publicly on these platforms, as a result of lack of publishing by students. However, communication about tasks is not lacking in synchronous communication, where teachers comment and give remarks about tasks and assignments (58% agreement).

In addition to the Google classroom platform as a form of interaction, students also use email (56.4% agreement), but teachers lag behind in trying to respond to student emails within 24 hours (37.5% agreement). These data show that email is not used to a satisfactory level by teachers.

There is also a low level of agreement regarding the *alternative "The teacher offers the possibility of online meeting after the lecture"*. With a discrepancy of 50.6%, it can be concluded that interaction outside the synchronous lecture is not at a satisfactory level for students. Regarding the use of technological tools for interaction, a solid agreement of 49.1% is presented only for the alternative "The teacher keeps the camera open during the online learning". Other alternatives show a high level of disagreement, such as: 60.3% disagree that students keep their camera open during online lectures; 54.4% disagree that teachers use mobile applications for online interaction; 50.6% disagree that teachers use Google drive to distribute and work collaboratively; and 44.3% disagree that teachers use chat option for discussion during the lecture. The low use of the camera by students enables even napping during the lecture, where 59.1% of students think that *"Students have the opportunity to nap (fall asleep) during online lectures"*.

10. Conclusions

This paper strives to identify the shortcomings of online and spatial interaction, possibilities of intervention to increase teacher-student interaction and the students' satisfaction during the distance learning, and offers some important conclusions and recommendations. Among the main conclusions, the most important are those that come directly from the findings of this research. Some of the most significant are as follows:

- A vast majority of the students surveyed said that teachers encourage students to express themselves freely during distance learning. They occasionally ask questions and enable students to discuss the topic of the lecture.
- Teachers possess online communication skills. They utilize the right voice tone and volume as well as occasionally utilize humor to enhance the atmosphere in the virtual classroom.
- Teachers communicate with students about assignments and projects in order to clarify them and find out if students have properly understood the requirements of the assignments. In addition, teachers give remarks and talk about mistakes.
- Teachers use the Google classroom platform to interact with students, where they inform students about the subject and post various materials. However, the same platform is not used to the same extent by students to post their work and thus create interaction gaps between students and teachers on this platform.
- Teachers keep their cameras open during lectures, which is not the case with students which offers them comfort but at the same time the opportunity to take a nap during online lectures.
- Teachers use email to interact with students, but do not show a high willingness to respond to students' emails within 24 hours.
- Teachers generally do not use Google drive services, online chat tools and electronic boards during lectures.
- Students are not satisfied with distance learning and would like to return as soon as possible to learning with physical presence.
- Online learning does not stimulate students to learn more and they are not satisfied with the quantity and quality of distance learning.
- Online learning has not enabled students to acquire new knowledge at a satisfactory level but has developed students' digital competence.

Based on the findings of this research, some recommendations that could enrich the teacher-student interaction and provide a satisfactory distance learning are offered bellow:

- Every educational institution should invest in staff training related to online teacher-student interaction.
- In order to enable teachers to use their online communication skills, they should be provided with technical support that will improve their performance in the teaching process, and this will affect the emergence of modern and contemporary teaching in education.
- Students need to be trained on how to use different applications so that they can use them properly and benefit from the services provided by these applications.
- Teachers should take advantage of participating in discussions. In many online courses, discussion forums are the main channel of interaction. The level of lecturer participation in class discussions varies by course, nature of discussion, and lecturer's style. However, lecturers can participate through the necessary comments when students are on the wrong track, or with a summary at the end of the discussion.
- Providing feedback is very important. In addition to grades, individual feedback lets students know that the lecturer has closely evaluated their work.
- Students prefer to be sure they can contact the lecturer about their questions or problems. Online, this can be as simple as setting a time when students can make contact by email and know they will get a quick response.
- Constant and sustainable communication is important for online interaction. Unlike classroom teaching, it is easy for an online lecturer to "disappear". Even if you are checking classes, reading and evaluating assignments, monitoring discussions, and responding to individual emails, these activities are not visible to students.

References

[1]. Åberg, M., Mäkitalo, Å., & Säljö, R. (2010). Knowing and arguing in a panel debate: Speaker
[2]. roles and responsibility to others. In K. Littleton & C. Howe (Eds.), Educational Dialogues: Understanding and promoting productive interaction (pp. 13-31). Oxon: Routledge.
[3]. Alexander, R. (2008b). Towards dialogic teaching: Rethinking classroom talk (4th Ed.), York: Dialogos.
[4]. Bates. A. W. T. (2019, October 19). Teaching in a Digital Age- Second Edition. Guidelines for designing teaching and learning. Pressbooks
[5]. Bork, A. (1989). Interactive learning. Retrieved from http://www.citeournal.org/vol2/iss4/seminal/CITEBork Semina.pdf
[6]. Bull, G. (2005). Looking at display Technologies. Learning and Leading with Technology, 32(6), 40.
[7]. Brown, M., Askew, M., Baker, D., Denvir, H. and Millet, A. (1998). Is the National Numeracy Strategy research-based? British Journal of Educational Studies, 46 (372).
[8]. Conrad, R., and Donaldson, J. (2004). Engaging the online learner: Activities and resources for creative instruction. Jossey-Bass: San Francisco, CA.
[9]. Chiou, S., & Chung, U. (2003). Development and testing of an instrument to measure interactions in synchronous distance education. Journal of Nursing Research, 11(3), 188-196.
[10]. Chitera, N. (2009). Discourse practices of mathematics teacher educators in initial teacher training colleges in Malawi. Unpublished PhD thesis, University of Witwatersrand (Johannesburg). Retrieved from https://etheses.whiterose.ac.uk /11096/1/Final%20Reviewed%20PhD%20Thesis% 2012%20Nov.%2015.pdf
[11]. Galegane, G. A (July, 2015). Study of student- lecturer interaction in communication and study skills classes at the University of Botswana. Retrieved from https://etheses.whiterose.ac.uk/11096/1/Final%20Reviewed%20PhD%20 Thesis%2012%20Nov.%2015.pdf
[12]. Guce, L. (n.d.). Edukimi në distance. Retrieved from https://sites.google.com/site/luljetaguce92 /home/edukimi-ne-distance
[13]. Hasani, L (2020, April 8). Sfidat dhe përparësitë e mësimit nga distanca. Mediafokus. Retrieved from https://mediafokus.info/sfidat-dhe-perparesite-e-mesimit-online/
[14]. Hyseni, D. Z., Hoxha. L (2020) The impact of COVID-19 on higher education: A study of interaction among Kosovar student's mental health, attitudes toward online learning, study skills, and lifestyle changes.