Student Perception of the Quality of Personal Efforts and Learning Outcomes in a Virtual Environment

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Abstarct: The paper presents the results of a study on Danubius University students' perception of the quality of personal efforts and learning outcomes in a virtual environment. This study is based on a tool that identified students' views on learning outcomes using the E-Learning DO - Sakai platform, to find the most effective ways to improve online learning in the coming period. The aspects pursued were structured on the following fields: Overall Experience with Distance Education, Distance Education Infrastructure, Distance Education Tools, Pedagogical Successful, and Personal Profile of the student.

Keywords: online learning; asynchronous learning; synchronous learning; hybrid learning

1. Preliminary Considerations on Learning in the Virtual Environment

The rapid evolution of new technologies generates significant changes at all levels of today's society, implicitly determining the educational system to integrate these technologies as efficiently as possible in the teaching-learning-evaluation process. Based on this premise, the development of new learning theories must reflect the needs found at the level of society in the time frame in which they are formulated. In the same sense, at the educational practice level, along with adapting classical theories of learning, teachers will be responsible for exploring new approaches and models of education formulated following the academic requirements of the 21st century and the profile of the current student.

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The connection between new technologies and learning theories can be outlined starting from the following observations:

- the developments observed at the level of society and education have influenced the way of selection and use of learning theories and technology;
- the connection between learning theories and new technologies is often located in a somewhat ambiguous conceptual framework;
- learning theories and modern technologies are connected through information processing and knowledge acquisition;
- the technologies used in education have transferred a large part of the control over the learning process from the instructor to the learner;
- the new models of learning theories sometimes identify an equivocal mixture of principles and applications (Lowyck, 2014).

Students' perceptions of the quality of personal efforts and learning outcomes in a virtual environment can be varied and depend on many factors. These factors may include students' prior experience with virtual learning environments, their technical skills, level of motivation and engagement, quality of instruction provided by teachers, and other environmental factors.

Some research suggests that students may perceive the virtual learning environment as less stimulating than the traditional learning environment, with less interaction with their teachers and peers. There can also be difficulties in maintaining focus and engagement in a virtual environment, especially in asynchronous online courses where students have to organize their own time and be self-motivated.

However, there are also advantages to learning in a virtual environment, such as flexibility and access to varied educational and technological resources. In addition, students who are more comfortable with technology and have prior experience with online learning may be more optimistic about the virtual learning environment. Therefore, teachers must provide individualized support and feedback to students to help them engage and progress in the virtual learning environment.

In general, students with previous experience with online learning may be more comfortable with this learning modality and may positively perceive their personal efforts and learning outcomes. Also, students actively involved in the learning

process, frequently communicating with teachers and peers, taking notes, and participating in activities are likely to perceive distance learning positively.

On the other hand, students who experience technology or internet accessibility problems may have a negative perception of their personal efforts and learning outcomes, and students who feel isolated or do not receive enough support from their teachers and peers may have, also a negative perception.

2. Study of the Specialized Bibliography - Conceptualization

Online learning refers to acquiring knowledge, skills, and competencies through the Internet and information technologies. This process can occur through e-learning platforms, online courses, digital teaching materials, or other online educational resources.

Online learning offers advantages such as easy access to information, flexibility in scheduling and location, adaptation to individual learning pace, and obtaining a degree or certification without needing physical presence at a traditional educational institution.

This form of learning can also be interactive, using technologies such as video conferencing, online forums, and simulations. This can improve the learning process and increase student engagement and involvement.

Distance education, or e-learning or online learning, is a form of education characterized by the physical separation of teachers and students in the training process and the use of diversified technologies to facilitate student-teacher and student-student communication. A distance learning study program can be offered entirely at a distance or a combination of distance and face-to-face educational activities conducted on the university campus/at the premises of the higher education institution (blended learning). Distance learning courses can use various instructional and communication methods, technologies, and resources, such as video/audio conferencing, Internet-mediated web techniques, and digital or printed study materials[1].

“Millions of students participate in online learning”.

[1] https://www.aracis.ro/wp-content/uploads/2020/06/Definitii-ale-Învățământul-la-distanță-FINAL.pdf.

According to federal data, 5257379 million students took one or more online courses in 2014. This number continues to grow each year.[1]

"Students involved in the online learning process exceed their performance".

According to a 2009 Department of Education meta-study: "Students who took one or the other part of their class online performed better, on average, then those who took the same courses through traditional face-to-face instruction "in front of" with traditional courses (i.e., blended learning), they are even better[2]

Results from another study indicated that the relationship between actual measures of interaction and performance could be more consistent across instructional design measures (Picciano, 2006, pp. 21-40). By design, the success of many online courses depends on the interaction between student and student and between student and faculty. However, how interaction affects learning outcomes and the relationship between the two is a complex pedagogical phenomenon that requires further study.

During the pandemic crisis, research on online learning has multiplied. Digitization is a way of adapting to the conditions of contemporary society, representing, at the same time, the requirement for the success of the future generation. Therefore, adapting to the changes imposed by the pandemic created opportunities for the development of digital competence in the educational environment.

Another research concludes, "Technology is a tool that is part of everyone's life. However, its value depends on the one who uses it. The use of technology has both advantages and disadvantages. Among the benefits of online learning, we mention: creating the skills to work more individually, returning to the subject whenever the need arises, learning adapted to the student's own pace; flexible schedule; online activities can be accessed anytime and anywhere; students have the opportunity to present more processed information"[3].

However, there are also some disadvantages of online learning. For example, some students may need physical interaction with their teachers and peers to stay motivated and organized. Also, access to technology and a good internet connection can be a problem for some students.

[1] Source: 2014 Online Learning Survey: Tracking Online Education in the United States, Babson Survey Research Group.

[2] https://ro.eferrit.com/ce-spun-cercetarile-despre-invatarea-online/; Source: Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies, United States Department of Education.

[3] https://ibn.idsi.md/sites/default/files/imag_file/20-25_27.pdf.

Therefore, online learning can be a good option for students who want to get a degree or learn new skills. Still, it is essential to know its advantages and disadvantages and ensure they can handle the demands of online learning programs.

3. Research Methodology

Starting from what was stated previously, we considered it appropriate to identify students' perception of "Danubius" University on the quality of personal efforts and learning results in a virtual environment.

This study is based on an instrument through which we identified the students' opinions regarding the learning results using the e-Learning DO - Sakai platform to find the most effective ways to improve learning in the online environment in the next period. The monitored aspects were structured in the following areas: Overall Experience with Distance Education, Distance Education Infrastructure, Distance Education Tools, Pedagogical Success, and Student Personal Profile.

3.1. Establishing Hypotheses and Research Objectives

1. The quality of learning is influenced by the pedagogical strategies used in the online learning environment.

Objective: To find out students' opinions about online learning quality and improve the teaching-learning-assessment strategies for the future.

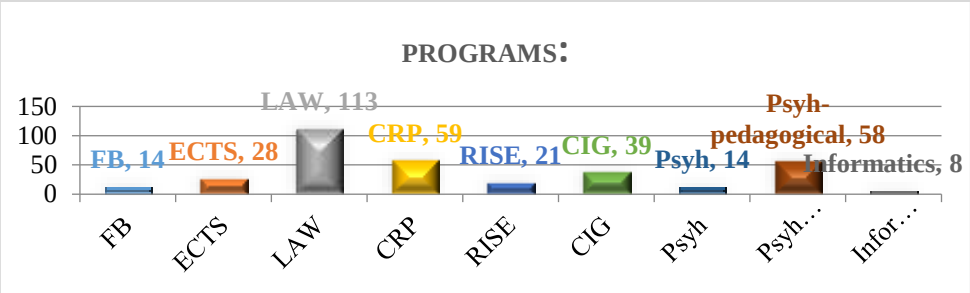
2. The infrastructure of "Danubius" University on the SAKAI Learning Platform is efficient and flexible and offers online learning opportunities.

Objective: To identify the advantages and limitations of the online learning environment by using the SAKAI platform and its efficiency.

3.2. Sample Description

Three hundred forty-two (342) students from Danubius University participated in this research, respectively 11.4% of all students. 37% from rural areas, and 63% from urban areas. Most respondents were from the first year of studies, 40%, and the average age of the respondents was between 21-34 years. 58% of students are enrolled in full-time education.

The breakdown by study programs and faculties is as follows:



The legend: FB- Finance Banks; ECTS-Economics of Tourism and Services Trade; LAW- Right; CRP- Communication and Public Relations; RISE- International Relations and European studies; CIG- Accounting and management informatics; Psychology; Psihopedagogie; Informatics.

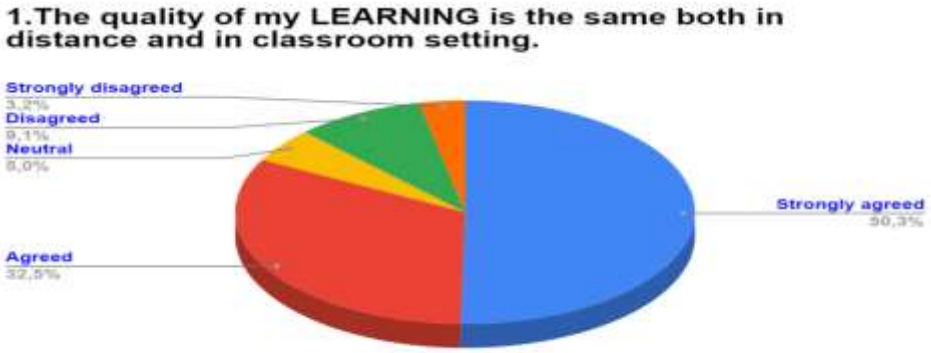
3.3. Analysis of the Results

Statistical techniques were used to analyze the results by processing google forms and interpreting the data.

The questionnaire consisted of 16 questions, and the data was collected using the Likert scale, with five answer options, including a neutral answer option, of which: six questions were about the general experience in distance learning activities, four questions were for distance education infrastructure, three questions about tools used in distance education and three about pedagogical success.

I. Overall Experience with Distance Education

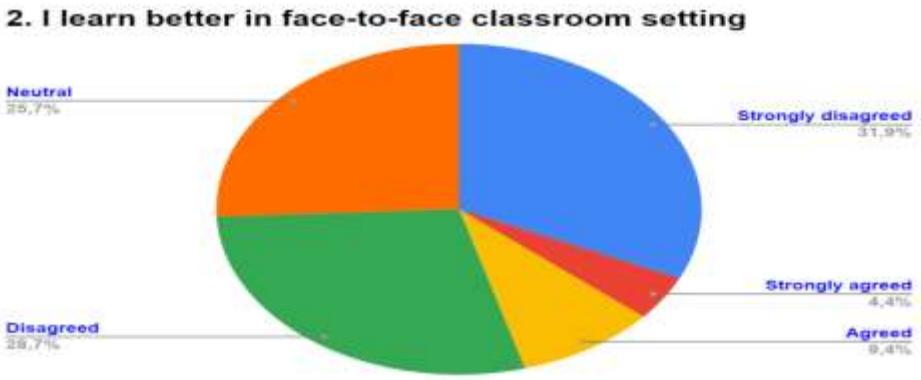
From the analysis of the results, it can be seen that for the first question, 50.3% of the students strongly agree, and 32.5% agree with the statement, which shows that the quality of learning for them is the same both for distance learning and for classroom setting. This result opens up an interesting series of answers regarding the learning activity in the two study forms. The quality of education can be very similar in both online and physical environments, with a physical presence, depending on each student's individual preferences and needs. However, it is essential to consider the differences between the two environments and take the necessary steps to maximize the benefits of each.



In a classroom environment, students can benefit from direct interaction with teachers and peers, a stimulating learning atmosphere, and access to quality educational resources such as textbooks. In addition, they can receive immediate feedback from teachers and get the necessary help during lessons or practical exercises.

However, there are also advantages to online learning, such as the flexibility to organize your study schedule and take classes from wherever you are, access to various online resources, and the ability to collaborate with other students worldwide. Furthermore, technology can be used innovatively to make courses more interactive and engaging.

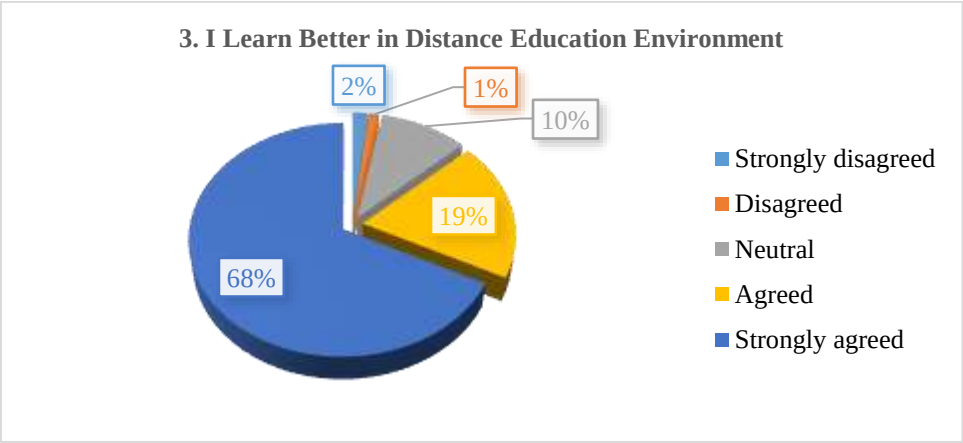
Thus, the answer to the following question*: I learn better in a face-to-face classroom setting* shows that 31.9% of students strongly disagree, and 28.7% disagree with this statement. It is an aspect that proves to us that learning in a face-to-face classroom setting is not, for a significant percentage, over 50%, more effective in terms of learning results. 25% of respondents are neutral regarding the above statement, indicating indecision about the proper form of learning for them.



The following question, *I learn better in the distance education environment*, highlights the fact that 68% of the respondents consider that they can learn better in the online learning environment.

They feel more comfortable and productive in an online learning environment, and several factors can influence this. Some people prefer to learn in an environment that gives them more flexibility and control over their study schedule and pace of learning.

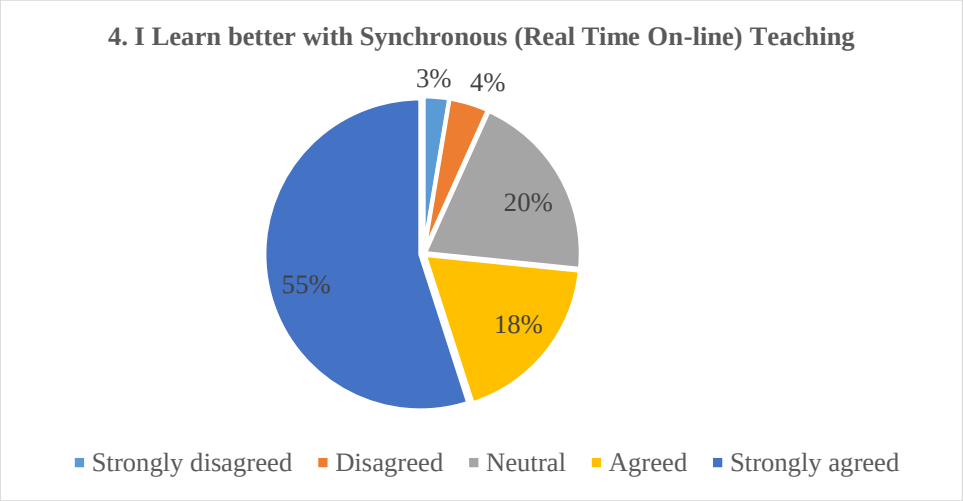
In addition, the online environment can also offer advantages in terms of accessibility, such as the possibility of distance learning or access to learning programs outside the country of residence, each student having their learning style and preferences regarding the learning environment.



Regarding online learning, real-time online synchronous, 55% of respondents strongly agree with this statement, and 18% agree, which means that more than

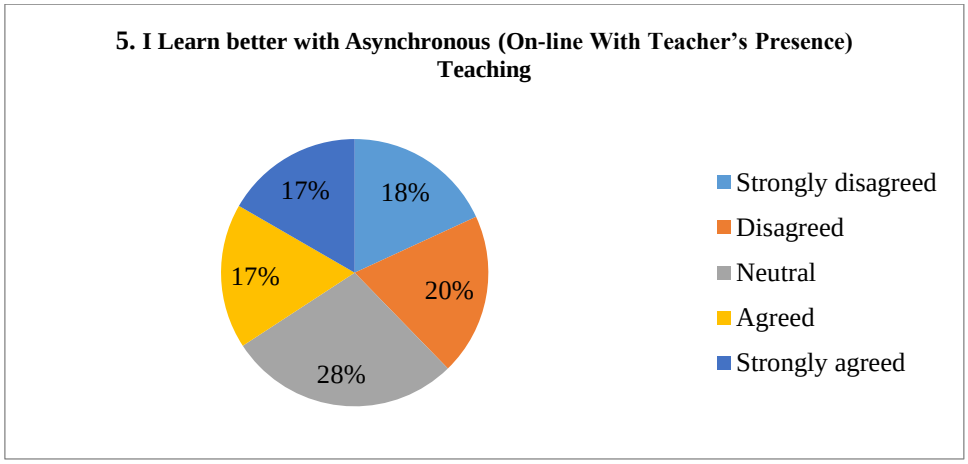
70% of students believe that they can learn much better through synchronous online learning. This type of teaching may be more attractive to them because it offers the opportunity to interact directly with teachers and peers, receive real-time feedback, and be involved in a more interactive learning process.

Synchronous teaching can also help maintain a regular learning routine and provide a structured schedule of classes and interaction with teachers and peers, which can help to stay motivated and follow an average learning pace.



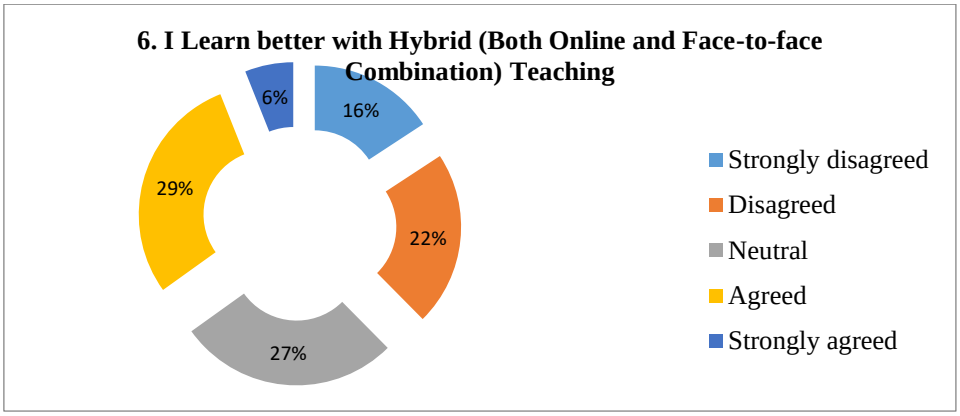
Regarding asynchronous learning, there are very nearly all categories of answers, which denotes a variety of learning styles specific to the responding students. However, it is interesting to note that about 35% of them prefer asynchronous learning, as this type of teaching can offer greater flexibility in terms of the schedule and pace of learning.

In asynchronous teaching, they can access learning materials, such as video lessons, presentations, or exercises, which can be accessed at any time and according to their learning pace. This type of teaching can also be helpful for students who prefer to organize their learning schedule around other activities, such as work or other personal responsibilities. However, 28% of the respondents are undecided about this form of learning, while 38% do not agree with this statement, which shows us the limits of this way of learning.



Hybrid teaching allows students to attend live classes, either face-to-face or online, depending on their individual preferences and needs. This approach can be useful for students who prefer interacting with their teachers and peers in a traditional classroom environment but also want online instruction's flexibility and convenience.

The students' answer to question no. 6, *I learn better with hybrid (both online and face-to-face combination) teaching*, because only 6% of students strongly agree with this form of learning and 29% agree with this. Although, at the same time, it is found that 38%, respectively 22% disagree, and 16% - strongly disagree, which means that the answers are somewhat evenly divided, this answer is certainly of interest for the following research.



II. Distance Education Infrastructure

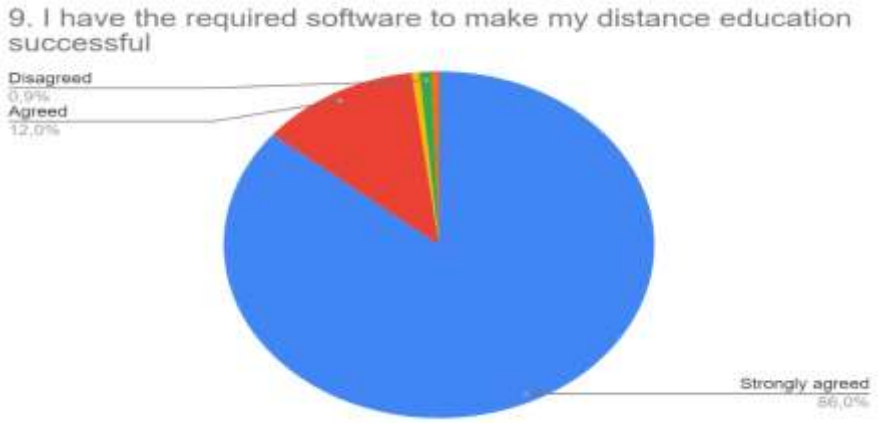
The second part of the questionnaire captured some aspects of learning equipment and platforms.

Thus, to the question *I have a functional personal computer for distance education*, the following answers were recorded: [92.7%]- Strongly agreed; [5.8%] – Agreed; [1.2%]- Neutral.

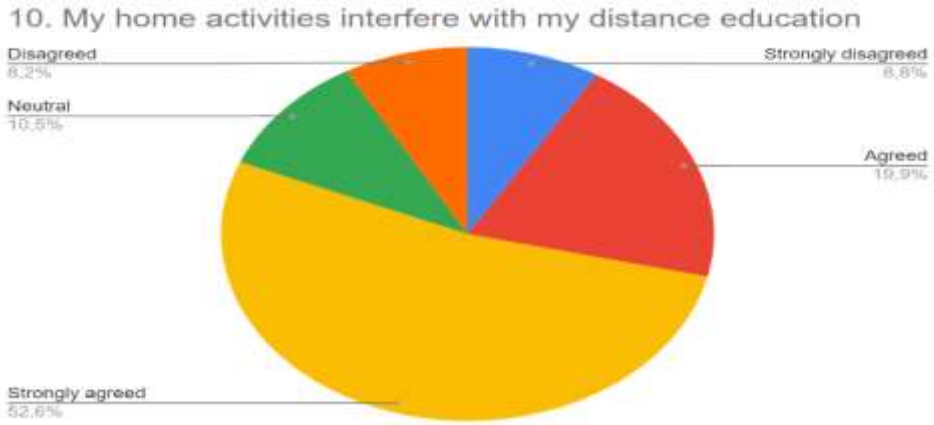
Therefore, most students at Danubius University own a computer, which explains the possibility and preference for online learning.

And on the next question, the scores were satisfactory, the students having WIFI access: *I have WIFI access to make my distance education successful:* [94.4%]- Strongly agree; [3.5%]- Agreed; [1.5%]- Neutral.

Question 9 also scores well on equipping students with the necessary software to access distance learning.



The analysis of the answers to question no. 10 revealed that for approximately 80% of students at Danubius University, daily activity interferes with the online learning activity, which further explains their preference for distance education.

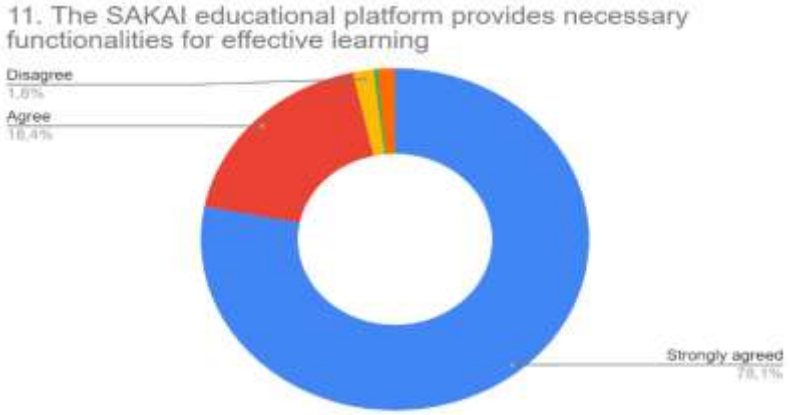


The third aspect analyzed through this questionnaire was related to the tools needed for online learning.

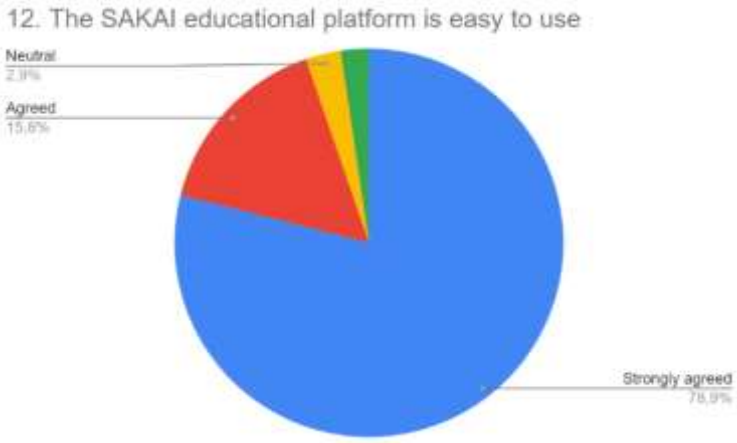
III. Distance Education Tools

The first question in this area was about the functionality of the SAKAI learning platform for online learning.

78% of Respondents strongly agreed, and 18% agreed that the SAKAI Educational Platform offers the necessary functionalities for effective learning. Only 1.8% disagreed with this statement, which leads us to consider that Danubius University has an effective learning platform that offers multiple learning opportunities in the online environment.



The next question concerns the ease with which the SAKAI platform can be used. Again, over 90% of respondents find the SAKAI platform very easy to use, while only 2.9% are neutral.

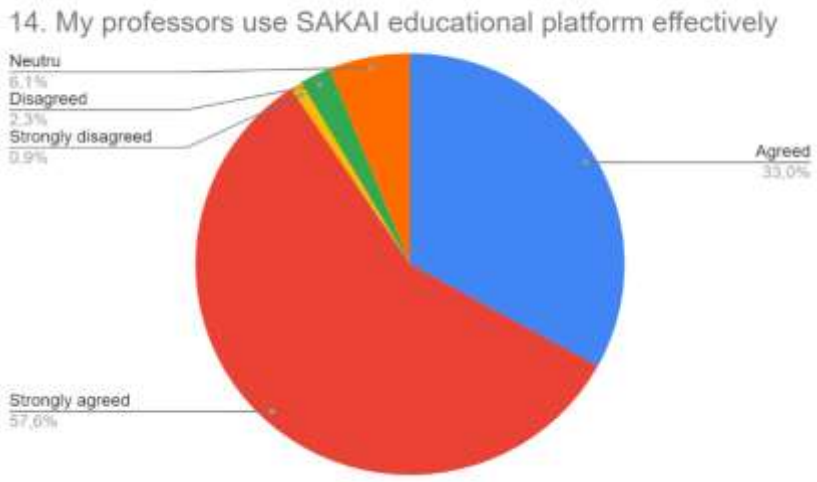


Also, a large majority of students are satisfied with the SAKAI platform. 77% agree, and 17% agree with this statement

IV. Pedagogical Success

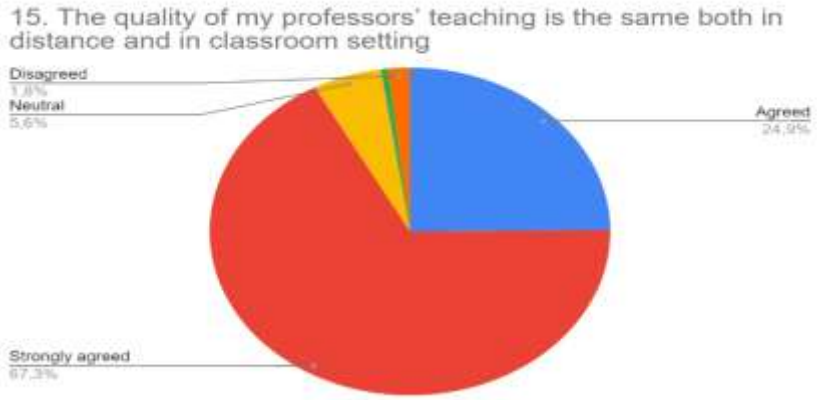
The IV component brings issues related to teachers' digital skills analyzed from students' perspectives as beneficiaries of online courses.

To the question, *My professors use SAKAI educational platform effectively*, 57.6% of students strongly agree, and 33% agree with how professors use the SAKAI learning platform.



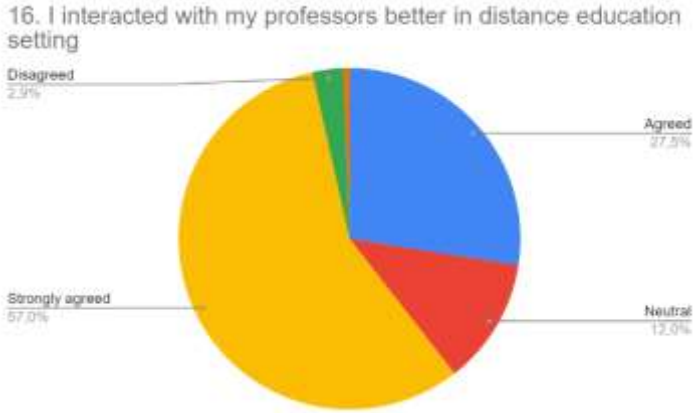
Regarding the quality of teaching, many students strongly agree- 67.3% are totally in agreement, considering that the teaching method of the teachers is equally good both in class and online, is the same both in the distance and in the classroom setting, and 25% agree with this statement.

Therefore, the students, in the vast majority, consider that the quality of the teaching of the professors at Danubius University does not differ, being equally good in both learning situations, which indicates a concern on the part of the teaching staff for the didactic activity in the online environment, for accessibility and theoretical-applicative support for learning.



57% of students believe they interact better with teachers in the online learning environment. I interacted with my professors better in distance education, and 27%

agreed. These results show that students are much more involved and active through distance learning than face-to-face.



V. Recommendations:

The 342 students of Danubius University answered the following open question.

What would you recommend for improving the quality of education at Danubius University?

We will highlight some positive aspects, as well as to be improved for the activity of teaching-learning-evaluation in the online environment, which we will consider for the future didactic activity.

Positive aspects:

"The online courses took place without difficulty, which is why I have no recommendations to make.

I think it is sufficiently developed and accessible to everyone who uses it. Moreover, I want it to stay the same because I'm used to its current form.

Keep the courses online for those who work!

I am satisfied with the quality of the courses.

It's super okay, from all points of view.

I consider that further improvements are optional. Everything works in nominal parameters.

It's perfect for me like that. I'm pleased with everything "DANUBIUS" meant this year.

I am delighted with how all the courses and exams went online. Congratulations!

I have no recommendations; the classes were conducted efficiently.

For me, the quality of the courses was excellent!

Everything is perfect. I graduated from FCRI and MSRI, online master and faculty, partially, and it was very okay.

Courses and exams in the online environment are appropriately conducted. Therefore, I couldn't recommend anything.

For now, I do not recommend anything because I was delighted with the quality of the courses and the teachers that took place online! Thank you!"

Aspects of improvement:

"Feedback from all teachers directly involved in the educational process.

The more powerful the server. Greater power and capacity.

The platform should always be functional, and we should receive an e-mail with every news regarding topics and courses.

Better teacher training for the efficient use of the platform.

More involvement of teachers in communicating and responding to messages transmitted through the Sakai platform.

A better connection with the faculty secretariat.

In principle, there would be no recommendations regarding the platform's structure but the appropriate use.

The more active presence of some of the teachers. Most of them are easy to find and respond quickly to messages, but some keep in touch with the platform, implicitly with us.

I recommend the transmission of the discipline, the discipline sheet, and the course support from the first day of teaching; more the clarity in formulating homework requirements.

Focusing on examples of good practice (minimized theory).

Simultaneous support of as many participants as possible by permanently checking the bandwidth, both users athe host, and constantly updating the sofware at a stable level."

Conclusions

The results of this research helped find out students' opinions about the quality of online learning and improving teaching-learning-assessment strategies for the future, as well as to identify the advantages and limitations offered by the online learning environment using the SAKAI platform and its effectiveness.

Considering the analysis of the results, we can conclude that the first hypothesis of the research, namely, *The quality of learning is influenced by the pedagogical strategies used in the online learning environment*, is confirmed, and the students from Danubius University expressed, in their vast majority the desire to continue studies also through online learning, being an opportunity and possibility to interact much better with teachers, to participate in classes, to be active on the learning platform, being also satisfied with the quality of the teaching strategies of teachers on the SAKAI platform.

Also, the second hypothesis regarding *The infrastructure of "Danubius" University on the SAKAI Learning Platform is efficient and flexible and offers online learning opportunities* is confirmed, and the students also identified the aspects that can be improved to satisfy all learning possibilities in the virtual environment, both at the level of digital learning skills and specific infrastructure.

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