

Analysis of remote and in-person teaching involving the satisfaction of medical students

ARTICLE

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1

Abstract

This article is an excerpt from a survey carried out at the conclusion of a course that aimed to compare the satisfaction of medical students at the Centro Universitário de João Pessoa (PB), in relation to classes held in digital environment and traditional methodology classes with the purpose of understand the learning process. This is a field research, observational, transversal, of an analytical nature and with a qualitative and quantitative approach, based on student satisfaction in relation to the class format. The final sample consisted of 180 students. The research findings reveal that there is significantly greater student satisfaction with the traditional methodology compared to remote teaching. Therefore, it is necessary to study student satisfaction in relation to methodologies to understand the learning process, as well as identify possible flaws in the methods in medical training.

Keywords: Higher education. Methodology. Students.

Análise do ensino remoto e presencial envolvendo a satisfação dos estudantes de Medicina

Resumo

O presente artigo é um recorte de uma pesquisa realizada para conclusão de curso que visou a comparar a satisfação de estudantes de Medicina do Centro Universitário de João Pessoa (PB) em relação às aulas realizadas em meio digital e às aulas de metodologia tradicional, com a finalidade de compreender o processo de aprendizado. Trata-se de uma pesquisa de campo, observacional, transversal, de caráter analítico e com abordagem quanti-qualitativa, baseada na satisfação de estudantes em relação ao formato das aulas. A amostra final foi composta por 180 alunos. Os achados da pesquisa revelam que há uma satisfação significativamente maior dos estudantes quanto à metodologia tradicional em relação ao ensino remoto. Logo, é necessário estudar a satisfação dos estudantes em relação às metodologias para compreender o processo de aprendizado, bem como identificar possíveis falhas dos métodos na formação médica.

Palavras-chave: Educação superior. Metodologia. Estudantes.

1 Introduction

In Brazil, the new Diretrizes Curriculares Nacionais (DCNs) were published in 2014 to regulate medical courses. With these regulations, medical degrees must be orientated towards a general education, preparing professionals with the ability to work at the different levels of health care, which involves health promotion, prevention, recovery and rehabilitation (Brasil, 2014).

A plurality of teaching and learning processes is essential to make this formation a reality. New learning methods are already a reality in various parts of the world and, although there may be some limitations, the results seem to be motivating and favour learner autonomy (Farias; Martin; Cristo, 2015).

Medical schools are characterised by the interpretation and classification of health-related phenomena, as well as the selection of interventions to resolve health problems or illnesses (Oliveira *et al.*, 2018).

According to Gossenheimes, Carneiro and Castro (2017), in health courses, the traditional modality is characterised as face-to-face teaching centred on the teacher and organised predominantly through expositive classes or lectures.

Education has changed with the development of new teaching-learning processes. In general, access to various information and communication technologies (ICTs) by today's society has been increasing and impacting practically every sphere of human activity, including education (Santos; Almeida; Zanotello, 2018).

According to Nobre and Naves (2015), distance learning, throughout its development, has overcome many obstacles and undergone changes in an era that demands constant updating in all fields of knowledge. A virtual learning environment involves a broader context than the simple use of technology, because in it there is an exchange of knowledge, which allows for discussions and exchanges of ideas (Marcuzzo, 2013).

However, there are still challenging gaps between the initiatives and the effective use of these resources in a conscious, autonomous way and with a defined pedagogical intent that is effectively reflected in the teaching and learning processes (Santos; Almeida; Zanotello, 2018).

According to Kuhn, Hofler and Silva (2017), tools to keep students in the study environment, even more so when there is no regular teacher, as in traditional education, suggest challenges when seeking student satisfaction.

In the academic context, we are increasingly seeing the use of approaches other than the traditional one. Studying student satisfaction with the methodology that uses digital environment is important for understanding the students' learning process, as well as understanding the possible flaws in this method.

In this regard, the use of different teaching methodologies can contribute to better learning results and enable students to choose the best problem-solving strategies.

With this in view, the aim of this study was to analyse the satisfaction of medical students in relation to digital classes and traditional classes.

2 Methodology

This work consists of a field, observational, cross-sectional, analytical study with a quantitative and qualitative approach, based on the satisfaction of medical students in relation to classes held in the digital environment and in relation to traditional classes. The research was carried out at a University Centre in João Pessoa, and data was collected between April and May 2020.

The population of this study was composed of students from the first to the eighth periods of the Medicine course at the Centro Universitário de João Pessoa (UNIPÊ), which currently has 890 students enrolled. Thus, using a calculation to define the sample and taking into account a maximum sampling error of 5% and a confidence level of 95%, the result was 269 students, and this sample was constructed non-probabilistically, for convenience. However, due to the pandemic caused by COVID-19, only 188 students responded.

Due to the inadequate completion of 8 forms, the final sample consisted of 180 students, with strict inclusion and exclusion criteria. In order to analyse satisfaction with the methodology using the digital environment, variables were formulated based on the model

of Sun *et al.* (2008), which analyses student satisfaction with distance learning classes, but adapted to the reality of the higher education institution, as shown in table 1.

By saying ‘yes’, the student showed satisfaction with the topics being assessed. By saying ‘no’, the student made it clear that this characteristic did not favour the methodology analysed. Thus, we can evaluate the most satisfactory points in relation to each methodology.

4

Table 1 – Satisfaction variables in relation to the methodology using the digital environment

| Variable name | Description | Type of variable |
|-------------------------------------|-------------------|------------------|
| Student attitudes towards computers | 1 = yes 2 = no | Nominal category |
| Comfortable with digital classes | 1 = yes 2 = no | Nominal category |
| Effectiveness of the methodology | 1 = yes 2 = no | Nominal category |
| Adequate teacher response time | 1 = yes 2 = no | Nominal category |
| Flexibility of methodology | 1 = yes 2 = no | Nominal category |
| Quality of methodology | 1 = yes 2 = no | Nominal category |
| Quality of technology | 1 = yes 2 = no | Nominal category |
| Quality of internet access | 1 = yes 2 = no | Nominal category |
| Usefulness of the methodology | 1 = yes 2 = no | Nominal category |
| Ease of the methodology | 1 = yes 2 = no | Nominal category |
| Learning assessment | 1 = yes 2 = no | Nominal category |
| Interaction with other students | 1 = yes 2 = no | Nominal category |
| Satisfaction | 1 = yes 2 = no | Nominal category |

Source: Author's construction (2020) based on the model of Sun *et al.* (2008).

To investigate satisfaction with the traditional method, variables constructed and adapted from the model of Sun *et al.* (2008) were analysed using elements that are present in the face-to-face method, as shown in table 2.

Table 2 – Satisfaction variables in relation to the traditional modality

| Variable name | Description | Type of variable |
|--|--|------------------|
| Comfortable situation in traditional classes | 1 = yes 2 = no | Nominal category |
| Effectiveness of traditional lessons | 1 = yes 2 = no | Nominal category |
| Adequate response time | 1 = yes 2 = no | Nominal category |
| Attitude of the teacher/tutor | 1 = yes 2 = no | Nominal category |
| Usefulness of the methodology | 1 = yes 2 = no | Nominal category |
| Learning assessment | 1 = yes 2 = no | Nominal category |
| Interaction with other students | 1 = yes 2 = no | Nominal category |
| Satisfaction | 1 = yes 2 = no | Nominal category |
| Student preference | 1 = Remote learning 2 = Traditional methodology | Nominal category |

Source: Constructed by the author (2020) based on the model of Sun *et al.* (2008) and adapted for the satisfaction survey of the traditional methodology.

Satisfaction with the methodology using digital environment was verified by adapting the instrument of dimensions and antecedents of satisfaction, produced by Sun *et al.* (2008), with questions aimed at distance learning activities that affect student satisfaction. This instrument has already been translated and validated for Brazil and has been applied in other higher education institutions.

Student satisfaction with the traditional modality was checked using an instrument based on Sun *et al.* (2008), but adapted to the reality of this approach and the institution in which it was applied.

The data was processed, stored and analysed using the Statistical Package for the Social Sciences (SPSS), version 20.0. Descriptive statistics were used to analyse absolute and relative frequencies. To analyse the existence of an association between the variables, McNemar's test was applied, adopting statistical significance with a Confidence Interval (CI) $\geq 95\%$ and a p-value < 0.05 .

This study was submitted to the Comitê de Ética em Pesquisa do Centro Universitário de João Pessoa (CEP/UNIPÊ) and approved on April 6 2020, under CAEE:

25496619.8.0000.5176. All research participants are in accordance with Resolution 466/12 and agree to the TCLE.

3 Results and discussion

6

Due to the COVID-19 pandemic, only 188 students responded. However, as a result of inadequate completion, 8 forms were excluded, leaving a total of 180 students as the final sample. COVID-19 has caused intense transformations in all dimensions of our lives. Affected in different ways, we behave in different ways, we signify these transformations in different ways; significations that are cultural enunciations (Pereira, 2023).

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) has estimated that around 70% of the world's school community has been affected by the negative effects of COVID-19, which means that in Brazil the number of students affected exceeds 52 million (Brandenburg *et al.*, 2020).

From the instrument applied, which consisted of targeted questions, we can observe the level of satisfaction of the medical students in relation to the methodology using the digital environment (table 3). It was seen that 88.33% (159) of the students had an attitude towards computers, so even without the physical presence of the teacher, they were able to handle the teaching platform adequately. However, according to Dalmau (2007), the teacher is a key element in the learning process, monitoring and guiding the material and pedagogical methods.

Satisfaction was especially provided by the figure of the teacher, indicating their role as a facilitator in the development of students' knowledge and professional skills (Soares *et al.*, 2021).

On the other hand, even with proper handling of the platform (table 3), 97.22% (175) of the students reported that the quality of internet access is fundamental for effective learning through the digital environment. According to Marcuzzo (2013), the quality of internet access is related to the ease of connecting, the speed of access and the satisfactory quality of the internet. In line with this,

Capeletti (2004) shows that the difficulty people have in dealing with IT and computers and the lack of a good internet connection are factors that discourage students in the learning process.

Regarding the assessment of learning during classes held in the digital environment (table 3), 85% (153) of the students do not consider that they are well assessed in relation to learning, even though there are tools capable of helping this verification in the virtual environment.

According to Comin (2013), evaluation must be collaborative, i.e. it must be open to people expressing their opinions, taking positions and making decisions regarding the indicators that will be adopted.

Table 3 – Satisfaction variables in relation to the methodology using the digital environment

| Variable | Absolute frequency | | Relative frequency (%) | |
|-------------------------------------|--------------------|-----|------------------------|-------|
| | Yes | No | Yes | No |
| Student attitudes towards computers | 159 | 21 | 88,33 | 11,67 |
| Comfortable with digital classes | 69 | 111 | 38,33 | 61,67 |
| Effectiveness of the methodology | 59 | 121 | 32,78 | 67,22 |
| Adequate teacher response time | 137 | 43 | 76,11 | 23,89 |
| Flexibility of methodology | 91 | 89 | 50,56 | 49,44 |
| Quality of methodology | 80 | 100 | 44,44 | 55,56 |
| Quality of technology | 74 | 106 | 41,11 | 58,89 |
| Quality of internet access | 175 | 5 | 97,22 | 2,78 |
| Usefulness of the methodology | 107 | 73 | 59,44 | 40,56 |
| Ease of the methodology | 118 | 62 | 65,56 | 34,44 |
| Learning assessment | 27 | 153 | 15,00 | 85,00 |
| Interaction with other students | 113 | 67 | 62,78 | 37,22 |
| Satisfaction | 40 | 140 | 22,22 | 77,78 |

Source: Author's data (2020).

When analysing the usefulness of the traditional method (table 4), 174 (96.67%) students considered it useful. Traditional teaching methods are characterised by the vertical transmission of knowledge and an emphasis on

memorisation to the detriment of critical reflection, based essentially on lectures in which the teacher is the holder of knowledge (Cruz, 2019).

With regard to the assessment method (table 4), 165 (91.67%) students consider that they are adequately assessed during the traditional modality. According to Polak (2009), student assessment is a necessary part of the construction process, in order to modify practices, redefine learning strategies and replan goals and objectives. For this reason, there is a need for student assessment in the digital environment and in the traditional modality.

In addition, in the traditional methodology (table 4), 163 (90.56%) students reported more interaction between students during the lesson. According to Arbaugh (2000), students are more satisfied when they perceive more interaction with other people.

Table 4 – Satisfaction variables in relation to the traditional methodology

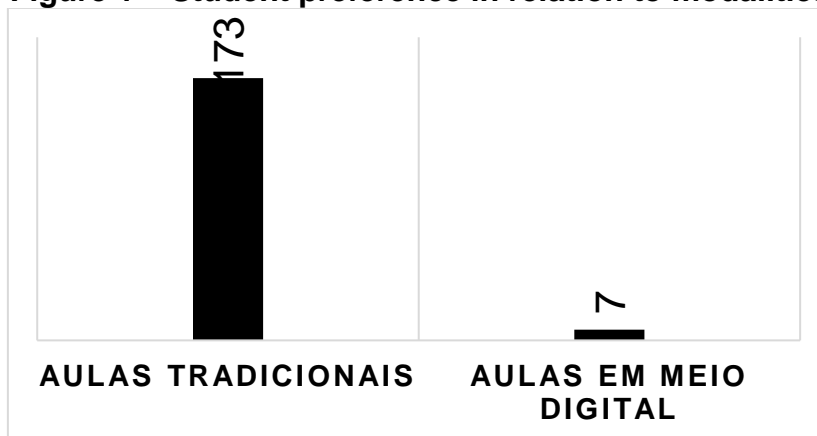
| Variable | Absolute frequency | | Relative frequency (%) | |
|--|--------------------|----|------------------------|-------|
| | Yes | No | Yes | No |
| Comfortable situation in traditional classes | 171 | 9 | 95,00 | 5,00 |
| Effectiveness of the methodology | 173 | 7 | 96,11 | 3,89 |
| Adequate teacher response time | 168 | 12 | 93,33 | 6,67 |
| Quality of methodology | 159 | 21 | 88,33 | 11,67 |
| Usefulness of the methodology | 174 | 6 | 96,67 | 3,33 |
| Learning assessment | 165 | 15 | 91,67 | 8,33 |
| Interaction with other students | 163 | 17 | 90,56 | 9,44 |
| Student satisfaction | 163 | 17 | 90,56 | 9,44 |

Source: Author's data (2020).

Regarding the preference of students from the first to the eighth periods of Medicine, it was possible to observe a greater preference for traditional classes, as shown in figure 1. In total, 173 (96.11%) students felt more comfortable with traditional classes compared to digital classes.

In line with this, Deus (2014) reports in his work with medical students that the traditional methodology was more acceptable and better met the students' expectations.

Figure 1 – Student preference in relation to modalities



Source: Author's data (2020).

In order to obtain a statistically relevant comparison of student satisfaction, Vieira (2010) explains that McNemar's test is the most appropriate. This is because the data is analysed in pairs, i.e. the individual compared to him/herself.

To calculate McNemar's statistics, the tables were grouped to compare agreement and disagreement at two points in time. In this case, the modality used before, traditional, and the current method used in classes, digital environment.

Based on medical students' impressions, there was significantly greater satisfaction ($p = 0.000$ with a 5% significance level) when using the traditional modality compared to classes using digital environment, 90.6% and 22.2% respectively, as shown in table 5.

Thus, throughout the study, we tried to assess whether the students were satisfied or not with the modalities analysed.

Table 5 – Relation between satisfaction with the traditional modality and classes held in the digital environment

| | Digital Environment (%) | Traditional (%) |
|-------|-------------------------|-----------------|
| Yes | 22,2 | 90,6 |
| No | 77,8 | 9,4 |
| Total | 100 | 100 |

Source: Author's data (2020).

4 Conclusions

The study carried out with medical students made it possible to identify their satisfaction with the methodology applied in the course, with the traditional modality being the most prominent.

The findings, through the participants' perceptions, revealed greater significance of classes using the traditional modality compared to classes in digital format, especially in aspects involving usefulness, effectiveness, quality, evaluation and satisfaction. In addition, there was a greater preference among students for lectures compared to remote classes.

On the other hand, it was possible to highlight points that directly influence the quality of the class and, consequently, the satisfaction of university students, the main ones being the didactics carried out by the teacher and the student-teacher and student-student interaction. Therefore, when thinking about and incorporating digital classes into medical training, it is essential to guarantee spaces for interaction and feedback on student learning and performance.

This study has some limitations, such as being applied during the COVID-19 pandemic and thus not reaching the ideal sample size. It can be seen that, even with the great technological evolution of society, the educational process, based on students' perceptions, is still based on the transmission of content by teachers in classrooms. According to Pereira (2023), listening and mediation are important if the classroom, whether physical or virtual, is to become a vigorous space-time that enhances the enunciation and negotiation of meanings.

It is therefore necessary to study student satisfaction with traditional and digital methodologies in order to understand their learning process, as well as to understand the possible weaknesses of these methods in medical training and how information and communication technologies can be better incorporated. To this end, it is important to have a greater number of studies in the field of education involving medical students.

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