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The importance of monitoring in remote teaching: Experiences of a nursing student in the collaborative teaching-learning process in academic training

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ABSTRACT

This is an experience report of a quantitative descriptive approach about the performance of the Monitor's Integrated Monitoring project of the Department of Cell Biology and Genetics (MIC-DBG) of UFRN during Emergency Remote Teaching in the pandemic caused by SARS CoV-2. The Monitoring actions were developed with Ecology, Nursing, Dentistry and Pharmacy students, assisting the teachers of 03 classes of Cellular and Molecular Biology and 01 class of Genetics, making a population of 102 students. The use of TDICs in synchronous and asynchronous actions was of relevant importance for both students and professors, and none of them had sufficient skills and competencies to face higher education in the ERE condition as a strategy for continuing the general activities of the global population. The limitations and restrictions were not the same for the actors of the teacher-student teaching process and, consequently, for the Monitor. The results of the Monitor's actions were successful both with Cellular and Molecular Biology classes and with the Genetics class, where the use of Instagram and Whatsapp was the main communication link. The actions included group discussions, holding scavenger hunts through Instagram, providing didactic material, solving exercises discussed remotely, and also using virtual laboratories, online simulators, animations and games of biocellular processes, culminating with the unique opportunity that Monitoring provides, that of teaching a theoretical class supervised by the teacher. There was good adherence of the students with participation in the discussions and search for monitoring to remove doubts individually with preferential use of messaging applications (insert the numbers %). Reports from the students in the groups (67%) point to TDICs as great strategies for a greater assimilation of the content, as well as an improvement in the performance of the evaluations due to the contribution of the monitor. In this report of the experiences of a Bachelor's Degree in Nursing student as an Integrated Monitor, it is noted that, although the challenges experienced during the pandemic have affected the population in several instances, and in education it was no different, the possibilities with new technologies in line with synchronous and asynchronous remote teaching, it was possible to reap good results during the Emergency Remote Teaching (ERE), which contributed so much to the maturation and strengthening of the student triad - Integrated Monitor – Teacher.

Keywords: Remote teaching, Monitoring, TDCIs, Social Networks.

1 INTRODUCTION

The Continuous Integrated Monitoring Project of the Department of Cell Biology and Genetics (MIC-DBG), of the Biosciences Center, of the Federal University of Rio Grande do Norte (UFRN) began in 2014.The integration of monitoring is the result of the understanding that interdisciplinarity

is a fundamental part in the production and socialization of knowledge in the area of education, since thinking becomes multidimensional and as a consequence favors the organization of information. Overcoming knowledge fragmentation (Thiesen, 2023).

The demand for integrated monitoring meets the profile of the DBG since the Department attends seventeen (17) undergraduate courses, offering Curricular Components (CC) of Genetics and Cellular and Molecular Biology, and each semester between thirty and thirty-three (30 and 33) classes are created with approximately 740 students. Over the years, MIC-DBG has selected 47 scholarship holders and 44 volunteer integrated monitors and has served approximately 3400 students in more than 180 undergraduate classes (on average with 35 students) with monitors (not including attendance for students in classes without monitors).

The integrated monitoring of the DBG selects students from the undergraduate courses at UFRN, which requires *the* approval of the student in both curricular components of Genetics and Cellular and Molecular Biology. In this way, the Integrated Monitor is able to act and assist, simultaneously, an undergraduate class with the Genetics component and another with Cellular and Molecular Biology. In addition, each semester the Monitor interacts with different classes, undergraduate courses, teachers, methodologies and didactics, helping with the mutual exchange of knowledge and interdicisplinarity that expands even outside the classroom (BLAHA et al., 2014).

On March 11, 2020, the World Health Organization declared a worldwide pandemic caused by the novel coronavirus (COVID-19), severe acute respiratory syndrome 2 (SARS-CoV-2). The disease began in Wuhan, China, and within two weeks of the virus circulating, the number of confirmed cases increased 13-fold outside China and three-fold in other countries(Cucinotta and Vanelli. 2020). The ease of viral spread and the pandemic state of emergency caused the whole world to enter into social isolation, until in-depth studies on the virus, form of transmission, characteristics of the disease and treatment could reach the community, and the community learned to readjust its daily activities.

Not differently, education has undergone transformations never experienced before due to this scenario. The pandemic has affected nearly 1.6 billion students in more than 190 countries and on every continent of the globe. This has prompted the United Nations (UN) to show its main concerns about the possible impacts of this outbreak on education. In its understandings, the UN emphasized that education, in addition to being a human right, is an enabler with a direct impact on other human rights. As such, it was up to the world to rethink and reimagine education with ways to accelerate and change the teaching and learning of that moment(By Giusti2020).

In this urgent global scenario, conditioned by COVID-19, supported by Resolution No. 062/2020-CONSEPE, of November 5, 2020, the Emergency Remote Teaching (ERE) format is instituted in UFRN's teaching activities to meet this gap. Unlike distance learning (EAD) in which the teaching team is already trained, with platforms completely adapted to this format, the pandemic

imposed a new reality on educational institutions: teaching remotely, encouraging teachers and students to adapt without presenting a standardization in the form of activities, resources used, and classes.

Since then, several challenges have been faced, both by the teacher and the student, to meet this transition period. Teachers needed to reinvent themselves from a form of teaching that was fully face-to-face, in the classroom, to virtual classes, without the previous pedagogical and technological improvement, which were acquired by distance education. Added to this are the difficulties with the information technology (IT) infrastructure of educational institutions. It is important to mention that remote teaching not only requires the use of ICTs, but also the use of other resources such as printing papers, books, group work that facilitate the assimilation of content (CLEMENTINO et al., 2021, MACHADO et al., 2022). For the students, but not very differently for the teachers, many of the difficulties faced were the limitations for internet access, availability of electronic equipment, as well as the organization of their study routine within their family life, adding to this, the emotional instability in which that moment brought, as reported by Lima et al (2020), Tulaskar and Turunen (2021), Juliani et al (2022), and Santos et al (2022).

According to Lobo and Maia (2015), the face-to-face teaching-learning process tends to be more enriching to the extent that the student is led to learn by doing, that is, by having active participation with the use of TDCIs in classroom activities. In this way, the student's contribution as a central link in the classroom allows for a faster exchange of information between students and the monitor/teacher. The purely expository class then gives way to the active role of the student, in which he will be led and taught to seek information, which makes him a fundamental part in the search for knowledge. The study conducted by Leka and Grinkraut (2014) reports that students often find themselves trapped in an unattractive environment in the face-to-face classroom, linked to the methodology applied by the teacher. The use of social networks, also covered in this study, seems to be a pleasant environment for students, where they can communicate with their classmates in a more interactive way. The new pandemic scenario has opened up new ranges in terms of the way of teaching, taking advantage of active methodologies that were already applied in the face-to-face classroom, but which now become excellence in the remote environment (MACIEL et al., 2020MACHADO et al., 2022, DOS SANTOS et al., 2022).

Therefore, this Remote Monitoring report aims to report the experiences and actions implemented by the Bachelor of Nursing student as an Integrated Monitor in the semester of 2021.1, assisting in the Teaching-Learning process of Genetics and Cellular and Molecular Biology of the DBG, in the middle of the pandemic period.

2 MATERIALS AND METHODS

This is an experience report with a quantitative descriptive approach of the experiences and actions implemented by the Monitor advising students of the Bachelor's Degree courses in Ecology, Nursing, Pharmacy and Dentistry during the 1st Semester of 2021. This semester, the monitor served 25 students from the Bachelor's Degree in Ecology, 24 students from the Bachelor's Degree in Nursing, 40 students from the Bachelor's Degree in Pharmacy and 13 students from the Bachelor's Degree in Dentistry, with 4 professors along with the integrative work of learning. The TDCIs were adopted as a teaching strategy for the activities/actions in both synchronous and asynchronous modalities of the ERE: i) GoogleMEET® Platform, ii) Kahoot® Platform, iii) UFRN Academic Activities Management System – SIGAA eiv) Media/Social Networks.The applications of these tools happened as described:I) communication through WhatsApp® groups;II) monitoring of virtual classes via SIGAA; III) production of explanatory videos; IV) creation of polls through the Monitoria's Instagram®, in which the content of the unit was exercised; V) production of mind maps and explanatory text on Instagram®.

To evaluate the students' perception of the monitor's performance and the virtual tools applied, three surveys were conducted through the SIGAA of each of the classes, containing the following questions: A) "how do you evaluate the monitor's performance during the remote period?" B) "What is your assessment of the use of TDCIs chosen by the MIC-DBG project (WhatsApp®, Instagram®, Google Meet®, Kahoot®)?" C) "In your opinion, did the teaching strategies used help you to improve academic performance in the subjects covered by the project?". The first and second questions (A and B) could be answered as "excellent", "good", "fair", "bad" or "very bad"; the third (C) would have "yes" or "no" answers.

3 RESULTS AND DISCUSSION

Technical skills with theoretical depth provide the academic improvement of monitoring, key elements that undergo constant adaptations. With the COVID-19 pandemic, new configurations of the MIC-DBG Project became necessary, face-to-face actions were adapted to the urgent and unexpected mode of Emergency Remote Teaching (ERE) in order to continue helping the actors involved in the Teaching-Learning process (CLEMENTINO et al., 2021, MACHADO et al., 2022). The experiences of remote teaching and the performance of the Monitor occurred during the 2nd academic semester of 2021 at UFRN, resulting in actions developed with the consent of each of the four (04) professors responsible for the CCs of Genetics and Cell Biology (Table 1).

Table 1 Curricular Components and ERE Classes in the 1st semester 2021

CURRICULAR COMPONENT/COURSE	STUDENTS
DBG0052 - Cell Biology for Ecology – Bachelor of Science in Ecology	25 (1st Period)
DBG0071 - Biology and Ecology - Bachelor of Science in Nursing	24 (1st Period)
DBG0014 - Genetics - Bachelor of Pharmacy	40 (1st Period)
DBG0142 - Genetics VII - Bachelor of Dentistry	13 (2nd Period)

Table 1: Distribution of the number of students served by CC and undergraduate course. Source: Author.

The students enrolled in CCsDBG0052, DBG0071 and DBG0014 are freshmen, coming from High School who have already transited and continued their studies in the ERE mode when entering higher education. Except for students in class DBG0014 who have already attended the CC DBG0003 Cellular and Molecular Biology remotely in the previous semester. However, all of them had new challenges in the "home-office" environment, that is, few or no Professors, Monitors and/or Students were prepared to overcome the various restrictions and challenges imposed by the Pandemic, which were impactful, both globally (TULASKAR AND TURUNEN, 2021) and here, in Brazil (LIMA et al., 2020, JULIANI et al., 2022 and SANTOS et al., 2022).

The online platforms Google®, Kahoot®, Youtube® and Social Networks such as WhatsApp®, Instagram® and SIGAA (UFRN) facilitated interaction and increased collaboration in the educational environmentwith the actions developed by the Monitor during the second half of 2021 **(Table 2).** Among the actions performed, those used in synchronous and asynchronous format stand out, in addition to the monitor's dedication workload throughout this period. All activities were carried out to accompany the Genetics class and the Cell Biology class, simultaneously: this is the differential feature of the Continuous Integrated Monitoring project of DBG/UFRN in Face-to-Face Teaching (BLAHA et al., 2014), which integrates knowledge in two major areas of knowledge, today adapted to ERE.

Table 2: Actions developed and dedication of time/class by the Monitor in synchronous and asynchronous modality in the semester of 2021.2.

ACTIVITIES/ACTIONS	
	Dedication
Synchronous Mode	
Follow-up of the theoretical class	36 Class Hours (Cell Biology) 56 hours/classroom (Genetics)
Classes: Follow-up of Simulated Practical Classes	4 Hours/class (Cell Biology)
Teach a Theoretical Class Supervised by the teacher for the Bachelor's Degree in Dentistry class	02 class hours (Cellular and Molecular Biology)
Asynchronous Mode	
On-call for questions using WhatsApp;	20 class hours (Cell Biology) 56 hours/classroom (Genetics)
Assistance to the teacher in the correction of evaluations	6h (Cell Biology for Ecology)

Tutoring is the gateway to experiences for university teaching. Once monitored, the student starts to manage his time around his own routine activities, in addition to relating his training to the demands of monitoring. This demands a high workload of dedication in addition to skills in the

handling of TDICs regarding the knowledge and skills/competencies for their performance in Remote Monitoring, which is worth emphasizing, no less challenging than Face-to-Face Monitoring (DANTAS, 2014; FRISON, 2016). The dedication (workload) of the Monitor to monitor the synchronous activities is very important. In situations such as the one experienced by the Monitor, for example, being an academic of the Bachelor of Nursing course who develops his actions as a Monitor with the Genetics class for the Bachelor of Dentistry, he demanded a greater workload for his monitoring, considering that the content of Genetics for Dentistry has approaches specific to the area, which meet the Pedagogical Project of the Dentistry course at UFRN, different from the Genetics CC attended by the Monitor himself (**Table 2**).

Thinking about practical classes, whether with basic or professional content, is another challenge with a great impact on university education, and no less important. Thinking about adaptations of practical classes for the ERE period directly reflects on the Monitor's demand for action (**Table 2**). Studies described by Clementino et al., (2021); Machado et al., (2022) and Amorin and Mercado (2022) evidenced the constant searches and motivations in remote practical classes in the teaching activity, in this ERE period. The search for remote practices tried to minimize impacts to the detriment of face-to-face practical classes that could not be performed in the emergency period of the pandemic caused by the SARSCOV2. Such challenges were also described with regard to new experiences lived by students (LIMA et al., 2020, JULIANI et al., 2022 and SANTOS et al., 2022). Virtual tools with: laboratories, online simulators (https://www.ncbionetwork.org/iet/microscope/; https://myscope-explore.org/virtualSEM_explore.html), videos of molecular cellular simulations and processes and computational animations (https://dnalc.cshl.edu/resources/animations/) and games (https://www.nobelprize.org/educational/, have become the preferences to meet the demand of practical classes in remote times in order to allow a better understanding and fixation of the concepts and learning addressed in the remote classroom, so that the impact on the learning did not take on a more critical dimension than it already was.

Considering that "learning refers to the acquisition of a particular response, learned as a result of the experience obtained systematically or not" (PIAGET, 1975) and also that "the teaching process is a complex social practice carried out between the subjects, teacher and student, encompassing both the action of teaching and that of learning", ANASTASIOU, 1997), the various teaching activities developed in the ERE in the asynchronous modality also reserve a very important role for the Monitor.

Thus, we can observe from the workload invested by the Monitor that the students interacted using social networks, particularly through WhatsApp® and Instagram®, promoting communication, rapport and agility in the exchange of knowledge in a Student-Monitor relationship, but also between Professors-Students-Monitors(**Table 2**). It is important to highlight that in this workload it is not discriminated to which course we belong students who compete for the "on-call-answer-questions"

using WhatsApp® and in the same way, those who enjoy the explanatory videos produced on subjects in which students have more difficulties and that require help. Also, in this workload of interaction between the monitor and the student, it is included the choice and sharing of scientific articles, books, academic websites, videos with animations and computer simulations available on Youtube®. The resolution of lists of exercises sent by the teachers using GOOGLE MEET®(i), the virtual scavenger hunts through Instagram of the monitoring for the training of students (ii) and the gamified reviews with the use of Kahoot!®(iii), were developed in agreement with the teachers of these CCs. Particularly, it should be noted that they represented relevance for the academic training of the Monitor who, in its nature as an Integrated Monitor, it has the opportunity to move through the contents of Genetics and Cell Biology to different courses (Table 2).

The Monitor's contribution to the content fixation process, assisting in the acquisition of new skills and abilities, has been proven by several authors in the face-to-face teaching modality (NUNES, 2007; DANTAS, 2014; BLAHA et al., 2014; FRISON, 2016) and demonstrated during the ERE period (CAVALCANTE e SILVA 2022, DA SILVA et al., 2022; DE MACEDO JUNIOR et al., 2022 FERNANDES et al., 2022 DE OLIVEIRA ROCHA et al., 2022). Of the 102 students enrolled in the CCs, 79 are part of the WhatsApp®groups and, therefore, had the ability to access and interact with the Monitor and consequently with the teacher (although some of them did not participate in the groups). It is not possible to pinpoint exactly the reasons why the rest of the students did not participate in the groups, but the pandemic impacted the students in some way, unlike the professors in the ERE (LIMA et al., 2020, JULIANI et al., 2022 and SANTOS et al., 2022).

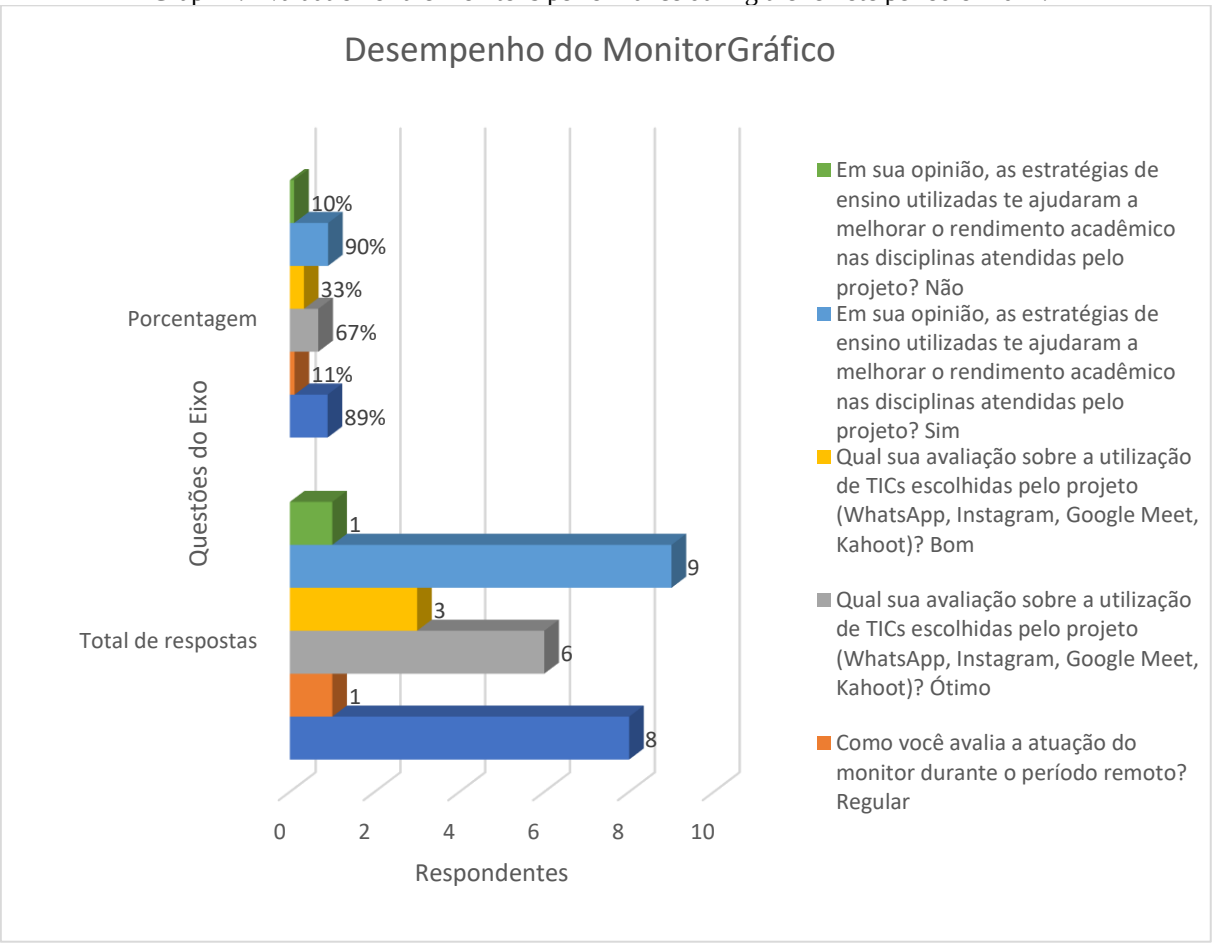
A study carried out by the Institute of Applied Economic Research (Ipea) and home access to the internet emphasized the difficulty of remote teaching, especially in elementary school students from public institutions, where it showed that 1.91 million students did not have home access to 3G/4G broadband internet, not even to resources such as phones, smartphones and even computers. Many families had only one telephone for everyone in the household. This number was not so impactful among undergraduate students during the pandemic, but about 51 to 72 thousand undergraduate students from public educational institutions also did not have access to the internet (IPEA, 2020). The Integrated Academic Activities Management System (SIGAA), a web platform created by the Superintendence of Informatics of UFRN (UFRN, 2022), is also required to have an internet connection in order to access the platform. Although there is a SIGAA app for smartphones, it depends on the internet connection and other minimum requirements on the device. Connectivity limitations and other exclusionary problems of students in the ERE were also assessed by (LIMA et al., 2020, TULASKAR AND TURUNEN, 2021, JULIANI et al., 2022 and SANTOS et al., 2022).

No less important than the resources of internet access, the affective state regarding emotions, stress responses and the cognitive aspect walked together in the learning process and, the COVID-19

pandemic left a bottleneck between the emotion axis and the way of coping with this scenario, based on the lack of motivation regarding studies, difficulty in the management routine at home and even the search for jobs to help with household expenses, these are points that should also be taken into account regarding students' lack of access to ICTs (MIRANDA et al., 2020).In this sense, even so, it is understood that monitoring in remote teaching was extremely valuable to rescue the confidence, performance and interest of students in the curricular components attended and monitored by the monitor.

In order to evaluate the Monitor's performance, three surveys were conducted via SIGAA to assess students' perception of the Monitor's performance, the strategies used, and the overall benefit of Monitoring throughout the 2021 semester.2 (**Chart 1**).

Graph 1. Evaluation of the monitor's performance during the remote period of 2021.2



Source: Author

The results obtained regarding the evaluation of the monitor by the students were not what was expected in relation to the number of students who answered the questions in the survey, but as for those who adhered to the questions in relation to the performance of the monitors during the pandemic period, 89% (8) perceived the performance to be excellent compared to 11% (1) with regular

performance; 67% (6) found the use of ICTs to be great strategies to help with remote teaching compared to 33% (3) of students who found the tools good during this period.

From the variety of synchronous and asynchronous actions and activities developed by the Monitor working in these classes and the investment in workload for each of them, it can be deduced that the reduced number of respondents (Table 2) obeys, in addition to those mentioned above, other reasons among which we can mention: i) the visible difference in friendly handling and intuitive interaction through WhatsApp® and/or Instagram® (greater number of respondents); ii) the need to log in to SIGAA with several steps to reach the place where the survey is listed, steps that can be discouraging (reduced number of students when compared to the total number of students/class) (Graph 1).

The strategies and tools used allowed for better engagement, in addition to bringing teachers, monitors, and students closer together in a situation of isolation. Thus, the data demonstrate a satisfactory performance, since there was significant acceptance of the teaching strategies used by the project monitor. In addition, it can be seen that the TDICs used for the development of the activities were very well received by the students, with all the participants of the surveys evaluating the choices as excellent or good. Also noteworthy is the expressive opinion of students who affirm that the Monitoring helped them to improve their performance. This fact demonstrates the importance of the MIC-9.0 Project for the greater academic success of students associated with the interactive practices of TDICs (WhatsApp, Instagram, Google Meet, Kahoot!, etc.), as also shown in the study conducted by Toma et al., (2021), carried out at MihaiEminescu" National College, Bucharest/Romania, with the use of activity practices with Kahoot! as a way of evaluating the learning of online classes during the pandemic period, encouraging them to play an active role in the lesson.

Among the actions and activities developed by the Monitor, two moments can be experienced as the maximum of the experiences on the path of his professional training as a future Teacher: *teaching class and* correcting the test exclusively and supervised by the teacher. Under the supervision of the CC Professor DBG0052 Cell Biology for Ecology, the Monitor participated in the process of correcting tests. He also taught a synchronous Theoretical Class "Death Celular_Necrose-and-apoptosis" at the CC DBG0003*Cellular and Molecular Biology* for the Bachelor's Degree in Dentistry (Figure 1a; b).

Figure 1-a. Image of the title of the lecture

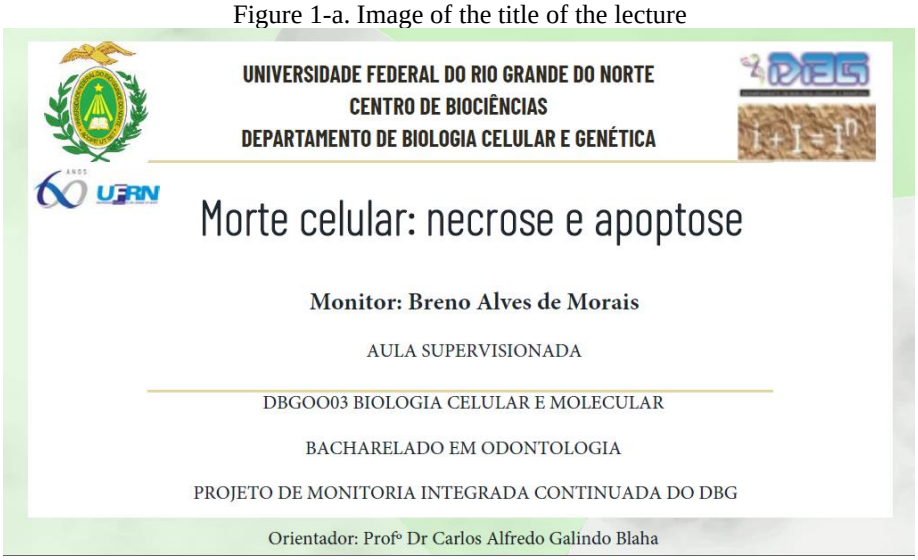
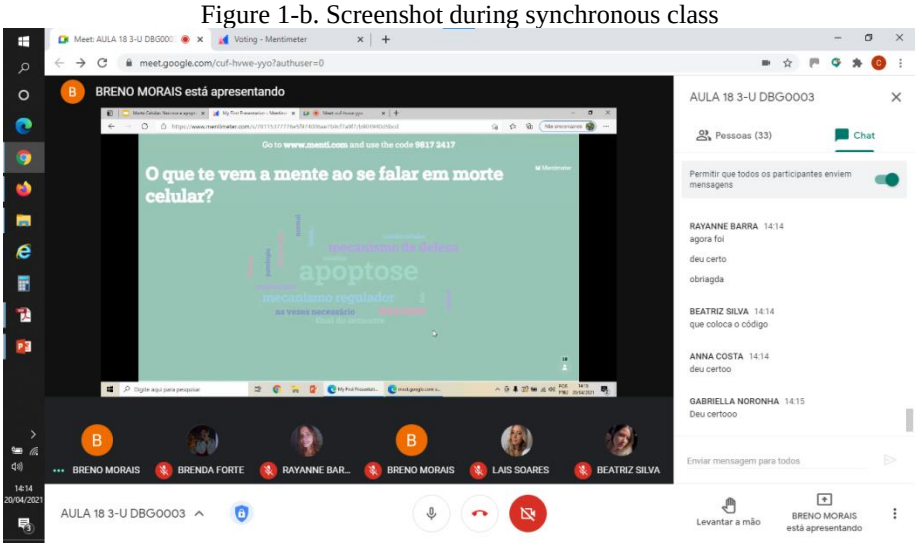


Figure 1-b. Screenshot during synchronous class



The technological aptitudes as well as the knowledge and skills/competencies of the Monitor, both in face-to-face teaching (DANTAS, 2014; FRISON, 2016) are put to the test when they are encouraged to teach a class in Remote Monitoring, which is no less challenging than Face-to-Face Monitoring. Nunes (2007) and Anastasiou (2013) advocate that the class supervised by the teacher can be considered the summit of the Monitor's experience, reaching the main objective of Monitoring, the Initiation to Teaching.

4 FINAL THOUGHTS

Supported by Law No. 5540 of November 28, 1968 and reinforced by Law No. 9,394 of December 20, 1996, UFRN through several resolutions establishes standards for Teaching Programs and Projects, including the Monitoring Program.

The learning process in Piaget's (1975) vision or in the Teaching Process in the vision (Anastasiou, (1997) Freire's words (2001):

> "The learning of the teacher when teaching does not necessarily take place through the rectification that the learner makes of mistakes made. The learning of the teacher in teaching is verified to the extent that the teacher, humble, open, is permanently available to rethink what he thinks, to see himself in his positions; in which she seeks to engage with the curiosity of the students and the different paths and paths that she takes them on."

Illustrate the challenge of the Teacher, the Monitor and the Student both in the pandemic Emergency Remote Teaching and in Face-to-Face Teaching.

In this report of the experiences of a Bachelor of Nursing student as an Integrated Monitor, it is noted that, although great challenges were faced at the time of the COVID-19 Pandemic, it was and still is possible to reap good personal and professional fruits for the future. TDICs have a lot to offer, and we must make use of them to increasingly improve the quality of teaching, making it more attractive and accessible to students. It is evident that MONITORING contributes to UFRN meeting the UN's Sustainable Development Goals, the 2030 Agenda for Sustainable Development", which is "Quality Education" (Goal 4) in a time that sustains public, free and quality education.

REFERENCES

Agenda 2030. 2015. Traduzido pelo Centro de Informação das Nações Unidas para o Brasil (UNIC Rio), última edição em 13 de outubro de 2015. Disponível em: <https://nacoesunidas.org/pos2015/agenda2030/>. Acesso em: 19 set. 2019.

AMORIM, D. C. de; MERCADO, L. P. L. Desafios de dois professores de Biologia Celular e Molecular na pandemia da covid-19: do ensino às práticas laboratoriais. Revista Docência do Ensino Superior, Belo Horizonte, v. 12, p. 1–20, 2022. DOI: 10.35699/2237-5864.2022.38368. Disponível em: https://periodicos.ufmg.br/index.php/rdes/article/view/38368. Acesso em: 19 dez. 2022.

ANASTASIOU, Léa das Graças Camargos. Ensinar, aprender, apreender e processos de ensinagem. Processos de ensinagem na universidade: pressupostos para as estratégias de trabalho em aula, v. 7, p. 15-43, 2003

ANASTASIOU, Lea das GracasCamargos. Metodologia do/no ensino superior: da pratica docente a uma possível teoria pedagógica. 1997. Tese (Doutorado) – Universidade de São Paulo, São Paulo, 1997. Acesso em: 15 out. 2022.

AZEVEDO, M. M. R. et al.Kahoot as a ludic strategy in the teaching-learning of Cellular Biology . Research, Society and Development, [S. l.], v. 10, n. 12, p. e159101219049, 2021. DOI: 10.33448/rsd-v10i12.19049. Disponível em: https://rsdjournal.org/index.php/rsd/article/view/19049. Acesso em: 13 oct. 2021.

BLAHA, C. A. G.; SOARES, I. C. DOS S.; ARAUJO, A. M. M. DE ; PEREIRA, A. C. L. Monitoria integrada como estratégia para melhoria da ensinagemde Genética e de Biologia Celular e Molecular na UFRN. V Encontro Nacional das Licenciaturas (ENALIC) e o IV Seminário Nacional do Pibid, UFRN, 8-12 dezembro de 2014, Natal-RN, Brasil.

“Biogene” no Instagram instagram.com/biogene_ufrn

BRASIL, LEI Nº 5.540, DE 28 DE NOVEMBRO DE 1968, Diário Oficial da União - Seção 1 - 29/11/1968, Página 10369 (Publicação Original) Coleção de Leis do Brasil - 1968, Página 152 Vol. 7 Brasil. Presidência da República.

BRASIL, Lei no 9.394, de 20 de dezembro de 1996. Estabelece as diretrizes e bases da educação nacional. [Internet]. 1996.

BRASIL. Ministério da Saúde. O que é a Covid-19?.2021. Disponível em:https://www.gov.br/saude/pt-br/coronavirus/o-que-e-o-coronavirus. Acesso em: 12 out. 2021.

CAVALCANTE, A. A.; SILVA, C. L. de A. Contribuições da monitoria acadêmica na disciplina de anatomia dos sistemas orgânicos para o processo de ensino-aprendizagem em período pandêmico da Covid- 19: um relato de experiência / Contributionsofacademicmonitoring in thesubjectofanatomyoforganic systems totheteaching-learningprocess in thepandemicperiodat Covid-19: anexperience report. Brazilian Journal of Development, [S. l.], v. 8, n. 4, p. 24629–24637, 2022. DOI: 10.34117/bjdv8n4-127. Disponível em: https://ojs.brazilianjournals.com.br/ojs/index.php/BRJD/article/view/46181. Acesso em: 20 dec. 2022.

CLEMENTINO, A.; SOUZA, C. C. M.; HITO, S. C. Planejamento didático no ensino remoto: ênfase nas estratégias pedagógicas e o relato de experiência de uma instituição de ensino superior / Didacticplanning in remoteteaching: emphasisonpedagogicalstrategiesandtheexperiencereportof a highereducationinstitution. Brazilian Journal of Development, [S. l.], v. 7, n. 8, p. 78904–78917, 2021.

DOI: 10.34117/bjdv7n8-215. Disponível em: https://ojs.brazilianjournals.com.br/ojs/index.php/BRJD/article/view/34182. Acesso em: 20 dec. 2022.

CUCINOTTA D, Vanelli M. WHO Declares COVID-19 a Pandemic. Acta Biomed [Internet]. 2020 [cited 2023 Mar 27];91(1):157–60. Availablefrom: https://pubmed.ncbi.nlm.nih.gov/32191675/

DA COSTA SILVA, Murilo Gabriel et al. Monitoria em tempos de pandemia: lições e práticas de professores e monitores no curso de graduação em administração em uma universidade pública. Revista Gestão Universitária na América Latina-GUAL, v. 15, n. 2, p. 133-157, 2022.

DANTAS, O. M. Monitoria: fonte de saberes à docência superior. Revista Brasileira de Estudos Pedagógicos. Brasília, v. 95, n. 241, p. 567-589, set./dez. 2014. DOI: http://dx.doi.org/10.1590/S2176-6681/301611386

DA SILVA, R. T.; FREIRE, D. P. S.; HOLANDA, R. A. F.; DE SOUSA, G. A. O desafio da monitoria na adaptação de aula remota no ensino de doenças do sistema gastrointestinal e coloproctologia: um relato de experiência / The challengeofmonitoringtheadaptationofremotelectures in theteachingofdiseasesofthe gastrointestinal system andcoloproctology: anexperience report. Brazilian Journal of Development, [S. l.], v. 8, n. 4, p. 22982–22987, 2022. DOI: 10.34117/bjdv8n4-015. Disponível em: https://ojs.brazilianjournals.com.br/ojs/index.php/BRJD/article/view/45939. Acessoem: 20 dec. 2022.

DE GIUSTI A. PolicPy Brief: Education during COVID-19 and beyond. RevIberoamTecnolenEduc y Educen Tecnol.;(26):e12. 2020

DOS SANTOS, C. S.; LOPES, A. L. de S. O aluno no Ensino Superior: o que a pandemia da COVID-19 revelou sobre sua experiência de aprendizagem contextos virtuais / The student in HigherEducation: whatthe COVID-19 pandemicrevealedabouttheirlearningexperience virtual contexts. Brazilian Journal of Development, [S. l.], v. 8, n. 1, p. 5687–5697, 2022. DOI: 10.34117/bjdv8n1-385. Disponível em: https://ojs.brazilianjournals.com.br/ojs/index.php/BRJD/article/view/43061. Acesso em: 20 dec. 2022.

FERNANDES, A. P. M.; GAZZOLA, J. M.; CALDAS, V. V. de A. Monitoria em introdução a tecnologia assistiva: ampliando o processo de aprendizagem sobre as inovações tecnológicas / Monitoring in introductiontoassistivetechnology: expandingthelearningprocessabouttechnologicalinnovations. Brazilian Journal of Development, [S. l.], v. 8, n. 4, p. 27029–27035, 2022. DOI: 10.34117/bjdv8n4-284. Disponível em: https://ojs.brazilianjournals.com.br/ojs/index.php/BRJD/article/view/46561. Acesso em: 20 dec. 2022.

FREIRE, P. Cartas de Paulo Freire aos professores. Estudos Avançados, v.15, n.42, p.259-268, 2001

FRISON, L. M. B. Monitoria: uma modalidade de ensino que potencializa a aprendizagem colaborativa e autorregulada. Pro-posições. Pelotas, v. 27, n. 1, p. 133-153, jan./abr. 2016. DOI: https://doi.org/10.1590/0103-7307201607908

IPEA. (2020) - Nota técnica. 2020. www.ipea.gov.br/portal/images/stories/PDFs/nota_tecnica/200902_nt_disoc_n_88.pdf

JULIANI, L. M.; VICENTINI, B. S.; JULIANI, C. D. O.; BERNARDES, L. J. F. O ensino remoto emergencial em curso de engenharia de produção: perspectiva de estudantes / The emergencyremoteteaching in a productionengineeringcourse: students' perspective. Brazilian Journal of Development, [S. l.], v. 8, n. 1, p. 4901–4916, 2022. DOI: 10.34117/bjdv8n1-325. Disponível em: https://ojs.brazilianjournals.com.br/ojs/index.php/BRJD/article/view/42900. Acesso em: 20 dec. 2022.

JÚNIOR, A. F. de M.; MARQUES, B. L. M.; MELLO, C. S. A. da C.; BARROCA, I. C. P.; DA SILVA, R. N.; DA SILVEIRA, I. A.; DE ABRANTES, M. R.; DANTAS, D. de S. Monitoria em microbiologia clínica: um momento de oportunidade e promoção de uma educação interativa / Monitoring in clinicalmicrobiology: a momentofopportunityandpromotionofaninteractiveeducation. Brazilian Journal of Development, [S. l.], v. 8, n. 3, p. 21238–21245, 2022. DOI: 10.34117/bjdv8n3-364. Disponível em: https://ojs.brazilianjournals.com.br/ojs/index.php/BRJD/article/view/45695. Acesso em: 20 dec. 2022.

LEKA, A. R., GRINKRAUT, M. L. A utilização das redes sociais na educação superior. Revista Primus Vitam, n. 7, p. 1-12. 2014. Disponível em: http://delphos-gp.com/primus_vitam/primus_7/aline.pdf. Acesso em: 21 out. 2020.

LIMA, A. C. et al. Desafios da aprendizagem remota por estudantes universitários no contexto da Covid-19. REVISA. 2020; 9(Esp.1): 610-7. DOI: https://doi.org/10.36239/revisa.v9.nesp1.p610a617. Disponível em: http://revistafacesa.senaaires.com.br/index.php/revisa/article/view/615/515. Acesso em: 19 de out. 2021

LOBO, Alex Sander Miranda; MAIA, Luiz Cláudio Gomes. O uso das TICs como ferramenta de ensino-aprendizagem no Ensino Superior. Pontifícia Universidade Católica de Minas Gerais, Belo Horizonte, v. 25, n. 44, p. 16-26, jul. 2015. Disponível em: https://www.redalyc.org/pdf/3332/333239878002.pdf. Acesso em: 22 out. 2020.

MACIEL, M. de A. C.; ANDRETO, L. M.; FERREIRA, T. C. M.; MONGIOVI, V. G.; FIGUEIRA, M. C. dos S.; SILVA, S. L. da; SANTOS, C. S. dos; FERREIRA, L. de L. Os desafios do uso de metodologias ativas no ensino remoto durante a pandemia do covid-19 em um curso superior de enfermagem: um relato de experiência / The challengesofusingactivemethodologies in remoteteachingduringthe covid-19 pandemic in a highernursingcourse: anexperience report. Brazilian Journal of Development, [S. l.], v. 6, n. 12, p. 98489–98504, 2020. DOI: 10.34117/bjdv6n12-367. Disponível em: https://ojs.brazilianjournals.com.br/ojs/index.php/BRJD/article/view/21648. Acesso em: 20 dec. 2022.

MACHADO, Álvaro L.; SANTOS, C. C. M.; LESSA, D. de S.; COUTINHO, M. L. A.; SANTOS, R. A. C.; CORREIA, S. L. A. Desafios e possibilidades no desenvolvimento de competências digitais: relatos de professores: Challengesandpossiblities in thedevelopmentof digital competences :teacher'saccounts. Brazilian Journal of Development, [S. l.], v. 8, n. 8, p. 57967–57993, 2022. DOI: 10.34117/bjdv8n8-203. Disponível em: https://ojs.brazilianjournals.com.br/ojs/index.php/BRJD/article/view/51277. Acesso em: 20 dec. 2022.

MIRANDA, C. A. G. R., DA ROSA, P. C., DOS SANTOS, C. B., DE JESUS, A. C. Emotionalimpactsofthe Covid-19 pandemiconacademiclearningfromuniversitystudents. Currículo & Docência Vol.2 | Nº 3 | 5-26 Ano 2020.

NUNES, J.B.C., 2007. Monitoria acadêmica: espaço de formação. A monitoria como espaço de iniciação à docência: possibilidades e trajetórias. Natal: EDUFRN, pp.45-58.

PIAGET, Jean. A construção do conhecimento. São Paulo: Secretaria de Estado da Educação. Coordenadoria de Estudos e Normas Pedagógicas, 1987.

RIBEIRO, Júlia Maria Gomes. Utilização de plataformas, mídias e redes sociais por docentes de Ciências Contábeis das universidades federais brasileiras. 2022. 22 f. Trabalho de Conclusão de Curso (Graduação em Ciências Contábeis) - Universidade Federal de Uberlândia, Ituiutaba, 2022. https://repositorio.ufu.br/handle/123456789/34739

RIO GRANDE DO NORTE, Decreto Estadual Nº 29.524, de 17 de março de 2020. Dispõe sobre medidas temporárias para o enfrentamento da situação de Emergência em Saúde Pública provocada pelo novo Coronavírus (COVID-19). Diário Oficial do Rio Grande do Norte: Natal, RN, n.14622, 18 mar. 2020.

ROCHA, B. C. de O.; SILVEIRA, S. S. D. da; MORAES, R. L. de; MONIZ, M. de A.; SÁ, N. S. dos S. de; SILVA, L. R. da; LIMA, L. F. P.; VIANA, E. Monitoria e grupo PET enfermagem: desafios e perspectivas no período pandêmico e pós-pandêmico: Monitoringand PET nursinggroup: challengesand perspectives in thepandemicand post-pandemicperiod. Brazilian Journal of Development, [S. l.], v. 8, n. 11, p. 72333–72347, 2022. DOI: 10.34117/bjdv8n11-103. Disponível em: https://ojs.brazilianjournals.com.br/ojs/index.php/BRJD/article/view/54026. Acesso em: 20 dec. 2022.

SILVA, G. L. da; RODRIGUES, N. P.; MOURA, S. M. de. Os desafios do uso de metodologias ativas no ensino remoto durante a pandemia do Coronavírus em disciplinas de saúde coletiva de um curso de graduação em odontologia: relato de experiência / The challengesofusingactivemethodologies in remoteteachingduringtheCoronaviruspandemy in collectivehealthsubjectsofanundergraduatecourse in dentistry: anexperience report. Brazilian Journal of Development, [S. l.], v. 8, n. 3, p. 21061–21078, 2022. DOI: 10.34117/bjdv8n3-351. Disponível em: https://ojs.brazilianjournals.com.br/ojs/index.php/BRJD/article/view/45666. Acesso em: 20 dec. 2022.

THIESEN J da S. A interdisciplinaridade como um movimento articulador no processo ensino-aprendizagem. Rev Bras Educ [Internet]. 2008 [cited 2023 Mar 24];13(39):545–54. Available from: http://www.scielo.br/j/rbedu/a/swDcnzst9SVpJvpx6tGYmFr/

TOMA F, DIACONU DC, POPESCU CM. The Use of the Kahoot! Learning Platform as a Type of Formative Assessment in the Context of Pre-University Education during the COVID-19 Pandemic Period. Education Sciences. 2021; 11(10):649. https://doi.org/10.3390/educsci11100649

TULASKAR, R., TURUNEN, M. What students want? Experiences, challenges, and engagement during Emergency Remote Learning amidst COVID-19 crisis. EducInfTechnol 27, 551–587 (2022). https://doi.org/10.1007/s10639-021-10747-1