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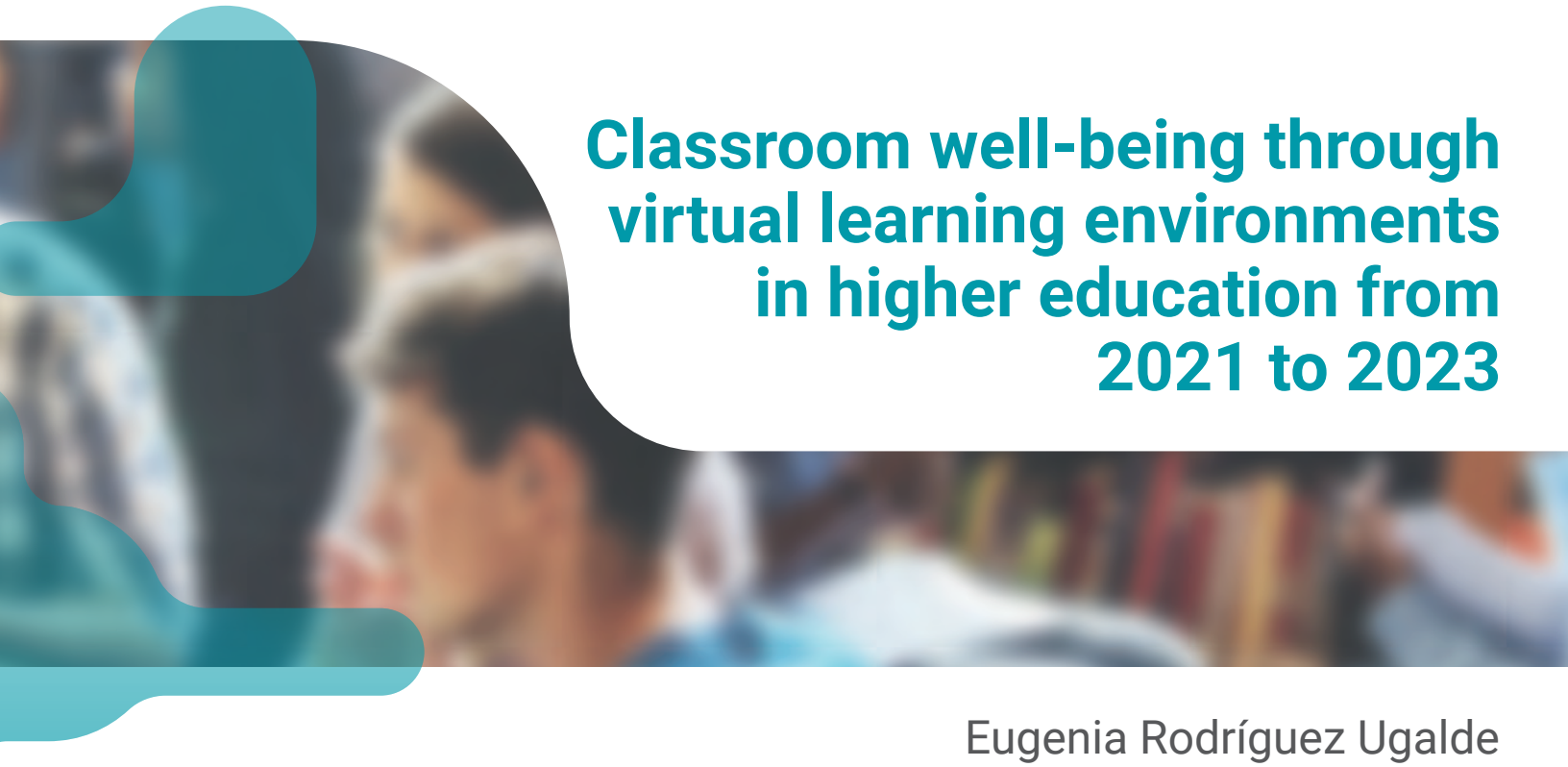

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RESEARCH ARTICLE

Classroom well-being through virtual learning environments in higher education from 2021 to 2023

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ABSTRACT

The present research deals with the conditions associated with well-being in the classroom through virtual environments of the student population that attends lessons at a private university located in the Central Headquarters in San José, Costa Rica (Central America). The objective is to analyse the conditions associated with well-being in the classroom through virtual learning environments during the years 2021 to 2023.

The research uses a quantitative approach, and the type of study is descriptive and cross- sectional. The study was conducted with 731 active students during the period from 2021 to 2023 who used virtual environments to continue their studies. The sample corresponds to 46.5% of the total population (1570 students). The variables associated with well-being conditions in the classroom were environmental and technological conditions; emotional conditions; social conditions; methodological conditions; and student conditions. The Classroom Well-being Scale in virtual environments was used to collect the information. This instrument has a reliability of 95% and a very high correlation between variables (99%).

The results show that, in general, there is well-being in the classroom through virtual environments; specifically, that there is a high level of well-being in the classroom in the following aspects: availability of the virtual platform; respect for all people in the classroom environment; assertive communication in the course activities; and free expression of ideas in a respectful environment.

The aspects that reflect well-being in the classroom are: quality of audiovisual resources; availability of learning resources; structure of the virtual environment; student participation; and feeling at ease with the course.

The aspects to be reinforced to improve well-being are: activities proposed by the teacher in the course; and peer support in carrying out the course activities.

Keywords: classroom well-being; virtual learning environment; higher education.

Introduction

When significant challenges have arisen in humanity due to environmental, political, economic, or any other crises, it becomes essential for each region, country, and citizen to seek a balance that leads to a state of well-being.

While personal responsibility plays a role in well-being, the governments of nations must also strive to create conditions for people to achieve well-being after a challenging situation[1].

In the most recent global crisis caused by COVID-19, significant challenges had to be faced in all fields.

Similarly, education has had to reinvent itself since the pandemic, especially since all educational institutions had to resort to the use of virtual learning environments to continue educational processes during isolation.

There were significant challenges that needed to be addressed rapidly. Many teachers had to quickly develop digital competencies to accompany the student population through virtual learning environments. At the same time, students lost the possibility of socializing in person, and could only do so through electronic devices, which were used to learn, socialize, and share with other people. Families had to reorganize their schedules, tasks, and resources to adapt to this new reality.

Several countries have set their sights on mental health in post-pandemic times. Chinese authorities have become concerned about growing anxiety after confinement, so they have focused on promoting mental health in recent months[2,3]. Other research carried out in different contexts (Portugal[4], Peru[5]) reflects concern about the impact of the pandemic on the social relationships of the student population and the stress of the pandemic. For these reasons the countries have launched various proposals to solve the problem.

Similarly, a publication by Florida International University revealed that more than half of college students have suffered from chronic stress during and after the pandemic, leading us to consider the urgency of addressing the mental health of the student population at all levels[6].

In addition, data collected by the Center for Disease Control in the United States show that the mental health of the student population has worsened following the pandemic, and that the need for intervention is very high, making it a public health issue. The effects of trauma are manifesting themselves in the classroom and are reflected in student behaviour, poor participation in activities, and a growing need to manage emotions[7]. These issues have become a priority for public health.

Recently, a study entitled "Trends of Active Learning in Higher Education and Students' Well-Being: A Literature Review" was published, in which it was established that the topic of student well-being should be considered in the curricular reforms of all countries, as well as in teacher training; particularly after the pandemic[8].

Costa Rica should not be an exception in terms of the importance of promoting the well-being and mental health of the entire population. According to a recent study, the country presented an increase of approximately 35% of depressive and anxiety disorders since the beginning of the pandemic, indicating that Costa Rica surpassed the world average in the increase of such disorders

(approximately 25%). The same study reveals that the most affected population are women and young people[9]. This highlights the importance of the present study, which focuses on the analysis of well-being in the classroom of the university population.

This situation reflects those new forms of socialization had to be sought, because in isolation and without positive relationships, difficulties to achieve the well-being would increase, affecting personal well-being and, consequently, the ability to build positive relationships with others[10].

The educational system can contribute to developing awareness of self-care and individual and collective well-being. All of the above reflect that educational environments can contribute to the well-being of individuals participating in learning processes.

For the purposes of this research, we start from the concept of well-being. First, it is important to mention that there is no agreement on the concept of well-being, but it can be explained as a multidimensional construct[11].

One of the definitions understands well-being as a state of harmony between the demands of the outside world and the resources that each person has to face them[12]. We all need to know ourselves, understand ourselves, and help ourselves and others to achieve well-being in everyday life; thus, this should be an essential task in every learning context, allowing learners to actively participate in their self-regulation and develop their full potential to face every-day tasks[13], in turn, participating in collaborative and inclusive learning spaces, so that empathy and collaboration among peers is widely developed to promote social relations in the group[14].

Well-being has also been related to "The capabilities necessary to thrive, contribute and respond positively to the challenges and opportunities of life. It describes a person's optimal experience, physical health and psychological functioning, and involves factors like positive emotions, life satisfaction and mental flexibility" (p. 4)[15].

Clearly, well-being is related with internal and external demands. The internal demands refer to the optimal experience of a person or a group of people in regard to physical health, psychological functioning and relationships. The externals are related with the environment. If well-being is promoted in people, this will positively impact physical and mental health and human development (including learning processes).

This research emphasizes well-being as an optimal experience of the internal demands of the human being, which includes emotion management, motivation, a person's ability to relate to others, and mental flexibility, as well as well-being that refers to external demands (relationship of the person with its context).

In this research, it is necessary to clarify the difference between well-being and mental health.

Well-being refers to the optimal state of the person, which makes them feel good about themselves and the context in which they operate.

Mental health is made up of emotional, psychological and social well-being and has a great impact on people's physical health. In short, well-being is part of mental health[16].

From a broader perspective, the concept of well-being in the classroom is addressed. This is related to the learning environment in which

there is regulated interactivity and in which people with educational purposes converge[17]. Well-being in the classroom, promoted by the teacher, seeks to make each student aware of the importance of his or her own well-being and, at the same time, to achieve committed learning and an effort to improve the reality around him or her[18].

When it comes to well-being, there are two different perspectives: the hedonic, which refers to the subjective well-being of the individual, and the eudemonic, which relates to psychological well-being. In educational contexts, the hedonic view concerns the subjective experience of each student and their perception of themselves in the educational institution, involving positive emotions and cognitions that allow for a pleasurable learning experience. Conversely, the eudemonic perspective alludes to well-being as a continuous realization of human development. From these two approaches, a series of models and theories emerge that support the concept of well-being in educational settings[19,20].

Well-being is a constant pursuit of a positive psychological state, the expression of human virtues, and the development of individual and social potential. It is the result of ongoing interaction among individual, social, environmental, and cultural factors[21].

Increasingly, educational institutions are becoming aware of the importance of promoting well-being. Therefore, initiatives and policies for the mental and emotional well-being of the student population and administrative and teaching staff are proposed to provide them with more skills, knowledge, and social and emotional dispositions that contribute to personal and social growth in educational environments[22]. With the need to promote well-being in educational contexts, well-being in the classroom takes on greater significance.

Classroom climate is related to a subjective social construction that promotes or does not promote learning in the student population. Thus, the classroom environment becomes a space to be, to share, to enjoy, and finally to learn. Clearly, this conception is closely related to the subjective well-being of students and emphasizes the relationship between the affective and the cognitive for the learning process to take place, as recent neuropsychological studies have shown[23]. However, if the classroom environment is not monitored and negative social comparisons and unempathic relationships are allowed, this directly impacts the self-perception of those students who feel excluded, directly affecting their mental health and, of course, will not promote an adequate learning environment[24].

Well-being in the classroom refers to those environments that promote learning and well-being in people. It contemplates the following conditions: environmental and physical, emotional, methodological, and motivational[25]. These conditions should be taken into consideration for both virtual and face-to-face learning environments.

In a recent study conducted with Chilean students, the research population related well-being in the classroom to the use of active methodologies, the empathy shown by teachers, the use of technology for learning, and educational inclusion, so that everyone in the classroom could learn[26].

Supporting wellness in the classroom is considered essential because it can help prevent burnout and demotivation in the student population, in addition to providing an environment of trust in which learning is better developed[27]. In the same way, developing a well-being environment in the classroom will enhance the emotional intelligence of students and improve interpersonal relationships[28]. Classroom environments that promote well-being boost the personal and social success of the student population and motivate active participation in the learning process. They also directly influence the well-being of the teaching staff and their enjoyment of their work. Both populations (staff and students) should be aware of the importance of building wellness in the classroom together[29].

This study analyses conditions related to well-being in the classroom in virtual learning environments; specifically, those related to the physical aspects of the place, the use of technology, emotions, interpersonal relationships, student perception with respect to the methodology used by the teacher, and the motivational factors of the students. Thus, the conditions being considered for this study in relation to classroom well-being in virtual learning environments are physical and environmental, emotional, social, methodological, and motivational[30].

This research analyses the conditions associated with classroom well-being in a university student population that has carried out social action activities during the years 2021 to 2023. These activities were initially carried out using virtual learning environments (due to the need for isolation caused by the pandemic) until the return to face-to-face learning in the present period. The idea of conducting this study arose to learn more about the effectiveness of the learning processes in the different modalities (face-to-face and virtual) from the environmental, physical, and methodological conditions, as well as the emotional, social, and motivational conditions of each student and the groups to which they belong.

The following research question was posed:

What were the conditions associated with well-being in the classroom through virtual learning environments during the years 2021 to 2023?

The objective of this research was as follows:

To analyse the conditions associated with well-being in the classroom through virtual learning environments during the years 2021 to 2023.

The scope of this research is teacher training on issues related to well-being in the classroom and the implementation of programs that promote it.

Methods

This research is based on the quantitative approach. The type of research is descriptive because it is used in observational studies and survey research, like this one. It seeks to gather information on relevant situations related to the established objectives[31].

This research is also cross-sectional, which means that it starts with a population base that is measured at a single point in time. The prevalence of the phenomenon or object of study is observed at a specific time[32].

In the case of this research, measurements were carried out every four months with

different groups of students enrolled in social outreach activities throughout the years 2021, 2022, and 2023. Each participating group was made up of different students from different fields.

The population that participated in the study corresponds to 1570 students of a private university located in Costa Rica (Central America), which has carried out university extension activities as an essential part of its training activities in the period between 2021 and 2023. These students belong to all the curricula of a university baccalaureate. The sample consists of 731 students, representing 46.5% of the population. Participants were selected through a non-probabilistic convenience sampling, where the entire population was invited to take part in the study through personalized communication. The accepting sample are those whom chose to participate in the research.

The study variables are as follows:

1. Classroom well-being through virtual learning environments, i.e., the positive learning environment in which interactivity occurs and educational purposes are achieved.
2. Environmental and technological conditions, i.e., the environmental conditions of the space where the student is located and the technological conditions of the virtual learning environment.
3. Emotional conditions, i.e., the management of emotions by the students during the learning process.
4. Social conditions, i.e., the social relationships that are established in the classroom while the student is learning.
5. Methodological conditions, i.e., the set of strategies applied by the teacher during the learning process.
6. Motivational conditions, i.e., the conditions related to the motivation towards learning manifested by the student.

For this research, the Classroom Well-being Scale in virtual environments, created and validated for Rodríguez-Ugalde and Díaz-Rojas, which evaluates the conditions related to classroom well-being in virtual environments, was applied. Among the conditions, the following are cited: environmental and physical, social, emotional, methodological, and motivational. It is a Likert-type scale that contains 20 single-selection items, with four items for each of the conditions associated with well-being in the classroom through virtual environments. According to the instrument used, special attention should be paid to all those variables in which a percentage lower than 80% of well-being in the classroom is obtained.

The validation of the instrument was carried out through evaluation of the criteria of expert judges from the areas of Research, Psychology, Administration, and Pedagogy. Subsequently, a pilot test was applied to 12 students with similar characteristics to the population under study. In addition, there was a sample of 400 people who participated voluntarily in the application of the instrument during the years 2021 and 2022. The sample represents 35% of the population.

The instrument applied has 95% reliability and 5% standard deviation, according to Cronbach's Alpha, implying that it has a high degree of internal consistency and reliability in the measures used to assess well-being in

the classroom through virtual learning environments.

In addition, the applied instrument presents a very high correlation between the variables (0.99 Pearson correlation), indicating an extremely strong and positive relationship between the specific variables related to well-being in the classroom through virtual learning environments.

Results

The results obtained in relation to the study variables are presented below.

The first variable deals with well-being in the classroom through virtual learning environments. Through the collection of information, the following results were obtained related to the conditions associated with well-being in the classroom through virtual learning environments.

In the analysis of the variables, those that showed a percentage lower than 80% in relation to well-being in the classroom were marked with a different colour. According to the instrument used, entitled "Classroom Well-being Scale in Virtual Learning Environments" (Rodríguez- Ugalde and Díaz-Rojas, 2023b), special attention should be paid to aspects below 80%.

Table 1:

Conditions related to Classroom Well-being in Virtual Learning Environments during the period 2021–2023

Welfare-related conditions	Percentage of well-being in the classroom
Environmental and physical conditions	88.02
Social conditions	84.08
Emotional conditions	85.21
Methodological conditions	82.16
Motivational conditions	85.25

The table summarizes the percentage of well-being in the classroom related to environmental and physical, social, emotional, methodological, and motivational conditions through virtual learning environments.

It is important to remember that, according to the Classroom Well-being Scale (Rodríguez-Ugalde and Díaz-Rojas, 2023b), well-being in the classroom is considered to exist if, in the sum of the responses of the participants, at least 80% of those who responded select the options "frequently" and "very frequently" on the Likert Scale.

The percentage of well-being in the classroom presented in each of the tables corresponding to the results section contains the sum of the items related to the options "frequently" and "very frequently" in each of

the statements; therefore, if the percentages presented exceed 80%, it can be affirmed that there is well-being in the classroom in virtual environments.

Environmental and physical conditions obtained the highest average (88.02%), indicating a comfortable and functional environment. Social (84.08%) and emotional (85.21%) conditions also obtained positive scores, reflecting respect and emotional well-being. Methodological conditions (82.16%) presented a lower score, suggesting room for improvement in the planning and variety of activities proposed by the teacher. Motivational conditions (85.25%) scored high, indicating that students perceive an environment that fosters motivation and commitment. Taken together, these results indicate a solid foundation for overall well-being in the virtual environment, with methodological areas that could require further attention for an even more enriching and motivating learning environment.

The results related to the following variable are those related to the environmental and physical conditions in the virtual learning environments. The results obtained were as follows:

Table 2

Environmental and Physical Conditions related to Well-being in the Classroom in Virtual Learning Environments during the period 2021–2023

Environmental and physical conditions	2021	2022	2023
The platform used for the course is available	95.98	95.09	90.91
The audiovisual resources used by the teacher are of high quality	90.23	80.80	88.48
The arrangement of resources in the virtual environment is sorted (by date,by module, or by topic)	87.36	83.93	87.27
The virtual environment has a pleasant structure	85.63	83.04	87.58

The table shows the students' perceptions of the environmental and physical conditions of the virtual learning environments in three consecutive years: 2021, 2022, and 2023. In terms of platform availability, there was a gradual decrease from 95.98% in 2021 to 90.91% in 2023. The quality of audiovisual resources showed a notable drop in 2022 (80.80%), but recovered in 2023 (88.48%). The orderly disposition of resources had a generally stable trend, with values between 83.93% and 87.36% over the three years. Similarly, the perception of a pleasant structure for the virtual environment varied, reaching its highest point in 2023 (87.58%).

Taken together, these results indicate fluctuations in student experience, with some aspects improving and others declining, suggesting the need for continued attention

to optimize well-being in the virtual classroom in relation to environmental and physical conditions.

The following results are related to the variable on social conditions associated with classroom well-being in virtual environments.

Table 3

Social Conditions related to classroom Well-being in Virtual Learning Environments during the period 2021–2023

Social conditions	2021	2022	2023
In the classroom, there is an atmosphere of great respect among all the people	97.13	95.54	91.52
Collaborative activities are carried out in the course	88.51	84.38	76.36
During the development of the synchronous sessions, theparticipation of all persons is encouraged	86.78	84.38	84.55
I feel the support of my classmates in carrying out the courseactivities	75.86	70.09	73.94

These data represent the evolution of social conditions in the educational environment over three years: 2021, 2022, and 2023. Respect in the classroom gradually decreased from 97.13% in 2021 to 91.52% in 2023. Collaborative activities also showed a downward trend, from 88.51% in 2021 to 76.36% in 2023. As for participation during synchronous sessions, it remained relatively stable. Peer support fluctuated, with a low of 70.09% in 2022. These results suggest that, over the years, there have been changes in the perception of a respectful and collaborative environment. The decrease could indicate challenges in promoting interaction and support among students, underscoring the importance of fostering an inclusive and cooperative environment to improve well-being and the educational experience.

Table 4

Emotional Conditions related to Well-being in the Classroom in Virtual Learning Environments during the period 2021–2023

Emotional Conditions	2021	2022	2023
I feel very comfortable participating in the course activities	89.08	81.70	86.97
Assertive communication is promoted in the different activities of the course	96.55	92.41	91.21
The leadership development of all people is promoted	82.76	74.11	83.03
I enjoy learning through virtual environments	85.06	78.13	81.52

These data represent the analysis of emotional conditions in virtual learning environments for three years: 2021, 2022, and 2023. The feeling of comfort in participating in course activities showed a decrease in 2022 (81.70%) but recovered in 2023 (86.97%). The promotion of assertive communication remained high in all years, although it showed a slight downward trend. Promotion of leadership showed fluctuation but increased in 2023 (83.03%). Enjoyment of e-learning decreased in 2022 (78.13%) but also recovered in 2023 (81.52%). Taken together, these results indicate that, while some emotional conditions fluctuated, assertive communication remained stable. Variations may influence student engagement and motivation. Improved comfort and leadership could be especially relevant to their emotional and academic well-being.

Table 5

Methodological Conditions related to Well-being in the Classroom in Virtual Learning Environments during the period 2021–2023

Methodological conditions	2021	2022	2023
The activities developed during the course were carefully plannedby the teacher	94.25	79.02	89.09
The teacher proposes a variety of activities	87.36	78.57	81.21
The activities proposed by the teacher are very interesting	85.06	68.75	79.39
In the course there is a balance between theory and practice	86.21	75.45	81.52

The table presents the evaluation of methodological conditions in virtual learning environments over three years: 2021, 2022, and 2023. In terms of activity planning, the perception that activities were carefully planned decreased in 2022 (79.02%) but recovered in 2023 (89.09%). The variety of proposed activities also decreased in 2022 (78.57%) but showed a small improvement in 2023 (81.21%). The attention captured by the proposed activities decreased in 2022 (68.75%) and partially recovered in 2023 (79.39%). Regarding the balance between theory and practice, there was a decrease in 2022 (75.45%) but a recovery in 2023 (81.52%). Overall, these results suggest fluctuations in the perception of planning and variety of activities, as well as in the theory–practice balance. These factors may influence student engagement and motivation. Maintaining solid and varied planning, along with an appropriate balance between theory and practice, can positively impact the learning experience and academic well-being.

Table 6

Motivational conditions related to well-being in the classroom in virtual learning environments during 2021–2023

Motivational conditions	2021	2022	2023
The teacher provides us with positive feedback	92.53	79.91	86.36
I feel that I can express myself freely in the course in a respectful way	91.38	88.84	87.58
I feel the motivation to continue learning in the course	93.10	77.68	83.94
The activities proposed in the course seek to stimulate studentsintellectually	87.36	70.98	83.33

The table presents the evaluation of motivational conditions in virtual learning environments over three years: 2021, 2022, and 2023. Positive feedback decreased in 2022 (79.91%) but recovered in 2023 (86.36%). The feeling of free and respectful expression in the course remained constant, with values between 88.84% and 87.58%. The perception of motivation to learn decreased in 2022 (77.68%) but also recovered in 2023 (83.94%). Activities that intellectually stimulate students decreased in 2022 (70.98%) but improved in 2023 (83.33%). These results suggest fluctuations in the perception of motivation and intellectual stimulation. Maintaining a positive feedback environment, encouraging free expression, and designing stimulating activities can positively impact students' intrinsic motivation and academic well-being.

Discussion

As observed in both the consulted literature and research conducted during the pandemic period, both the student population and the teaching staff had to face new challenges to continue the learning process. Universities had to provide functional, systematic, and engaging virtual environments. Simultaneously, teaching staff had to learn and adapt to the new requirements of using virtual environments that facilitated students' learning processes.

Particularly, the surveyed population expressed satisfaction with the physical and environmental conditions of the virtual learning process. Prior to the pandemic, the university had invested resources and efforts in providing technological tools to support in-person classes. Therefore, when the shift to exclusively virtual learning environments was necessary, the university was already prepared to take that step.

However, the research identified which aspects students cited as opportunities for improvement. They particularly emphasized conditions related to collaborative work and support among peers, indicating that many activities proposed through virtual environments lacked opportunities for mutual assistance. This underscores the need to raise awareness among teaching staff about the importance of socialization in the learning process.

From the information collected over 3 years (2021, 2022 and 2023), the best conditions related to well-being were during 2021 for all areas. It is particularly interesting to observe how the evaluation of conditions related to well-being in the classroom by students in 2022 showed significantly lower scores than in other years, in practically all areas. While this research does not delve into the causes of the described situation, there was a better evaluation of conditions related to well-being in the classroom in 2021 and 2023.

Analysing each area contributing to classroom well-being, it can be asserted that, concerning environmental and physical conditions, students perceive a functional and suitable virtual environment. These conditions impact the comfort and ease of participation for the student population. A well-functioning virtual environment can reduce stress and promote a sense of control, contributing to the psychological well-being of students and facilitating the learning process.

Furthermore, in the area related to the physical and environmental conditions of learning, the students felt comfortable because they carried out their learning processes from the physical space that they had selected for that purpose in their homes or workplaces.

This allowed each person to seek the best environment with the comforts they required for their learning process.

During the pandemic, only virtual learning environments were used, and the staff faced the significant challenge of developing lessons entirely in these environments. Before the pandemic, virtual environments were supportive tools for in-person classes. This new challenge led teaching staff to learn, research, create, and propose functional and engaging technological tools that facilitated the learning process.

Regarding social conditions in the classroom since the pandemic, the student population expressed a positive perception of the atmosphere of respect in the virtual classroom. This condition is crucial for a sense of belonging and interpersonal satisfaction for students. A positive social environment is linked to self-esteem and emotional well-being. However, in this new context, students faced new challenges in their interactions, as they reported not feeling a supportive and collaborative atmosphere among peers. This suggests the need to create collaborative environments in virtual spaces so that students can share and support each other.

In the period of isolation during the pandemic, all people had to reinvent their way of relating to others who did not belong to their nuclear family. This mainly impacted the student population of all levels (including university students), because they could only interact through electronic devices.

Before the pandemic, many people had only studied in physical learning environments, so they were used to interacting face to face. With the pandemic, entering the world of virtuality, the way of interacting with peers in learning environments changed drastically and could only be done through electronic devices. This way of interacting was markedly different from what was done through physical presence.

Furthermore, in the new circumstances of virtual learning during the pandemic, teaching staff had to use platforms that allowed them

to put learning strategies into practice and not all had the knowledge of how they could propose collaborative learning strategies. Thus, students felt a great difference in the social interaction that occurred when they received their classes in person versus the new conditions in virtual environments.

Even in recent months, despite the fact that teaching staff have greater familiarity with virtual environments, activities continue to be proposed in which students consider that there is not enough interaction or collaborative work. In summary, greater effort is required on the part of teaching staff when proposing learning strategies in which there is strong interaction and collaboration between students.

As for emotional conditions, students reported experiencing a reasonable level of emotional well-being in the virtual environment. However, it was observed that the results were unfavourable in aspects related to promoting leadership and enjoying the learning process. These factors must be considered to implement mediation strategies in the classroom.

The consulted literature places great emphasis on the importance of emotional well-being as an essential part of the learning process. For meaningful learning to occur, students need to experience pleasurable emotions that motivate them to continue learning. Hence the importance of proposing safe spaces for the expression of emotions and innovating with participatory and collaborative methodological strategies that encourage the student population.

Analysing methodological conditions, students' responses once again suggest room for improvement in the planning and variety of activities, as well as the balance between theory and practice. Students want to participate in more attractive and innovative activities. Putting effort and focus into improving these factors can directly influence students' motivation and engagement. Improving these conditions can contribute to academic well-being. This requires the university's effort to continue training teaching staff in these areas and encouraging them to create attractive and challenging learning spaces for students.

Regarding motivational conditions; overall, students perceive an environment that promotes motivation and engagement in learning. This demonstrates that the student population has managed to develop conditions related to self-efficacy and a sense of achievement, positively affecting psychological well-being and the learning process.

Conclusions

The following are some of the conclusions of this work:

1. Regarding the conditions related to well-being in the classroom through virtual environments that yielded excellent results from 2021 to 2023, the students highlighted the following aspects: availability of the virtual platform, respect from all individuals in the classroom environment, assertive communication in course activities, and the free expression of ideas in a respectful atmosphere. Conditions related to well-being in virtual classroom environments that yielded positive results include: the quality of audiovisual resources used by individuals, the

arrangement of resources and the structure of the virtual environment, active participation of individuals, and feeling comfortable with the course. Conditions requiring greater attention in terms of classroom well-being are as follows: activities proposed by the teacher in the course and support from peers in completing course activities.

2. In 2022, several conditions related to classroom well-being experienced a decline. However, by 2023, they recovered and returned to a satisfactory level. These conditions included: positive feedback from the teacher, motivation to continue learning, intellectual stimulation of students through teacher-proposed activities, planning of activities by the teacher, diverse activity implementation, balance between theory and practice in the course, promotion of leadership among students, and enjoyment of learning through virtual environments. Only one condition worsened in 2023 compared to previous years, i.e., that specifically related to collaborative activities in the classroom.

The above information constitutes a very important input to support the welfare in the classroom in virtual environments, guiding teachers to develop their work in the best way, and aiding students to make the most of their learning using this type of environment.

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The authors have no conflicts of interest to declare.

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