

# Teaching in Physical Education during Pandemic COVID-19: A Study of University Teachers

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Received July 7, 2022; Revised September 7, 2022; Accepted September 26, 2022

## Cite This Paper in the Following Citation Styles

(a): [1] Alejandro Almonacid Fierro, Andrew Philominraj, Rodrigo Vargas Vitoria, Noelva Eliana Montoya Grisales, "Teaching in Physical Education during Pandemic COVID-19: A Study of University Teachers," *International Journal of Human Movement and Sports Sciences*, Vol. 10, No. 5, pp. 973 - 981, 2022. DOI: 10.13189/saj.2022.100514.

(b): Alejandro Almonacid Fierro, Andrew Philominraj, Rodrigo Vargas Vitoria, Noelva Eliana Montoya Grisales (2022). *Teaching in Physical Education during Pandemic COVID-19: A Study of University Teachers*. *International Journal of Human Movement and Sports Sciences*, 10(5), 973 - 981. DOI: 10.13189/saj.2022.100514.

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**Abstract** The COVID-19 pandemic is a health crisis deepening in the current world context, characterized by enormous globalization and scientific-technical development processes. The research aims to understand how university teachers of Physical Education had to reinvent the discipline and the pedagogical relationship based on bodily practices during the two years of the COVID-19 pandemic. The study is based on the interpretative-comprehensive paradigm, with a qualitative methodology. Twelve semi-structured interviews were conducted with university professors from two regional universities, located in the Maule region, Chile. The first category that emerges is Virtual Education, which is related to the challenges faced by teachers with distance learning. The second category refers to the pandemic's impact on the teaching staff's socio-emotional aspects, manifested through fatigue, exhaustion, and stress, affecting teaching practices due to the precarious work and the adverse conditions generated by the COVID-19 pandemic. In terms of conclusions, we can affirm that the COVID-19 pandemic caused profound changes in the teaching and learning processes in the area of Physical Education, with negative consequences for the moment, for the teaching staff as well as for the university students.

**Keywords** Teachers, Teaching, Physical Education, Pandemic COVID-19

## 1. Introduction

In March 2020, the World Health Organisation (WHO) upgraded respiratory disease caused by the new coronavirus COVID-19 to pandemic status [1]. This is due to its easy spread, poor knowledge of the virus, and the exponential increase in the number of infections. This led to political and health measures such as isolation and quarantine, which involved the closure of Universities, in order to contain the escalating spread and the number of infected [2,3]. The adoption of distance education, brought about by the pandemic raises some problems, including the lack of technological infrastructure (wifi, mobile devices, computers) for students and the lack of space at home for university students to carry out educational activities [4-6]. Despite these difficult conditions in accessing the Internet and poor knowledge of the tools, many teachers created distance learning projects and worked weekly on the content with a group of students in each course.

Teachers who had some knowledge of virtual tools offered classes through Meet, Zoom, or Microsoft Teams. The classes were conducted using PowerPoint, which was recorded and made available to the students, especially for those who were not present at the time of the class, often due to a lack of connection [7-9]. In the case of Physical Education training and in this new teaching context, the use of visual media seems to be a good resource to approach and discuss body practices (dances, sports, fights, gymnastics, and games). According to Centeio et al. [10];

Filiz & Konukman [11], in physical education, the analysis and discussion of human movement are essential for an adequate pedagogical practice in distance education. Consequently, Physical Education teachers working in higher education had to change their pedagogical work and the teaching-learning process in the context of the Covid-19 pandemic, moving from face-to-face teaching to distance learning, mediated by ICT, and all this in a matter of days and weeks. These changes led to curricular and pedagogical difficulties, according to what is reported in the studies of Almonacid-Fierro et al. [12]; González-Calvo et al. [13]; Jumareng et al. [14]; Kim et al. [15]; Kırbaş [16].

From another perspective, authors such as Almonacid-Fierro et al. [17]; Hunuk et al. [18]; Iserbyt et al. [19]; Maksimović & Osmanović [20]; Ward et al. [21], distinguish content knowledge and pedagogical knowledge of body practices or didactic-pedagogical knowledge in Physical Education teacher training. This distinction is due to the practical component associated with it, which aims to develop specialized knowledge, with the ability to use it in action, thus enabling contact with real contexts of teaching and professional practice [22–24]. However, in the context of the COVID-19 pandemic, physical education teachers have had to move their classes from sports fields and swimming pools to computer screens or mobile phones. They adapted spaces and materials, found other content and pedagogical activities, implemented other methodological strategies, and established new forms of communication and interaction with their students, as demonstrated by the research findings of Centeio et al. [10]; Fazleeva et al. [25]; Filiz & Konukman [11]; González-Calvo et al. [13]; Kim et al. [15]; O'Brien et al. [26]; Varea et al. [27].

Considering this point of view, it could be said that teacher training in the field of Physical Education has been significantly affected by the changes brought about by the pandemic. These changes are due to its high content in practical modules, which has meant that teachers have to make methodological and didactic adjustments to comply with the disciplinary and pedagogical content that students in training must master so that they have the necessary skills for their future teaching practice [16,28–30]. Likewise, Physical Education students have also had to face a totally different teaching-learning process, where all the practical subjects included in the curriculum have to be replaced by a virtual system. Consequently, the learning of the practical modules was developed under a teaching strategy that prioritizes the conceptual, at the cost of being reduced and marginalized the practical experience as stated by Laar et al. [31] and Mocanu et al. [32].

From an eminently pedagogical perspective, Physical Education is based on relationships of otherness, that is, on the encounter with another human being, in the recognition of their differences and similarities. This is mediated by different interaction strategies such as games, exercises,

gymnastics, rhythmic activities, body expression, recreation, and sports, which contribute positively to the formation of the human person from a multidimensional perspective [33,34]. In this context, university teaching requires the presence of a subject capable of generating the interplay between theory and practice, since teaching action is configured around a praxis, in a permanent dialogue between both domains, generating an amalgam of knowledge that emerges from practice to theory and from theory to practice [35,36]. In line with the above, the area of Physical Education must guide its practices, so that students give will and emotion to the educational-sports process. In this sense, this process cannot only be transformed into a discourse on the body culture of movement, on the risk of losing the richness of its specificity but must be constituted as a pedagogical action with that culture [18,19,37]. This pedagogical action proposed by Physical Education will always be an experience permeated by corporeality and the relationship with another human being since the cognitive dimension always operates on the bodily substrate [38,39].

In times of social isolation, the teaching-learning process of sports practice in university-level classes presented difficulties for physical education teachers in choosing the best teaching methods for emergency education. In this context, the present study aims to understand how university teachers of Physical Education had to reinvent this career and the pedagogical relationship based on the corporeality of students and teachers. Consequently, thinking about the career in this "new normality", a term that has been widely used to refer to the moment we are living through, has become a challenge for teachers in the area of sports in university institutions that train teachers.

## 2. Materials and Methods

### 2.1. Research Design

The present research is a study under the interpretative paradigm [40], which aims to investigate the perception of university teachers in the field of physical education, regarding the teaching-learning process, deployed during the two years of the COVID-19 pandemic. The methodological and analytical approach is linked to the qualitative research field [41].

### 2.2. Research Instrument and Subject

Twelve semi-structured interviews were conducted with university professors from two regional universities, located in the province of Talca, Maule Region, Chile. Of the twelve teachers interviewed, seven of them are specialists in collective sports such as soccer, basketball, volleyball, and handball. Three teachers are from the area

of individual sports such as artistic gymnastics, rhythmic gymnastics, and athletics. One teacher is an adventure sports teacher and one is a dance and body expression teacher.

The following inclusion criteria were considered for the study: physical education teachers, university teachers with at least five years of experience in university teaching, teachers specializing in the area of individual or group sports, and teachers who had changed from face-to-face to virtual teaching during 2020 and 2021 as a result of the health emergency, and those who manifested interest in participating in the study. The exclusion criteria were teachers with less than five years of experience in university teaching.

### 2.3. Data Collection

The data for the study were collected during the year 2021 between the months of August-October. The instrument used was an interview script, which was developed by the research team according to the dimensions of the problem under study. The script was validated by five expert academics who ensured that the questions were specific and focused on the stated objectives.

Prior to data collection, researchers obtained written informed consent to ensure the confidentiality of individuals' names, with consideration for privacy and an emphasis on voluntary participation. Consent was sent via email and received by email. Participants were informed about the purposes of the research and also their permission was sought to record the interview, in order to safeguard the ethical aspects of the study according to the Helsinki declaration. The interview was conducted via Zoom or Meet, due to a health emergency in the country, and lasted an average of 50 minutes.

### 2.4. Data Analysis

For data processing, a content analysis [42,43], was chosen, which comprises of three flows of activity: the condensation of data, the presentation of data, and the

elaboration/verification of conclusions. Subsequently, the previous categories are grouped through open coding, which allows the emergence of primary categories, giving way from a first descriptive moment to an interpretative instance. The data were analyzed using the inductive logic of theoretical categorization, which is based on categorization as the main data analytical tool, aimed at theorizing through operations that lead to theoretical construction [44,45]. This process was assisted by the Nvivo 11 program.

The research team conducted the data processing in the following sequence: i) The data were reviewed in their entirety in an open-ended manner, attempting to answer the question "what do the data tell us? The information collected was regrouped into six classificatory categories which later evolved with the following stages of coding; ii) In a second stage, connections were made between the codes in order to construct descriptive and explanatory categories. These categories will be detailed in the results section of this article; iii) The last phase corresponds to the theoretical elaboration, the purpose of which is to produce an explanatory framework to understand the perception of the learning process and the impact of the two years of the COVID-19 pandemic on university teaching in the field of physical education

## 3. Results

The matrix is presented below (Table 1), whose mega-category focuses on the perception of virtual teaching by university teachers in the field of Physical Education. Two previous categories emerge from this matrix: Virtual Education and Socio-emotional Aspects. From the previous categories, primary categories are identified that emerge from the respective coding process.

The primary categories that emerge from the coding and categorization of the 12 semi-structured interviews conducted are presented below. Each story presented has a code that expresses the following nomenclature: I (interview); N° (number from 1 to 12) and pp. (page number).

**Table 1.** Systematization matrix

Mega-category	Previous Category	Descriptor	Primary Category
Perception during the COVID-19 pandemic	Virtual Education	The category that deals with the experience of teaching the career of Physical Education in times of pandemic	Connectivity and technological resources
			Methodological strategies
			Corporeal-motor experience
	Socioemotional aspects	Category refers to the impact of the pandemic on the socio-emotional aspects of teachers	Emotional status
			Physical discomfort and exhaustion
			Social Relations

### 3.1. Previous Category Virtual Education-Primary Category: Connectivity and Technological Resources

According to the informants' accounts, a significant barrier is generated within the virtual teaching-learning process, which affects the smooth running of each session. There are different factors that do not allow the optimal development of a class, the teaching staff, and students, in general, have had to deal with different problems that affect connectivity, as evidenced in the following:

*"Another barrier was connectivity, we realized that at the national level there is no connectivity for everyone, only some students could connect properly in all classes" (I, N° 2; pp.4).*

*"The University provided a computer to some students, however, most of them connected via their mobile phones, on several occasions the Teams platform did not allow them to log in, or the internet signal was very weak" (I, N° 8; pp.5).*

*"At the beginning of the 2020 academic year, everything was a bit chaotic, I didn't have a list of all my students, I didn't know how to use the Teams platform, my students had internet problems and couldn't connect, not everyone had a computer [...], it was a very complex period, which we got through with willpower alone" (I, N° 1; pp. 3).*

In the stories presented, the problem of connectivity was one of the major conflicts in teaching virtual classes, which is why the university teaching staff had to look for different ways and alternatives to overcome the difficulties.

### 3.2. Previous Category Virtual Education-Primary Category: Methodological Strategies

In the stories presented by each university teacher, different teaching methodologies are identified, which were implemented to develop the different sessions of the sports modules taught by the university lecturers in the virtual classes. In the teaching methodologies, an innovative way is sought, so that the student learns in the current context in which we find ourselves, and this is reflected in the following stories:

*"What we did was to work in small groups, we worked with courses of twenty students because we have more possibilities of interaction with them in front of the camera, we also used videos, methodological guides and evaluations on the Teams platform" (I, No. 11; pp. 3).*

*"In online sessions, we used the problem-based learning method and we also made an inverted class system, i.e. we pose the problem, and the students have to generate the practical activity through videos, tutorials, animations, etc." (I, No. 6; pp. 3).*

*"For us teachers who teach practical courses such as athletics or volleyball the biggest challenge was converting all that is practical, to theoretical teaching, so we used PPT, video capsules, YouTube and students sent us comments on the activities through photos, videos or audios" (I, No. 10; pp. 4).*

In a context of confinement, the possibilities of generating efficient strategies that meet the needs of all students are much more reduced, since the context of each individual is diverse. From the key informants' stories, we can understand how teachers developed attractive teaching methodologies to enhance autonomous work and maintain motivational levels in the classroom, despite the health and educational contingency the country is facing currently.

### 3.3. Previous Category Virtual Education-Primary Category: Corporeal-Motor Experience

In relation to the previous category of "Impact on Learning", the primary category of "Corporeal-motor experience" emerges. Analyzing the stories of the interviews given by university teachers, in times of the COVID-19 pandemic, a gap has been detected in the practical learning of the sports modules, which are the fundamental basis for the development of these courses:

*"The teachers think about recovering or reinforcing at some point the learning that has not been experienced because it is fundamental for them to experience sport, it is a substantive part of learning, that is to say, the experience" (I, N° 4; pp. 5).*

*"In 2020 we couldn't do anything practical in the sports courses, because of the restrictions of the pandemic, especially because of the long quarantines, so the students didn't have the practical experience of being in the gym and feeling the basketball" (E, N° 12; pp. 5).*

*"Recovering non-experienced learning is going to be a problem, [...] so it's another way of approaching it, and very few people have dealt with it" (I, N° 3; pp. 2).*

The stories depict the difficulties encountered by the physical education teachers in their moving from teaching that was mainly practical or experiential to a model based on virtual reality. This made the teaching process difficult, as they had to adapt to an online modality. In the preceding stories, the key informants point out the obstacles to transforming the knowledge of bodily practices into virtual or theoretical teaching.

### 3.4. Previous Category Socio-emotional Aspects-Primary Category: Emotional Status

According to the stories told by the university teaching staff, there are different perceptions regarding the emotional state due to the workload caused by the virtual

classes during the COVID-19 pandemic confinement period. The emotional sphere is one of the most worrying causes in the academic period during the pandemic due to the excessive loads that this entails, which can be seen in the following stories:

*"I try to be optimistic, to bring out the positive, to have a flexible, divergent, adaptive way of thinking, of course, today it is the pandemic, tomorrow it might not be pandemic, but a different work situation, so I have had to adapt emotionally to this crisis" (I, N° 9; pp. 2).*

*"It clearly has an impact on your emotional life because you have less time, you are more tired and to that, you add the variable of stress that it causes [...]. Being locked up at home and worrying that you might end up being infected, we are often far from our family and that is a sum of everything, of many factors" (I, N°5; pp. 3).*

*"I remember that during the week I cried once or twice, I was in the dining room with my classes, my husband next door with his classes, and my son was going up and down the stairs all the time [...] it was really a complex emotional strain" (I, N° 7; pp. 4).*

In teaching-learning processes, there is a special concern for the academic, social, and emotional aspects of students. Concerning the emotional aspects experienced by the teachers in the virtual modality, it is observed that tiredness and exhaustion were present in most of the stories. These factors literally altered the functioning and performance of daily activities, and in particular affected the teaching practices due to the precariousness of the work and the adverse conditions generated by the COVID-19 pandemic.

### **3.5. Previous Category Socio-Emotional Aspects-Primary Category: Physical Discomfort and Burnout**

The interviewees have encountered a totally different reality during the virtual teaching process, where there are problems and circumstances due to different emotional factors, which are reflected below:

*"Moments of despair when you went to sleep late after being at the computer for a long time because your head was still spinning [...] The pandemic generated both personal and family discomfort..., you can say that you are fine, but your face, shoulders and body show how tired and stressed I feel" (I, No. 2; pp. 6).*

*"I even had to change my chair, because the computer chair I had was old, so I had to buy a new one because I had back pains, I had to sit for more than twelve hours" (I, N° 11; pp. 4).*

*"It was complex, my desk was literally my bed, and to be there all day, but my back started hurting because of the chair...on the desk, I installed a worktable, this*

*allowed me to be at the same height. The meetings and the classes were done standing up, then I incorporated a tripod to have the mobile phone and the computer" (I, N° 3; pp. 5).*

The interviewed teachers presented different complications during the virtual teaching process since they did not have the same conditions at home as in their office at the University. Consequently, the classes became more complex than usual. Within the psychological aspects experienced by the interviewees, the discomfort and physical wear and tear of the new modality was an intense process of adaptation, as they began to experience muscular pain, tiredness, and a feeling of stress.

### **3.6. Previous Category Socio-Emotional Aspects-Primary Category: Family Relationships**

In the stories presented by the university academics, there is a category that covers family relationships and the impact they faced during COVID-19 confinement, where they experienced different emotions and experiences when trying to reconcile work and family life, which can be seen in the following stories:

*"Being at home allows you to have more family relationships, I have lunch every day with the family, which I didn't do before [...] before, if I was lucky I would come for lunch one or two days, so on that side, I think they improved" (I, N° 1; pp. 4).*

*"I think I am in a situation of "privilege", I live alone here [...] suddenly my partner comes and I don't have much of a problem, my family is in Talca, so I think I haven't had the problems that other families have had" (I, N° 12; pp. 3).*

*"My family environment wasn't affected much, that is, yes because I spend many hours in front of the computer, but my children who were at home were also in virtual work mode and my husband too. They are all here, so the family environment didn't affect me much" (I, N° 7; pp. 5).*

Among the stories shared by the university teachers, the conflict that affected many people in terms of their family relationships had a positive impact on the majority of university teachers. The confinement caused by the pandemic was an instance where they could share and devote more time to their family, and conduct their classes from home in a virtual way. The time they had spent in conversations, and shared activities, which they had never done together before, are elements that coincide with the research findings.

## **4. Discussion**

According to Azionya & Nhedzi [46], the university

teaching staff's assessment of the management of the academic year during the pandemic has been quite critical. Also, recognizing technical problems such as access to the necessary technological devices and tools, their lack of digital competences, but also of the students and difficulties associated with their state of mind, stress, anxiety, uncertainty, and other discomforts that affect academic performance, as described in Coleman's studies [47]. During the COVID-19 pandemic, the teaching and learning process in the classroom was reorganized by means of synchronous and asynchronous transmission. However, a general concern has been highlighted, referring to the large social and educational gaps revealed by the pandemic, since not all students have access to technologies and internet access, demonstrating the shortcomings of a developing country such as Chile [48,49]. On the other hand, teachers did not have the training and skills to take on technology-mediated teaching, something that they had to take on and learn during the crisis.

This led university teachers to use different pedagogical strategies to develop the content associated with the field of sport, preferably using videos, animations, and platforms such as YouTube to address the practical content associated with sports, as shown in the studies by Centeio et al. [10]; Filiz & Konukman [11]; González-Calvo et al. [13]. In this line, the construction of other classroom spaces/times, more specifically virtual classrooms, enhanced other forms of communication mediated by technology, and offered not only limitations and challenges, but also learning in the area of Physical Education [15,29,50]. This particular issue coincides with the studies of Varea & Gonzalez-Calvo [51], who report that it is not possible to replace corporeality and, consequently, bodily practices in the teaching-learning processes in Physical Education teacher training, due to the specificity of the discipline, coinciding with the research findings of Centeio et al. [10]; Fazleeva et al. [25]; Kim et al. [15].

However, we are rarely aware of the importance of adequate emotional management of teachers. This is because the teaching profession is one of the most emotionally demanding since most of their work is carried out in a context where interpersonal relationships are the basis of their work, impacting the mood and emotional state of teachers, as shown in the studies by MacIntyre et al. [52]; Mudrak et al. [53]. In connection to the above mentioned, the research findings of Kidd & Murray [54] and VanLeeuwen et al. [55], report that, although teachers faced numerous challenges, such as feeling unable to balance all their roles to expressing frustration or disappointment with the way they were performing in their various roles, be it a parent, student, or community member. In spite of all these, yet each and everyone responded with responsibility towards their students and quickly made changes in their practice to ensure

educational continuity.

The key informants in the study stated that they were satisfied with their ability to solve the problems resulting from the transition from face-to-face to virtual teaching, in a process that involved adaptation, innovation, creation, and new learning [7,10,11,15]. They ended up marking the period of confinement as an opportunity to learn other competences of the teaching profession, such as flexibility, adaptability, proactivity, creativity, knowledge, and handling of new digital tools. However, they also described that the essence of professional practice, which is based on contact and sensations associated with the corporeality provided by physical activity, did not allow for its full substitution by virtual reality [28,30,50,51]. The greatest difficulties for the teaching of Physical Education in the university context occurred in collective or group sports, such as basketball, volleyball, soccer, and handball, since it was impossible to carry out group body practices among students of the same level, which coincides with the results reported in the study by Bădău & Bădău [56].

The study provides useful background information for comparison with research in different international contexts, with the aim of understanding how university teachers specializing in Physical Education have experienced the COVID-19 pandemic and its impact on learning processes.

## 5. Conclusions

The COVID-19 pandemic represented one of the greatest health crises in human history. On the other hand, we know that a crisis such as the one experienced has repercussions at the economic, social, political, and cultural levels in a country. It is also important to highlight that this crisis manifests itself differently in different parts of the world, i.e. in first world countries and in developing countries such as Chile. It should be noted here that the current COVID-19 pandemic scenario is not only a biological phenomenon but also an economic, social and political one, which refers to a health crisis that is deepening in the current global context, characterized by huge processes of globalization and scientific-technical development.

The COVID-19 pandemic has caused profound changes in teaching and learning processes, as well as in the development of a different pedagogical relationship between teachers and students, as they were deprived of face-to-face contact. Changes for inexperienced teacher were prepared. In fact, the suspension of face-to-face teaching activities in mid-March 2020 was experienced by the university teachers in this study with great apprehension and fear, mainly because of questions about how teaching and particularly their classroom practices would develop after that date. In their reflections, the

teachers surveyed state that they have followed the guidelines of their respective departments, which, for the most part, subscribe to the recommendations and guidelines of the competent health authority, in terms of restrictions associated with physical and social distancing.

With regard to the learning not experienced by the students, it is necessary to try to gradually return to face-to-face classes and, as far as possible, to recover part of the learning. In this sense, the importance of involving the body in learning has been discussed, however, changing this practice of sitting down and receiving information throughout the day should be progressively replaced by the bodily practices of the Physical Education specialty, since the body, movement, senses, and emotions are involved in how each person learns, and this requires bodily-motor experience.

## 6. Limitations and Recommendations

Among the limitations presented in the study is the need to increase the sample size, hence, it would be advisable to consider other institutions. Another limitation of the study would be to consider the application of a second data collection technique such as a focus group.

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