

Scientific and pedagogical bases of teaching values to future specialists

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Suggested Citation:

Dinara, D., Sholpan, A., Nurzak, D., Bikamal, T., & Gulnar, K. (2022). Scientific and pedagogical bases of teaching values to future specialists. *Cypriot Journal of Educational Science*. 17(2), 506-518. <https://doi.org/10.18844/cjes.v17i2.6850>

Received from October 11, 2021; revised from December 10, 2021, accepted from February 23, 2022

Selection and peer review under responsibility of Prof. Dr. Özge Hacifazlioglu, Hasan Kalyoncu University, Turkey ©2022 Birlesik Dunya Yenilik Arastirma ve Yayıncılık Merkezi. All rights reserved.

Abstract

As a problem situation in the research, it was aimed to teach the future specialists the basic scientific and pedagogical values and it was planned to proceed accordingly. The research was conducted in the fall semester of 2021–2022, and the study was conducted with the participation of 384 university students using a quantitative research model. In the research, scientific and pedagogical core values were taught online for 3 weeks at the activity level to university students. In the study, a scientific and pedagogical foundation measurement tool was used to collect data developed by the researchers. The scale used in the study was delivered to university students and collected by the online method. The analysis of the data was carried out using the SPSS programme; frequency analysis was carried out with the *t*-test; and the results obtained were added to the study accompanied by tables. As a result of the research, the university has adopted that the students will be the experts of the future, and it has been concluded that their level of knowledge on scientific and pedagogical foundations is good and that they are looking forward to this situation as the experts of the future.

Keywords: Basic values, scientific and pedagogical, distance education, university students;

1. Introduction

He comes to the world in a scientific reality of all people in the world and makes sense of the world with the references he receives from his culture from birth to death. In the course of research, a person finds that he was not born consciously in any culture, but in previously produced meanings and symbols (Utemissov et al., 2021). It is known that cultural values stand out when pedagogical values and structural meanings are reflected in the world and correspond as thoughts and objects (Tapalova et al., 2021). Students without a face is an asset the value of factor of scientific and pedagogical, cultural values is a fundamental aspect of being human and the way of life of the people means that the common identity knowledgeable and attributing importance to the culture in meaningful presentation of traditional culture values, norms and meanings that emphasises the totality of (Arymbaeva et al., 2019). It is known that scientific and scientific values consist of abstract views and world-facing perceptions that provide information about people's behaviour and find a reflection of these behaviours. In this sense, it is known that what regulates and gives meaning to the perception, feelings, thoughts and teachings of instructors will be scientifically transferred from them to future specialists, i.e., students (Zeer et al., 2016). Therefore, it is possible to make sense of people's behaviour and interpret their feelings by knowing their cultural context. As a matter of fact, Soboleva et al. (2022) suggest that the cultural context is the frame of reference that guides the individual in the emergence and regulation of behaviour. It is known that studies represent students scientifically, and diversity in cultures also differentiates individuals. In other words, it is known that each culture has its own unique knowledge, boundaries and diversity; it forms the frame of reference of students and creates the basis for the emergence of individual-specific differences (Nurullayeva, 2022). From this point of view, the perspective that cultural values give to a person and the possibilities offered by the cultural context are important points for people to understand. Sociocultural values in the cultural context have a great role in human cognition and are considered an important basis for the interpretation and evaluation of differences in people's cognitive performance (Stepanyuk et al., 2022). In this respect, the cognitive and affective processes of university students are shaped by the influence of experiences within the context of pedagogical core values; pedagogical core values give a new identity to university students. From this point of view, this work is of importance for scientific and pedagogical goals.

It is known that changes in technology and research change not only the existing types of space, but also communication in students. It has become more important than ever to be a global citizen, to be a critical consumer of information, to communicate effectively with people and to have a global awareness (Bowman et al., 2020). New scientific and technological training has shown that the concept of multidimensional distance needs to be addressed in the new, within limits of each issue of concern to the society and thus the students are required to handle and make necessary very wide angles (Chang et al., 2020). In particular, every student and educational institution involved in the organisation of education, especially in the field of education, has been significantly affected by this change and will continue to be affected by adaptation to the changing scientific economy, the information age and the demand to become a global citizen (21). This has necessitated re-evaluating and defining priorities for schools (Malika et al., 2022). These changes include learning and innovation skills; life and career skills; and information, media and technology skills (21). It is known that everyone recognises that the knowledge and equipment they have is important for achieving the targeted academic success (Thrassou et al., 2021). In our century, teachers face some difficulties

(21). These areas of difficulty, which we can call a number of innovations, will be an advantage for the teacher when they are well analysed. Changes in basic issues, such as learning environment, student, teaching techniques, social life and work life, are critical for the teacher (Hafour, 2022). Each exchange area has an informative and guiding feature on the skills that the teacher should have.

In this study, it was aimed to teach the scientific and pedagogical basic values to the experts of the future, to ensure that the above-mentioned meanings and achievements would be accommodated in university students; the research will continue to be formed in accordance with the purpose.

1.1 Related Research

Ivanchuk et al. (2020) conducted a study on preschool education and their future professionals who are educated by experts with the use of modern educational technology; pedagogical focus in the future has attempted to identify developments and, as a result, modern educational technology is the future of preschool education preparing for use by professionals; they came to the conclusion that various activities aimed at the protection and development of the younger generation are aimed at their constant development, and pedagogically these foundations are formed in students. Technological and scientific studies have always been at the forefront of research and are known to support students and instructors.

Renatovna et al. (2021) conducted a study on modern pedagogical technologies. In the process of the work conducted in education, innovative pedagogical technology of the future teachers is based on the creation of activities and technologies; teachers' creativity was undertaken to investigate ways to increase and expand their own pedagogical education as they achieved the technology of the future. However, it is seen that the basic values in research have been achieved; it is also seen that pedagogical developments have taken place.

Sebalo and Teslenko (2021) conducted a study on the research activities of future teachers of physical education to improve and develop oneself through self-study which sought the guidance of professional qualifications, and as a result, significant advantages in planning and forecasting future activity were recorded. The skills and competence of teachers were formed at the same time; these are the basic qualifications reached by considering the results when the values are high. However, it is seen that the main topic covered in the research is pedagogical; it is also seen that the studies in the related research section benefit the literature and the field writing.

1.2 Purpose of the study

In this section of the research, answers to a number of questions were sought, and the study was aimed at teaching future specialists the basic scientific and pedagogical values. In order to complete the research, the answers to the following questions were sought:

1. How are the technology usage situations of the participants included in the study during the day?
2. How are the participants included in the study able to devote time to their scientific and pedagogical core values?
3. How are the scientific activities of the participants included in the study used?
4. How are the pedagogical basic activities of the participants included in the study used?

5. What are the most preferred smart devices of the participants included in the study?
6. What are the opinions of the participants included in the study about the basic scientific and pedagogical values?

2. Method

It is known that method means a model functioning as a word, which is very important in research, and as a course and path. The method part should be well defined and created in order to reveal the problem situation in this research and reach the appropriate participants and reach an answer. When the method part of the study is examined, information on the research audience, location, type of data, tools used, applications, etc. is provided.

2.1 Research model

If we consider the model of the study and the research as a model, it can be seen that one of the research methods used is the quantitative research method. When the quantitative research method is considered, the objective presentation of events and observations and the conduct of research numerically are some of the researches applied today (Caliskan et al., 2017). In this research, quantitative research, through scientific and scientific-pedagogical specialists of the future and determination to teach the basic values and the use of technology with the creation of the conditions for using it to learn how to learn using the determination of the status of the investigation on the determination of gender, class, scientific and pedagogical situations, is designed according to the duration of scientific variables.

2.2 Working group/participants

In this section, where the participants are named as a research group, the participation group will be mentioned and the study will continue. The research consists of 384 university students who are volunteers who continue their education and training at various universities in Kazakhstan. In the research, the measurement tool was shared, applied and accepted by the students in a mail environment with a virtual questionnaire for the students.

Gender

When the concept of gender is considered, it is seen that the information of the students taken in the study is received, and the relevant information is given in Table 1.

Table 1. Distribution of university students according to the gender variable

Gender	Male		Female	
	F	%	F	%
Variable	186	48.43	198	51.57

When Table 1 is interpreted, it is seen that there is a distribution of university students according to gender variable in the research study, and this information is collected and examined and added to the table. In this context, it is seen that 48.43% (186 people) are male university students, while 51.57% (198 people) are female university students. In the gender section, the findings reflect the actual gender distribution.

Times of technology use during the day

In this section, the technology usage times during the day for the development of the scientific and pedagogical theories of the university students included in the working group are discussed and examined, and the studied values were digitised and presented in Table 2.

Table 2. The distribution of technology usage times during the day

Use of Technology during the day	1-2 hours		3-4 hours		5 or more hours	
	F	%	F	%	F	%
Variable	15	3.91	201	52.34	168	43.75

From the interpretation of Table 2, when the use of technology university students are investigated it can be seen that 3.91% (over 15 people) use technology for 1–2 hours, 52.34% (201 people) use technology for 3–4 hours and 43.75% (168 people) use it for more than 5 hours. It is seen that university students in the research use technology for 3–4 hours and above and prefer to develop their scientific and pedagogical theories.

The situation of devoting time to the scientific and pedagogical core values of university students

In this section, the situations of devoting time to the scientific and pedagogical core values of university students were investigated and examined. Detailed information is presented in Table 3.

Table 3. The situation of devoting time to the scientific and pedagogical core values of university students

The Basic Values of Scientific and Pedagogical	1 time		2 time		3 time		4 time	
	F	%	F	%	F	%	F	%
Variable	17	4.43	88	22.92	97	25.26	182	47.39

When Table 3 is analysed, it is interpreted that college students were asked to improve the condition of the problem of time allocation, which is often the fundamental scientific and pedagogical values of the status, and detailed information are presented in the table. In this context, 4.43% (17 people) used it for 1 hour in the time zone, 22.92% (88 people) stated 2 hours, 25.26% (97 people) used it for 3 hours and 47.39% (182 people) expressed the basic values of the pedagogical and scientific as 4 hours. In this context, the usage of scientific and pedagogical research in fundamental values shows a frequency of up to 4 hours, which is preferred by the college students.

Class Status

In this section, the class information of the study group university students was examined and detailed information is presented in Table 4.

Table 4. The distribution of university students according to their class status

Department	Year 2		Year 3		Year 4	
	F	%	F	%	F	%
Variable	115	29.95	101	26.30	168	43.75

When Table 4 is examined, the distribution of the study group university students according to their class status is considered and the relevant information according to the class scale is added to the table. In this context, 29.95% (115 people) were in second year, 26.30% (101 people) were in third year and 43.75% of the population (168 people) were in fourth year. It is observed that the distribution of the class reflects the actual distribution.

2.3 Data collection tools

The data collection tool used in the research constitutes the value judgments of a research, and the research questions provide information about the desired problem situation. It can be seen that the measurement tool was developed by the authors of the research. On the other hand, the data collection tool was examined by the scientific and pedagogical core values' university students and by experts in the field of technology. The items that were not suitable were removed from the research and corrected. A personal information form called the 'scientific and pedagogical foundations' measurement tool was used, which was applied to university students and was also developed by the researchers. The validity of the scope of the measurement tool developed was examined by four professors and two associate professors who continue their research and work with technology at the same time on their scientific and pedagogical foundations, and unnecessary items were removed from the measurement tool and rearrangements were made.

1. Personal information form (demographic data): In the personal information form, information such as gender, technology usage times, scientific and pedagogical time frequencies and class are provided.

2. Scientific and pedagogical foundations data collection tool: A 5-point Likert-type questionnaire was prepared for university students to be able to teach and develop scientific and pedagogical basic values to future specialists, as well as to receive information about their opinions. 19 items of the measurement tool consisting of a total of 21 items were used and 2 items were removed from the measurement tool, thanks to expert opinion. The opinions of university students from three factorial dimensions were applied, such as 'scientific theories', 'pedagogical approaches' and 'technology' of university students. The Cronbach alpha reliability coefficient of the measurement tool as a whole was calculated as 0.92. The measurement tool was rated as 'strongly

disagree' (1), 'disagree' (2), 'I'm undecided' (3), 'agree' (4) and 'strongly agree' (5). The measurement tool was also collected from university students through an online environment.

2.4 Application

In the application part of the study, researchers identified 384 volunteer university students who continue their education and training at various university schools in Kazakhstan region and planned to teach scientific and pedagogical core values to future experts. It is aimed to provide basic scientific and pedagogical values as well as trainings in the university environment through distance education activities. This situation has already been explained to university students on the basis of volunteering principles. Scientific and pedagogical education are prepared with the fundamental values of distance, and this activity was conducted by people who are experts in the field of environment education, who organised the transfer of basic scientific and pedagogical values in the environment and received support for Google Drive. The research part in the event is completed when the college assessment tool for students are provided with the help of online survey sent to decode the 4-week core values of university students in scientific and pedagogical training and technology, determining how often they use distance education applications and developing scientific and pedagogical core values, etc. Such cases were given to university students in the form of technology education, and university students were expected to participate in the event held every week on this topic. After 4 weeks of training, the measurement tool and the information form were applied to the university students and the data are presented in the tables in the findings section. It is explained how university students will respond to the measurement tool collected with the help of an online questionnaire. Most of the schools of education by distance education distributed through each section and the application programme used by Google Backes is designated in Section 4 to be distributed to college students, so the following week will be limited to a maximum of 96 minutes, with a 15-minute question and answer training programme and each training lasting for 35 minutes. In total, 50 minutes was used to process training in the form of a group of students. Devices such as camera and microphone were expected to be used in the training with the assistance of a provincial. The measurement tool applied to university students was coded in the environment of calculation programmes and transferred to the SPSS programme.

2.5 Analysis of Data

Statistical data obtained from university students were analysed in the statistics programme using frequency (f), percentage (%), mean (M) and standard deviation (SS), respectively. The data obtained from the programme are given in tables accompanied by numerical values, findings and comments.

3. Results

In this section, the findings related to the learning status of sports lessons of primary school students with a blended teaching method are given. Each data of the study is given in tables and accompanied by comments.

3.1 Use cases of scientific activities of university students

The findings regarding the use cases and frequency of use of scientific activities of university students are given in Table 5.

Table 5. Use cases of scientific activities of university students

Science Activity	1 hour		2 hours		3 hours		4 hours	
	F	%	F	%	F	%	F	%
Variable	21	5.47	47	12.24	162	42.19	154	40.10

In Table 5, it is seen that university students have information about their use of scientific activities during the day. In light of this information, 5.47% (47 people) used it for 1 hour per day, 12.24% (47 people) of college students used it for 2 hours per day, 42.19% (162 people) used it for 3 hours per day and 40.10% (154 people) used it 4 hours per day. According to the above findings, it is observed that university students use scientific activities no more than 3 hours per day.

3.2 The use of pedagogical basic activities of university students

The findings regarding the situations that university students go through on a daily basis in order to have better pedagogical basic concepts are given in Table 6.

Table 6. The use of pedagogical basic activities of university students

Basic Pedagogical Activities	1 hour		2 hours		3 hours		4 hours	
	F	%	F	%	F	%	F	%
Variable	14	3.64	33	8.59	52	13.54	285	74.23

In Table 6, it is seen that the university students participating in the study have information about the frequency of using pedagogical basic activities and the findings related to their time spent. In light of this information basic pedagogical activities of college students, 3.64% (14 people) used it for 1 hour per day, 8.59% (33 people) of college students used it for 2 hours a day, 13.54% (52 people) used it for 3 hours per day and finally 74.23% (285 people) used it for 4 hours per day. According to the above findings, it is observed that they used it mostly for 4 hours a day.

3.3 The most preferred smart devices of university students

The smart devices that the university students prefer the most according to the problem situation of the study are examined and investigated, and the findings are given in Table 7.

In Table 7, it is seen that university students participating in the study have the smart device information that they prefer the most for the problem situation of the study. In light of this information, it is seen that 54.43% of university students (209 people) use smartphones, 15.10% of university students (58 people) use computers and the latest finding of the study is that 30.47% of university students (117 people) use tablet computers. According to the above findings, it seems that they use and prefer smartphones the most.

Table 7. The most preferred smart devices of university students

Device	F	%
Smartphone	209	54.43
Computer	58	15.10
Tablet computer	117	30.47
Total	384	100

3.4 Opinions of university students about the basic scientific and pedagogical values

In Table 8, information regarding the 19 statements is given in order to get opinions about the scientific and pedagogical core values of university students.

Table 8. Opinions of university students about the main scientific and pedagogical values

No	Ingredients	M	SD
1	It gives me pleasure to participate in scientific events	4.34	0.61
2	I know the meanings of scientific and pedagogical words	4.46	0.62
3	Core values activities can be taken by distance learning	4.31	0.75
4	I think that learning scientific and pedagogical values has added innovation to my field	4.62	0.61
5	I think that I have the ability to think more differently with pedagogical values	4.26	0.74
6	I find it effective to combine the education I have received with distance education	4.44	0.72
7	I had no difficulty in following the scientific and pedagogical developments in distance education activities	4.58	0.59
8	I got a better understanding of this activity that I took with distance learning	4.43	0.7
9	My desire to master the concepts of scientific and distance education has increased	4.46	0.69
10	I am looking forward to applying the methods I have learned in the future	4.36	0.69
11	Being the experts of the future, I think I have mastered all the technologies I use	4.78	0.74
12	I think it is the most effective time frame to learn scientific and pedagogical foundations during the day	4.59	0.61
13	I think that pedagogical foundations are necessary to raise a better generation	4.63	0.7
14	I believe that I am doing my best to improve myself professionally in the university environment and be useful to my students	4.31	0.62
15	I think I have the opportunity to apply what I have learned in scientific communities	4.53	0.58
16	I believe that my social skills improve pedagogically by participating in activities	4.39	0.59
17	When I have problems systemically, I can solve them with what I have	4.43	0.63

	been taught.		
18	Being in this event with my friends made me learn better	4.31	0.68
19	I would like to see this activity I am in in my other courses	4.36	0.69
	Grand Total	4.45	0.66

In terms of the values obtained from the research, information about the opinions of university students about the scientific and pedagogical core values was applied and the relevant information was digitised and presented. When the values of the opinions of the research were examined, it was seen that their values in this field were positive and high, but the statement 'I think that I have mastered all the technologies I use, although I am experts of the future' had a score of $M=4.78$. In addition, one of the most obvious statements of university students is 'I think that learning scientific and pedagogical values has added innovation to my field', with an average of $M=4.62$. In addition, it was seen that among the most obvious statements of university students, 'I think pedagogical foundations are necessary to raise a better generation' had an average of $M=4.63$. Also, another positive statement of college students was 'scientific and pedagogical foundations is the most effective time to learn the days I think', with a mean of $M=4.59$. It is also seen from the statements of university students that 'My desire to master the concepts of scientific and distance education has increased' had an average of $M=4.46$. It is seen that the opinions of students about the basic scientific and pedagogical values are both meaningful and high in the research.

In addition to these values, it is seen that the overall average of the students who participated in the study was $M = 4.45$. With these findings, it is seen that the scientific and pedagogical core values of university students have gained meaning with the study; they have no difficulty in taking this activity with distance education; they are looking forward to becoming experts of the future; and positive values and findings have been reached and included.

4. Discussion

In their study, Melnyk et al. (2018) aimed to examine the issues related to the training of specialists in high school and the role of students in this process. In addition, it is seen that the perspective trends of those who train specialists in higher education institutions guide their studies by talking about the formation values of those who will be. As a result, based on modern scientific and technical achievements, the implementation of educational logistics and social demand, students have achieved such results where they have succeeded. In this context, when this value is combined with the result of the research, it is seen that the pedagogical and scientific values are high in the students participating in the research, and that they are happy with this activity in their fields and that the results are achieved. Regarding this value, it can be said that the unification of scientific communities with the basic pedagogical values is important for both the student and the instructor.

Tohochynsky et al. (2021) carried out a study on the functioning of the educational environment, and the presence of psychological and pedagogical elements diversified their authority with the cooperation of professionals and aimed to confirm if it meets that formed in the context of this research. In this context, the students as a result of educational and methodological materials, training process, inclusive education in the future to work in a diversified environment, psycho-pedagogical, as it allows one to refocus on the training of professionals have got positive results, when combined with the results of the research if this value turns out to research these and pedagogical foundations of these values is seen as a benefit to the students, research-based pedagogical value of this type of work to be done, more time for the bastard in the formation of the literature and the field type will be useful.

Gurbunova (2017) aimed to develop and validate the model of future teachers in the work they have carried out. The scientific and pedagogical training of students is organised and expanded by the events of the course. The result contains methodological approaches in the work and basic scientific and pedagogical conditions of this activity occur in individuals as a benefit and benefit them with technology, which reached positive conclusions.

The above studies examining college students also benefit other students related to the field. Although it is known that each study benefits a person, an individual, an instructor and an area, it can be said on the basis of these studies that such studies should be included because society changes and develops every year. Scientific and pedagogical core values are a deep topic, and another value in another study is among the greatest expectations of the research.

5. Results

In research, the results are seen as the most important banak. Judgments and values about a research are also gaining meaning and are thought to be forming. In this context, the results of the studies are important. In this section of the study, first, it is seen that the distributions of the university students included in the study are according to the gender variable, and as a result, it was concluded that 186 male and 198 female students participated in the study. When another result of the research is examined, the technology usage times of university students are examined, and as a result, it is concluded that university students use technology most often for 3–4 hours. In October, to make sense of this value, in addition to the research, another result was investigated by asking university students to devote time to their scientific and pedagogical core values to improve their problem situation, and as a result, it seems that the result was reached by expressing that they spent time with 182 people for 4 hours. It is thought that university students' excessive use of technology and this last value are related to each other in the application part of the research; homework was given for the activity after the training and collected from the virtual environment. The teacher created awareness for the students and enabled them to come to the system more.

Another result of the research is that the information about the use cases of scientific activities of university students has been investigated, and as a result, it has been concluded that they use scientific activities no more than 3 hours a day. Another result of the research is that the frequency of pedagogical basic activities and the information about the time spent have been investigated, and as a result, it has been found that university students use pedagogical basic activities for 4 hours. Another result of the university students included in the study was to find out which smart device they prefer the most and it is seen that they use smartphones the most and they choose this technology when coming to events. Opinions about the final results of scientific and pedagogical study of university students are referenced to information about fundamental values and, as a result, they have mastered all the technologies of the future with being the experts they use, and bring innovation to the field of scientific and pedagogical values learning, which is a pedagogical foundation that is necessary to raise a better generation. They believe that the scientific and pedagogical foundations are the most effective time zones; the increase in distance education and scientific concepts should be mastered requests and university students with the study of basic scientific and pedagogical values make sense; they have difficulty in the effectiveness of distance education; and that the future of positive values such as they cannot wait to be the experts and the conclusions were reached.

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