

# The Effect of the Computer Anxiety Levels of Physical Education Teachers on Distance Education Competence: Structural Equation Model Analysis

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## Abstract

The aim of the present study was to examine the effects of the computer anxiety levels of physical education teachers on distance education competencies during the Covid-19 pandemic process with a structural equation model. The study group consisted of a total of 141 physical education teachers, 60 of whom were female (42.6%) and 81 male (57.4%), who worked in private or public schools in Ankara, and who were selected with the convenient sampling method. In the study, the Distance Education Competencies Scale of Physical Education Teachers, "Computer Anxiety Scale" and the Individual Information Form were utilized as the measurement tool. The "Distance Education Competencies Scale of Physical Education Teachers" that consisted of two sub-dimensions of "Planning and Technology Use" and "Implementation and Evaluation" consisting of 18 items in a 5-point Likert structure. In addition, the "Computer Anxiety Scale" that consisted of 10 items, 5 positive and 5 negative, as well as the Individual Information Form, which was prepared by the researcher to collect data in the study. Frequency Analysis, Kolmogorov Smirnov Test, Independent Groups t-test and One-Way Analysis of Variance were used in the analysis of the data, regression and structural equation modeling were used to analyze the effects of computer anxiety on distance education competencies. Also, Cronbach's Alpha Coefficients were obtained to determine the reliability levels of the scale and its sub-dimensions; and it was found that the reliability of the scale and its sub-dimensions was at a sufficient level. Analyses were performed by using the SPSS 20.0 and Amos 16.00 Software at a 95% Confidence Interval level. When the study findings were evaluated, no significant differences were detected between computer anxiety levels and distance education competencies in different age groups, education levels and institution types. According to the gender variable, the computer anxiety levels of male teachers were found to be at significant levels higher than those of female teachers. When the comparisons according to the branches were examined, the computer anxiety levels differed at significant levels according to the branch types ( $p < 0.05$ ) and the sub-dimensions of the distance education competency scale did not differ at significant levels according to the branch types ( $p > 0.05$ ). When the other variables were examined, the sub-dimensions of the distance education competency scale differed at significant levels according to school levels and professional seniority years ( $p < 0.05$ ) and the computer anxiety scale scores did not differ at significant levels according to school levels and professional seniority years ( $p > 0.05$ ). According to the regression model that was created to determine the effects of computer anxiety levels on distance education qualifications, it was found that computer anxiety did not have any significant impacts on planning and technology use, implementation and evaluation sub-dimensions ( $p > 0.05$ ).

**Keywords:** physical education teacher, teacher competence, computer anxiety, distance education, pandemic

## 1. Introduction

Since the day it emerged, the Covid 19 virus has been detected in many countries all around the world causing that a pandemic was declared. It has created negative impacts in many areas e.g., health, industry, economy, art, sports and education has caused that countries transformed in many ways. This change and transformation were especially reflected in educational activities and face-to-face education was replaced by online distance education implementations. As a global health crisis, the Covid-19 pandemic has changed the living conditions of students, teachers, lecturers and parents at almost every level all around the world and caused that individuals participated and adapted to distance educational implementations.

All around the world, educational institutions and experts tried to create distance education implementations by using some technologies to enable continuity in learning activities and to avoid possible victimization. In this context, the adaptation of teachers to the distance education process, what the teaching competencies that were expected from teachers or what teachers must have emerged as questions whose answers were sought as well as many questions such as how education would be shaped with which contents and how students and teachers would access these contents (Kavrat & Türel, 2013).

Education and training implementations that were realized by using technology can be provided in two different ways the first of which is the educational practice that can be applied in different places and times where there is information transfer between students and teachers, which is referred to as “distance education”, to provide technologically sufficient equipment and can be supported by different teaching materials (Moore, Dickson-Deane, & Galyen, 2011). The second is the “online education” implementation, where access to relevant documents and contents is provided over the internet network with a computer or server (Mayer, 2019).

The Ministry of National Education interrupted formal education and proceeded to provide educational activities with distance education through the Education Information Network (EBA) program to continue learning activities and to prevent the spread of the virus in Turkey. In this respect, 7.783.213 students and 1.030.516 teachers became active users of this program and a total of 5.954.174 live courses were realized (MEB, 2020).

The pandemic, which emerged with the spread of the Covid 19 virus on a worldwide scale, forced teachers and students to distance and online learning processes unexpectedly causing many negative situations to emerge. When the international literature was reviewed, it was reported that some teachers who performed distance and online learning activities in Australia faced inadequacy in the use of technology, which caused teachers to feel inadequate when they continued teaching activities (Flack, Walker, Bickerstaff, Earle, & Margetts, 2020). It was reported in the distance education in Indonesia that the insufficient knowledge of teachers about distance education methods caused an obstacle to learning (Almanthari, Maulina, & Bruce, 2020). Teachers in China, one of the Far Eastern countries, said that the distance education infrastructure was inadequate and it could affect the academic success of the students negatively. Moreover, studies that were conducted in the USA and Norway showed that teachers did not have adequate equipment to perform distance education activities; however, they had sufficient motivation to use online learning programs and they tried to perform this successfully (Gudmundsdottir & Hathaway, 2020).

When the national literature was reviewed, studies conducted on the continuation of education and training activities in the Covid-19 pandemic were quite limited. However, when the studies conducted on the use, implementation and evaluation of technology of teachers in the online environment were examined, it was found that Üstün, Karaoğlu-Yılmaz and Yılmaz (2020) investigated the level of online education activities of teachers, and found that the readiness, self-confidence and self-efficacy of teachers were at a moderate level. In the study that was conducted by Kurtuluş and Seferoğlu (2013) to examine the literature to find out the use of technology by teachers, it was found that teachers were not far from using new-generation technology; however, teachers felt inadequate at the point of applying this innovative thinking that their individual responsibilities would increase, and therefore, they needed training. In the studies conducted in the field of physical education teaching, it was found that the study groups were generally selected from teacher candidates, but the studies on the participation of physical education teachers practicing the profession were limited. One of the studies that were conducted in this field (Göktaş, 2011) examined the competency of students who were studying in the department of physical education teaching in using information and communication technologies and reported that the self-confidence of the students who had a personal computer was higher than those who did not have computers. Karataş, Karataş, Bingöl and Bingöl (2017) conducted a study with students who were studying in the physical education teaching department to examine the use of social media for educational purposes and found that the variables did not affect this purpose. Yaman (2009), who argued that the traditional understanding of education could change its form with the reflection of the use of new-generation technologies on education, examined the opinions of the students who were studying in the physical education teaching department about online learning, and the participants who were included in the study stated that the use of technology and computers in the effective realization of online education was related to student competencies. It was also emphasized that this may cause serious problems in the implementation of the practical courses that students took and might affect academic achievement negatively.

It is already known that many countries updated their education and training activities with technology-based implementations for the purpose of not interrupting education during the Covid-19 pandemic process. In this respect, the simultaneous adaptation of students and teachers to these sudden changes is very important for achieving the desired targets. Acquiring competence in lesson planning, use of technology, implementation and

evaluation in distance education must be considered as a critical factor that will affect the quality of learning of teachers.

On the other hand, the developing technology and the reflection of this on distance education activities required active use of information technologies in the processes of obtaining, transferring and storing information with the implementation of distance education activities. This caused individuals to have concerns such as fear of making mistakes, feeling inadequate, harming themselves and the individuals around them when they used these technologies. This state of anxiety affected the lives of individuals negatively causing them to move away from technology and was expressed as the fear of not being able to use the computer adequately and effectively when the individual tended to use computer technologies, and as the fear of computer use (Chua, Chen, & Wong, 1999). According to Harris and Grandgenett (1992), computer anxiety occurs systematically when computer use is required, and is a type of anxiety occurring in certain conditions. In the light of these data, it is considered that examining the effects of the computer anxiety levels of physical education teachers on distance education competencies in the Covid 19 pandemic will have an added value in the literature.

## **2. Method**

Information on the study model, study group, data collection tools, data analysis and study ethics are presented in this section.

### *2.1 Study Model*

The Relational Screening Model, which is one of the general screening models, was used in the study. The Relational Screening Model aims to uncover the level of relations between two or more variables and is used to determine the relations between variables and predict possible outcomes (Karasar, 2009). In other words, the Relational Screening Model aims to determine the relations between variables and the differentiation of dependent variables between groups (Cohen, Manion, & Morrison, 2011).

### *2.2 Study Group*

The study group consisted of the physical education teachers who were working in private or public schools in Ankara in the 2021–2022 Academic Year. A total of 141 physical education teachers, 60 of whom were female (42.6%) and 81 male (57.4%), who were selected with the Convenient Sampling Method, were included in the study. A total of 72 teachers (48.9%) of the participants were working in public schools and 69 (51.1%) in private schools. In the distribution of teachers according to school levels, there were 21 teachers in Primary Education Level 1, 54 teachers in Primary Education Level 2 and 66 teachers in secondary education. The individual who conducts a study reaches the group that has the most possible individuals until he reaches a group with the quantity s/he wants to reach and brings this sampling together in the Convenient Sampling Method (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2018).

Table 1. The distribution of demographic data

|                              |                           | n   | %     |
|------------------------------|---------------------------|-----|-------|
| Age groups                   | 21–29                     | 27  | 19.1  |
|                              | 30–39                     | 48  | 34.0  |
|                              | >40                       | 66  | 46.8  |
|                              | Total                     | 141 | 100.0 |
| Gender                       | Female                    | 60  | 42.6  |
|                              | Male                      | 81  | 57.4  |
|                              | Total                     | 141 | 100.0 |
| Education levels             | Bachelor's degree         | 72  | 51.1  |
|                              | Master's degree           | 69  | 48.9  |
|                              | Total                     | 141 | 100.0 |
| Institution types            | Private sector            | 72  | 51.1  |
|                              | Public sector             | 69  | 48.9  |
|                              | Total                     | 141 | 100.0 |
| Branch type                  | Individual sports         | 42  | 29.8  |
|                              | Team sports               | 99  | 70.2  |
|                              | Total                     | 141 | 100.0 |
| School grade                 | Primary Education Level 1 | 21  | 14.9  |
|                              | Primary Education Level 2 | 54  | 38.3  |
|                              | Secondary education       | 66  | 46.8  |
|                              | Total                     | 141 | 100.0 |
| Professional seniority years | 0–10 years                | 42  | 29.8  |
|                              | 11–20 years               | 51  | 36.2  |
|                              | >21 years                 | 48  | 34.0  |
|                              | Total                     | 141 | 100.0 |

The distribution of the demographic data was analyzed with frequency analysis. When the distribution of the participants according to age groups was examined, it was found that the rate of individuals in the 21–39 age group was 19.1%, the rate of the individuals in the 30–39 age group was 34% and the rate of the individuals in the 40 and over age group was 46.8%. The rate of women was 42.6% and the rate of men was 57.4%. When the distribution was examined according to educational levels, the rate of those who had a bachelor's degree was found to be 51.1% and the rate of those who had a master's degree was 48.9%. When the distribution was examined according to institution types, the rate of private sector employees was found to be 51.1% and the rate of public sector employees was 48.9%. When the branch type distribution was examined, it was found that the rate of individual sports was 29.8% and the rate of team sports was 70.2%. Also, the rate of those who were in the Primary Education Level 1 was 14.9%, the rate of those in Primary Education Level 2 was 38.3% and the rate of those in secondary education was 46.8%. When the distribution was examined according to professional seniority years, the rate of those with 0–10 years of seniority was found to be 29.8%, the rate of those with 11–20 years of seniority was 36.2% and the rate of those with more than 21 years of seniority was 34%.

### 2.3 Data Collection Tools

#### 2.3.1 Individual Information Form

The Individual Information Form, which was equipped by the researcher, consisted of the data on the age, gender, educational degree, type of institution, branch type, school level and professional seniority of the participants.

#### 2.3.2 The Distance Education Competencies Scale of Physical Education Teachers (DECSPET)

The “Distance Education Competencies Scale of Physical Education Teachers”, which was prepared by Sagin, Yucekaya and Gullu (2021), was used as a measurement tool to determine the distance education competencies of physical education teachers. The DECSPET is a 5-point likert scale that consists of 18 items and combines two sub-dimensions as “implementation and evaluation” and “planning and technology”. While the items in the 1-7 range of the scale items represent the planning and technology use sub-dimensions, the items in the 8-18 range represent the implementation and evaluation sub-dimension. The low and high scores obtained from the items in the specified ranges express the physical education teachers' competencies in the relevant sub-item. The scoring of the scale was as “Never”, “Rarely”, “Sometimes”, “Most of the time” and “Any time”. The lowest score that may be obtained from the scale is 18 and the highest score is 90. The coefficients were calculated in total to calculate the internal consistency of the DECSPET scale and were found to be .901 in total, .904 in the “Implementation and Evaluation” dimension and .734 in the “Planning and Technology Use” dimension. The

lowest score obtained from the scale indicates that physical education teachers' distance education competencies are weak. On the other hand, the highest score obtained represents the success in distance education qualifications of physical education teachers. In other words, as the scores obtained from the overall scale and its sub-dimensions increase, the distance education competencies of physical education teachers also increase. As the scores obtained from the overall scale and its sub-dimensions decrease, physical education teachers are evaluated as unsuccessful in continuing their distance education activities.

### 2.3.3 Computer Anxiety Scale (CAS)

The "Computer Anxiety Scale", which was developed by Preece and was adapted into Turkish by Arikan (2002), was used as a measurement tool to determine the computer anxiety levels of physical education teachers. The Computer Anxiety Scale has a 5-point Likert structure, and consists of a total of 10 items, 5 positive and 5 negative. The scale items are rated as "Always", "Most of the time", "Sometimes", "Sometimes" and "Never". It is scored with a minimum of 10 and a maximum of 40 in the overall scale. A high score obtained in the scale shows a high-level computer anxiety. The reliability coefficient of the Computer Anxiety Scale was calculated to be 0.86; and the item-scale correlation coefficients of the scale differed between 0.36 and 0.68.

### 2.3.4 Study Ethics

The present study was conducted with the evaluation and approval of Gazi University Ethics Commission on 07.10.2021 with the number E-77082166-604.01.02-186110.

## 2.4 Analysis of Data

The distribution of the demographic data of the participants was analyzed with frequency analysis, and the scores of the scale and its sub-dimensions were calculated based on the answers given by the participants to the scale items, and the compatibility of these scores with the normal distribution was examined with the Kolmogorov Smirnov Test. Whether the scale and its sub-dimensions differed at significant levels according to demographic data was analyzed with the t-test and One-Way Analysis of Variance in independent groups. The effects of computer anxiety on distance education competency were examined with the Regression and Structural Equation Modeling. The Cronbach's Alpha Coefficients were obtained to determine the reliability levels of the scale and its sub-dimensions, and it was found that the reliability of the scale and its sub-dimensions was at a sufficient level. The analyses were made by using the IBM SPSS Statistics V21.0 and Amos 16.0 Software at a 95% Confidence Interval level.

## 3. Results

Table 2. The descriptive statistics of computer anxiety and distance education competency scales

|                    |                               | N   | Minimum | Maximum | Mean  | Std. Deviation |
|--------------------|-------------------------------|-----|---------|---------|-------|----------------|
| Computer Anxiety   |                               | 141 | 28      | 40      | 32.36 | 3.10           |
| Distance Education | Planning and technology use   | 141 | 18      | 25      | 21.62 | 2.27           |
| Competency         | Implementation and evaluation | 141 | 19      | 34      | 28.43 | 5.64           |

The descriptive statistics of the Computer Anxiety Scale and Distance Education Competency scales were also calculated. In this respect, the Computer Anxiety Scale, which consisted of 10 items, varied from 10 to 50 in theory, and it was scored between 28–40 in the study, and the mean value was obtained as 32.36. Also, the planning and technology use sub-dimension of the distance education competency scale, which consisted of 7 items, ranged from 7 to 35 and 18 to 25 in the present study, and the average was obtained to be 21.62. Theoretically, the score range of the implementation and evaluation sub-dimension, which consisted of 11 items, varied between 11–55 and 19–34 in the present study, and the average was obtained to be 28.43.

Table 3. The differences between points of computer anxiety and distance education competency scales according to age groups

|                               | Age Groups | N   | Mean  | Std. Deviation | F     | p     |
|-------------------------------|------------|-----|-------|----------------|-------|-------|
| Computer anxiety              | 21–29      | 27  | 31.78 | 1.39           | 0.327 | 0.723 |
|                               | 30–39      | 48  | 32.81 | 2.69           |       |       |
|                               | ≥ 40       | 66  | 32.27 | 3.86           |       |       |
|                               | Total      | 141 | 32.36 | 3.10           |       |       |
| Planning and technology use   | 21–29      | 27  | 20.78 | 2.44           | 0.930 | 0.402 |
|                               | 30–39      | 48  | 21.56 | 2.34           |       |       |
|                               | ≥ 40       | 66  | 22.00 | 2.16           |       |       |
|                               | Total      | 141 | 21.62 | 2.27           |       |       |
| Implementation and evaluation | 21–29      | 27  | 25.22 | 6.74           | 2.726 | 0.077 |
|                               | 30–39      | 48  | 27.88 | 5.52           |       |       |
|                               | ≥ 40       | 66  | 30.14 | 4.79           |       |       |
|                               | Total      | 141 | 28.43 | 5.64           |       |       |

The averages of the sub-dimensions of the computer anxiety and distance education competency scale according to age groups and the results of One-Way Analysis of Variance, which were used to determine whether the differences between these averages were significant, are given. With respect to the results of the One-Way Analysis of Variance, computer anxiety and distance education competency scale sub-dimensions did not differ at significant levels according to age groups ( $p > 0.05$ ). In other words, it can be argued that the values of sub-dimensions of computer anxiety and distance education competency of people in different age groups were at the same level.

Table 4. The differences between points of computer anxiety and distance education competency scales according to gender

|                               | Gender | N   | Mean  | Std. Deviation | F     | p      |
|-------------------------------|--------|-----|-------|----------------|-------|--------|
| Computer anxiety              | Female | 60  | 31.30 | 2.64           | 4.375 | 0.042* |
|                               | Male   | 81  | 33.15 | 3.23           |       |        |
|                               | Total  | 141 | 32.36 | 3.10           |       |        |
| Planning and technology use   | Female | 60  | 21.80 | 2.04           | 0.222 | 0.640  |
|                               | Male   | 81  | 21.48 | 2.46           |       |        |
|                               | Total  | 141 | 21.62 | 2.27           |       |        |
| Implementation and evaluation | Female | 60  | 28.70 | 5.70           | 0.081 | 0.778  |
|                               | Male   | 81  | 28.22 | 5.70           |       |        |
|                               | Total  | 141 | 28.43 | 5.64           |       |        |

Note. \* $p < 0.05$ .

Table 4 shows the t-test results of the independent groups for the sub-dimensions of the computer anxiety and distance education competency scale according to gender. In this respect, although the computer anxiety scale differed at significant levels according to gender ( $p < 0.05$ ), the scores in the sub-dimensions of the distance education competency scale did not differ at significant levels according to gender ( $p > 0.05$ ). The computer anxiety levels of men were found to be higher at significant levels than that of women.

Table 5. The differences between points of computer anxiety and distance education competency scales according to educational status

|                               | Educational Status | N   | Mean  | Std. Deviation | F     | p     |
|-------------------------------|--------------------|-----|-------|----------------|-------|-------|
| Computer anxiety              | Bachelor's degree  | 72  | 32.25 | 3.17           | 0.062 | 0.804 |
|                               | Master's degree    | 69  | 32.48 | 3.10           |       |       |
|                               | Total              | 141 | 32.36 | 3.10           |       |       |
| Planning and technology use   | Bachelor's degree  | 72  | 21.88 | 2.36           | 0.628 | 0.432 |
|                               | Master's degree    | 69  | 21.35 | 2.19           |       |       |
|                               | Total              | 141 | 21.62 | 2.27           |       |       |
| Implementation and evaluation | Bachelor's degree  | 72  | 29.29 | 5.31           | 1.159 | 0.287 |
|                               | Master's degree    | 69  | 27.52 | 5.95           |       |       |
|                               | Total              | 141 | 28.43 | 5.64           |       |       |

Table 5 shows the t-test results of the independent groups for the sub-dimensions of the computer anxiety and distance education competency scale according to educational status. According to the t-test results, the computer anxiety and distance education competency scale sub-dimension scores did not differ at significant levels according to educational levels ( $p > 0.05$ ). It can be argued that the sub-dimension scores of the computer anxiety and distance education competency scale scores of bachelor's degree and master's degree were at the same level.

Table 6. The differences between points of computer anxiety and distance education competency scales according to school types

|                               | School Types   | N   | Mean  | Std. Deviation | F     | p     |
|-------------------------------|----------------|-----|-------|----------------|-------|-------|
| Computer anxiety              | Private sector | 72  | 32.42 | 3.22           | 0.015 | 0.903 |
|                               | Public sector  | 69  | 32.30 | 3.05           |       |       |
|                               | Total          | 141 | 32.36 | 3.10           |       |       |
| Planning and technology use   | Private sector | 72  | 21.46 | 2.30           | 0.236 | 0.630 |
|                               | Public sector  | 69  | 21.78 | 2.28           |       |       |
|                               | Total          | 141 | 21.62 | 2.27           |       |       |
| Implementation and evaluation | Private sector | 72  | 27.75 | 5.95           | 0.698 | 0.408 |
|                               | Public sector  | 69  | 29.13 | 5.35           |       |       |
|                               | Total          | 141 | 28.43 | 5.64           |       |       |

Table 6 shows the t-test results of the independent groups for the sub-dimensions of the computer anxiety and distance education competency scale according to the school types. According to the t-test results in independent groups, the computer anxiety and distance education competency scale sub-dimension scores did not differ at significant levels according to school types ( $p > 0.05$ ). It can be argued that the sub-dimensions of computer anxiety and distance education competency scale scores of the public and private employees were at the same level.

Table 7. The differences between points of computer anxiety and distance education competency scales according to branch types

|                               | Branch Types      | N   | Mean  | Std. Deviation | F     | p      |
|-------------------------------|-------------------|-----|-------|----------------|-------|--------|
| Computer anxiety              | Individual sports | 42  | 34.14 | 3.21           | 7.499 | 0.009* |
|                               | Team sports       | 99  | 31.61 | 2.77           |       |        |
|                               | Total             | 141 | 32.36 | 3.10           |       |        |
| Planning and technology use   | Individual sports | 42  | 22.07 | 2.40           | 0.795 | 0.377  |
|                               | Team sports       | 99  | 21.42 | 2.22           |       |        |
|                               | Total             | 141 | 21.62 | 2.27           |       |        |
| Implementation and evaluation | Individual sports | 42  | 29.50 | 5.10           | 0.718 | 0.401  |
|                               | Team sports       | 99  | 27.97 | 5.88           |       |        |
|                               | Total             | 141 | 28.43 | 5.64           |       |        |

Note. \* $p < 0.05$ .

Table 7 shows the t-test results of the independent groups for the sub-dimensions of the computer anxiety and distance education competency scale according to the branch types. According to the t-test results in independent groups, although the computer anxiety scale differed at significant levels according to the branch types ( $p < 0.05$ ), the sub-dimensions of the distance education competency scale did not differ at significant levels according to the branch types ( $p > 0.05$ ). It can be argued that the average scores of computer anxiety of teachers who were interested in individual sports were higher than the average scores of teachers who were interested in team sports.

Table 8. The differences between points of computer anxiety and distance education competency scales according to school levels

|                               | School Levels             | N   | Mean  | Std. Deviation | F     | p      |
|-------------------------------|---------------------------|-----|-------|----------------|-------|--------|
| Computer anxiety              | Primary Education Level 1 | 27  | 33.86 | 4.53           | 2.110 | 0.133  |
|                               | Primary Education Level 2 | 48  | 32.89 | 1.71           |       |        |
|                               | Secondary education       | 66  | 31.45 | 3.32           |       |        |
|                               | Total                     | 141 | 32.36 | 3.10           |       |        |
| Planning and technology use   | Primary Education Level 1 | 27  | 22.29 | 1.60           | 3.991 | 0.026* |
|                               | Primary Education Level 2 | 48  | 20.50 | 2.38           |       |        |
|                               | Secondary education       | 66  | 22.32 | 2.06           |       |        |
|                               | Total                     | 141 | 21.62 | 2.27           |       |        |
| Implementation and evaluation | Primary Education Level 1 | 27  | 30.57 | 5.22           | 6.159 | 0.004* |
|                               | Primary Education Level 2 | 48  | 25.11 | 5.93           |       |        |
|                               | Secondary education       | 66  | 30.45 | 4.27           |       |        |
|                               | Total                     | 141 | 28.43 | 5.64           |       |        |

Note. \* $p < 0.05$ .

Table 8 shows the One-Way ANOVA results of the independent groups for the sub-dimensions of the computer anxiety and distance education competency scale according to the school levels. In this respect, although the sub-dimension scores of the distance education competency scale differed at significant levels according to the school levels ( $p < 0.05$ ), the computer anxiety scale scores did not differ at significant levels in this respect ( $p > 0.05$ ). In addition, in the TUKEY Test results, it was found that the planning, technology use, implementation and evaluation levels of those working in primary and secondary education were higher at significant levels than those working in secondary education.

Table 9. The differences between points of computer anxiety and distance education competency scales according to professional seniority years

|                               | Professional Seniority Years | N   | Mean  | Std. Deviation | F     | p      |
|-------------------------------|------------------------------|-----|-------|----------------|-------|--------|
| Computer anxiety              | 0–10 years                   | 42  | 32.57 | 1.87           | 0.587 | 0.560  |
|                               | 11–20 years                  | 51  | 32.82 | 3.03           |       |        |
|                               | >21 years                    | 48  | 31.69 | 4.00           |       |        |
|                               | Total                        | 141 | 32.36 | 3.10           |       |        |
| Planning and technology use   | 0–10 years                   | 42  | 20.36 | 2.13           | 4.842 | 0.013* |
|                               | 11–20 years                  | 51  | 21.59 | 2.27           |       |        |
|                               | >21 years                    | 48  | 22.75 | 1.88           |       |        |
|                               | Total                        | 141 | 21.62 | 2.27           |       |        |
| Implementation and evaluation | 0–10 years                   | 42  | 24.93 | 6.28           | 5.916 | 0.005* |
|                               | 11–20 years                  | 51  | 28.53 | 5.64           |       |        |
|                               | >21 years                    | 48  | 31.38 | 2.99           |       |        |
|                               | Total                        | 141 | 28.43 | 5.64           |       |        |

Note. \* $p < 0.05$ .

Table 9 shows the One-Way ANOVA results of the independent groups for the sub-dimensions of the computer anxiety and distance education competency scale according to the seniority years. According to the results of One-Way Analysis of Variance, although the sub-dimension scores of the distance education competency scale differed at significant levels according to seniority years ( $p < 0.05$ ), the computer anxiety scale scores did not differ at significant levels according to seniority years ( $p > 0.05$ ). In addition, in the TUKEY Test results, it was found that planning, technology use, implementation and evaluation levels of those who had 21 years of seniority were found to be higher at significant levels than those with 0-10 years of seniority.

Table 10. The regression model for the effects of computer anxiety on distance education competency

| Model   |                  | Non-Standard Coefficients |            | Standard Coefficients | t      | p     |
|---|------------------|---------------------------|------------|-----------------------|--------|-------|
|   |                  | B                         | Std. Error | Beta                  |        |       |
| Planning and technology use<br>F=0.865; p=0.357   | Constant         | 24.868                    | 3.512      |                       | 7.080  | 0.000 |
|   | Computer anxiety | -0.100                    | 0.108      | -0.137                | -0.930 | 0.357 |
| Implementation and evaluation<br>F=0.228; p=0.635 | Constant         | 32.608                    | 8.793      |                       | 3.708  | 0.001 |
|   | Computer anxiety | -0.129                    | 0.270      | -0.071                | -0.478 | 0.635 |



Two regression models were created and tested, and the level of computer anxiety was the independent variable, and the sub-dimensions of the distance education competency scale scores were the dependent variables, respectively for the purpose of determining the effects of computer anxiety on distance education competency. According to the test results of both models, it was determined that computer anxiety did not have significant effects on planning and technology use, implementation and evaluation ( $p>0.05$ ).

The path coefficients that were obtained as a result of examining the related effects with the Structural Equation Model are given below.

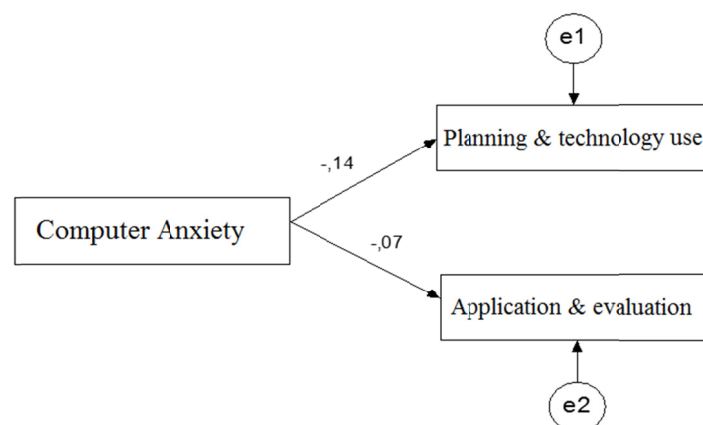


Figure 1. Model path diagram

When the model fit coefficients given in Table 11 were examined, it was found that the model had a good fit.

Table 11. Model fit coefficients

| Acceptable Fit Indices | Sedentary Group |
|------------------------|-----------------|
| $\chi^2/sd<5$          | 3.129           |
| GFI>0.90               | 0.912           |
| AGFI>0.90              | 0.941           |
| CFI>0.90               | 0.878           |
| TLI>0.90               | 0.924           |
| RMSEA<0.08             | 0.078           |
| RMR<0.08               | 0.071           |

#### 4. Discussion and Conclusion

When the literature was examined, it was noticed that the relevant literature is directly related to medical studies due to the Covid 19 pandemic caused by the new type of coronavirus. As the reason for this situation, it can be stated that the rapid spread rate of Covid 19 and its threat to human life, affect the individual at every developmental level. This is an acceptable situation, but in the context of researching the process in terms of education, the literature reveals that no paradigm shift can be successfully reflected in educational environments without first including teachers' views on the process of distance education and the barriers to performing these activities effectively (Mulenga & Marban, 2020).

The present study was conducted to examine the effects of the computer anxiety levels of physical education teachers on distance education competencies in terms of some variables in the Covid 19 pandemic. In the analysis, it was found that there were no significant differences between the age, computer anxiety levels and the distance education competency scale sub-dimension scores of the physical education teachers ( $p>0.05$ ). In other words, it can be argued that the computer anxiety levels of different age groups and mean scores of the sub-dimensions of the distance education competency scale were at the same level. To support this finding, Celik and Bindak (2005) reported that the computer anxiety and attitudes levels towards computers in primary school teachers did not differ with respect to gender and age variables. In addition, there is no significant differences were reported between the age groups and computer anxiety levels in many international studies in the literature

(Durndell & Haag, 2002; Mahar, Henderson, & Deane, 1997). Unlike this finding, Uslu (2008) reported that the computer anxiety levels of teachers who were in the 40 and over age group were higher than those who were in the 26-30 age group in a study that examined the computer anxiety scores of teachers. In their study that examined the anxieties of preschool teachers about using educational technologies, Bilgici and Ünver (2021) reported that the anxiety levels of teachers increased as they became older. Baloğlu and Çevik (2009) reported in their study conducted with school administrators that variables such as education level, age and gender affected computer anxiety, and anxiety increased with increasing age. Furthermore, in many international studies, which was conducted with teachers and different sampling groups, were reported significant relations between the age and computer anxiety (Beckers & Smith, 2003; Ayersman & Reed, 1996; Weil & Rosen, 1995).

When the results of the analyses made according to the gender variable were evaluated, it was found that although the computer anxiety scale scores differed at significant levels with respect to the gender variable ( $p < 0.05$ ), the sub-dimension scores of the distance education competency scale did not differ at significant levels according to gender ( $p > 0.05$ ). The computer anxiety levels of men were found to be higher at significant levels than those of women. This can be expressed as the fact that male teachers had less experience and competency in computer use compared to female teachers in the study group, and for this reason, they had higher computer anxiety scores. However, when the national and international literature was reviewed, many studies reported that the computer anxiety levels of female teachers were higher than male teachers, which do not support this finding (Beckers & Schmitt, 2003; Broos, 2005; Chou, 2003; Durndell & Haag, 2002; Zin et al., 2000). Moreover, many studies found that there was no significant difference between the gender variables and computer anxiety levels (Agbatogun, 2010; Gullekson, Morris, & Morse, 2008; Özcan & Saraç, 2020; Şen, 2013; Popovich et al., 2008).

When the findings of the study were examined with respect to the educational status and school type variables, respectively, it was found that the sub-dimensions of the computer anxiety and distance education competency scale did not differ at significant levels according to the education levels ( $p > 0.05$ ). It can be argued that the mean scores of computer anxiety and distance education competency scale sub-dimensions of bachelor and master graduates were found to be at the same level. It can be considered that continuing education in the field of physical education and sports discipline at both undergraduate and graduate levels might have been effective in this.

The computer anxiety scale and the sub-dimensions of the distance education competency scale did not differ at significant levels according to school types ( $p > 0.05$ ). It can be accepted that the mean scores of computer anxiety and distance education competency scale sub-dimensions of teachers who worked in public and private schools were at the same level. Similar to this, Kurnaz et al. (2020) was concluded that the attitudes of teachers towards distance education did not differ according to their working status in public and private schools in their study that was used a mixed design with 418 teacher participants. When the results according to another variable, branch types were evaluated, it was found that the computer anxiety scale differed at significant levels according to the branch types ( $p < 0.05$ ), and the distance education competency scale sub-dimension scores did not differ at significant levels with respect to the branch types ( $p > 0.05$ ). It can be argued that the mean scores of computer anxiety of teachers who were interested in individual sports were higher than those who were interested in team sports. When these findings were evaluated, it can be considered that the distance education qualifications of teachers did not cause any significant differences with the branch types. In addition, this may be caused by the teachers, who were interested in individual and team sports, had received distance education courses during their education and profession. However, the reason why the teachers who were interested in individual sports had higher computer anxiety scores than those who were engaged in team sports can be the different structures of their branches, general anxiety intensity of individuals interested in individual sports was higher than those who were involved in team sports, and this also affects special anxiety scores such as computer anxiety. It can also be argued that the tendency of individuals involved in team sports to share the responsibility of the events or conditions they face in social lives with all team members was higher than the individuals who took responsibility for individual sports alone. In addition, the individual, who involved in team sports, might have been effective in high computer anxiety scores. When the literature was reviewed, it was found that studies that examined computer anxiety and distance education competencies of physical education teachers according to individual and team sports branches were insufficient. However, in their study that examined the attitudes towards computers in different teaching branches, Tekin and Özyaydınlık (2019) found that there were no significant differences in terms of branches and professional seniority variables.

When the findings of the school levels and professional seniority variables were examined, it was found that the sub-dimensions of the distance education competency scale differed at significant levels according to the school levels ( $p < 0.05$ ), and the computer anxiety scale scores did not differ at significant levels according to the school

levels ( $p>0.05$ ). Namely, the planning and use of technology, implementation, and evaluation levels of primary and secondary school employees were found to be higher at significant levels than those who worked in primary and secondary education.

Although the sub-dimension scores of the distance education competency scale on professional seniority differed at significant levels according to seniority years ( $p<0.05$ ), the computer anxiety scale scores did not differ at significant levels with respect to seniority years ( $p>0.05$ ). In other words, the planning and use of technology, implementation, and evaluation scores of the teachers who had 21 years of seniority were higher at significant levels than teachers who had 0–10 years of seniority. This can be expressed as the fact that senior teachers benefit from their experience, knowledge to maintain their distance education qualifications. In other words, the senior teachers are familiar with the distance education implementations. Unlike this finding, Kurnaz et al. (2020) reported that the distance education qualifications of teachers who practiced their profession in public and private schools did not change according to professional seniority years. When the literature was reviewed, Özcan and Saraç (2020) reported that the distance education competency perceptions did not differ according to the teaching experience in their study conducted with the participation of 138 physical education teachers from different ages in the city of Mersin. In addition, many studies in the literature were found no significant differences in evaluating the professional seniority variable and the competencies related to the use of distance education technologies (Dogan, 2010; Tekin & Özyaydınlık, 2019; Woods, Karp, Hui, & Perlman, 2008).

When the results on the effects of computer anxiety on distance education competency were evaluated, it was found that computer anxiety did not have significant effects on planning and technology use, implementation and evaluation. Also, when the path coefficients that were obtained as a result of examining the related impacts with the structural equation model were examined, it was found that the model had a good fit.

When the results of the study were evaluated, it was found that the computer anxiety levels and distance education competencies of the teachers were quite close to each other in both different age groups. In addition, it was found that the computer anxiety and distance education competencies of teachers working in the public and private sectors are quite close to each other. Moreover, it was also found that the computer anxiety and distance education competencies of undergraduate and graduate graduates are close to each other according to the educational status variable. Besides, it was concluded that the computer anxiety level of male teachers was significantly higher than that of female teachers according to the gender variable. In addition, it was concluded that the mean of the computer anxiety of the teachers who are interested in individual sports is higher than the mean of the teachers who are interested in team sports. Moreover, it was noticed that the planning and technology use, implementation and evaluation levels of the teachers working in primary and secondary education are significantly higher than the teachers working in the second level of primary education. Besides, it was also revealed that the planning and technology use, implementation, and evaluation levels of teachers with 21 years of seniority are significantly higher than teachers with 0–10 years of seniority according to the professional seniority variable. Furthermore, it was determined that computer anxiety did not have a significant effect on planning and technology use, and implementation and evaluation sub-dimensions according to the created regression model.

## 5. Recommendations

When the effects of computer anxiety and distance education qualifications on the effective and efficient continuation of education and training activities were considered, it is thought that it would be helpful to increase in-service training activities for teachers to have an anxiety control orientation on the use of technology products. Encouraging teachers and creating encouragement settings to enable teachers to use information technologies effectively in courses might also increase the efficiency of education and training activities. In such a case, teachers can contribute to the training of individuals who can produce and transfer knowledge as a requirement of the technology age. During or after the Covid 19 Pandemic, various trainings should be organized to enhance the skills of teachers to utilize information technologies and sustain the distance education activities. On the other hand, the study can be planned again considering several other variables with different samplings. It is expected that similar studies will be carried out on teachers in other branches besides physical education teachers.

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