# Teacher Training for Interactive Learning Tools and Determining Their Attitudes

## Capacitación docente para herramientas de aprendizaje interactivo y determinación de sus actitudes

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**Abstract**
The purpose of this research was to determine the attitudes of teacher candidates toward interactive learning tools. This research was carried out in the survey model. The sample group of the research consisted of 242 teacher candidates studying at various universities in Kazakhstan in the 2022-2023 academic year. Pre-service teachers participating in the research were given 5-week interactive learning tools training. The Attitude Scale for Teachers Towards Interactive Online Teaching, which is a data collection tool, was developed by the researchers. Parametric tests were performed on the data set. In the evaluation of the data; descriptive statistics, T-test, and one-way analysis of variance (ANOVA) were applied. As a result of the research, it has been determined that teacher candidates' attitudes towards interactive online teaching are on high positive way. It is seen that there is a significant difference in the attitudes of teacher candidates toward interactive learning tools according to the gender variable, in favor of male teacher candidates. There was no significant difference in the attitudes of the teacher candidates participating in the research towards interactive learning tools according to the class variable they were

studying. It is recommended that teacher candidates studying in all teaching fields in education faculties be trained on interactive learning tools by creating course content solely for this purpose.
**Keywords:** Interactive learning, teacher candidates, Web 2.0, distance education, tools

**Resumen**

El propósito de esta investigación es determinar las actitudes de los candidatos a docentes hacia las herramientas de aprendizaje interactivo. Esta investigación se realizó en el modelo de encuesta. El grupo de muestra de la investigación estuvo formado por 242 candidatos a docentes que estudiaron en varias universidades de Kazajstán en el año académico 2022-2023. Los profesores en formación que participaron en la investigación recibieron formación sobre herramientas de aprendizaje interactivo durante cinco semanas. Los investigadores desarrollaron la herramienta de recopilación de datos, la Escala de Actitud del Profesor Hacia la Enseñanza Interactiva en Línea. Se realizaron pruebas paramétricas en el conjunto de datos. Al evaluar los datos; Se aplicó estadística descriptiva, prueba T y análisis de varianza unidireccional (ANOVA). Como resultado de la investigación, se determinó que las actitudes de los candidatos a docentes hacia la enseñanza interactiva en línea eran bastante positivas. Se ve que existe una diferencia significativa en las actitudes de los candidatos a docentes hacia las herramientas de aprendizaje interactivo a favor de los candidatos a docentes varones según la variable de género. No hubo diferencias significativas en las actitudes de los futuros profesores que participaron en la investigación hacia las herramientas de aprendizaje interactivo según la variable del aula en la que estudian. Se recomienda que los candidatos a docentes que estudian en todas las áreas de la enseñanza en las facultades de educación reciban capacitación sobre herramientas de aprendizaje interactivas mediante la creación de contenido del curso únicamente para este propósito.
**Palabras clave:** Aprendizaje interactivo, candidatos a docentes, Web 2.0, educación a distancia, herramientas

# 1. Introduction

With the internet becoming a part of daily life, access to information has become much easier (Al-Momani & Alrabadi, 2022). In the global world, communication technologies perform an important function that increases interaction. The spread of technology in the field of education, as in all areas of **life**, has accelerated especially in recent years (Keser & Semerci, 2019; Barnett-Itzhaki et al., 2023). It is possible to say that technology is used in education at every age level (Morimoto & Ponton 2021). For this reason, it is extremely important to determine the attitudes and competencies of teachers and teacher candidates towards technology (Khasawneh, 2021).

## 1.1. Conceptual framework

Interaction is defined as one of the critical components that has a key role in online learning environments (Anderson, 2003; Xie et al., 2023). Interaction has an impact on the learning process and learner satisfaction in online learning environments (Wanstreet, 2006; Lewohl 2023). As the interaction feature of the materials used increases, the trainees find the online learning environment of higher quality (Uppal et al., 2021). Interactive learning environments offer students an alternative learning environment apart from traditional learning methods thanks to their unique interaction features (Liaw &

Huang, 2013; Ma et al., 2021). In addition, it allows the acquisition of skills that are difficult to acquire with traditional learning methods.

Interactive online learning materials, on the other hand, contain multimedia features. Compared to traditional teaching materials, it is thought to be more effective in improving students' perceptions and perspectives and making their learning permanent (Yaslica, 2020; Vroom et al., 2022). It is known that students' interest in the lesson is different and their perception and understanding levels are not equal (Ong et al., 2006). Interactive online learning materials differ from traditional learning materials by positively influencing students' perception and understanding levels, thanks to their multimedia features (Mayer, 2017).

It is possible to say that interactive online learning provides many advantages to institutions as well as contributions to teachers and students in the education process (Mukhtar et al., 2020).

An interactive online learning material can be delivered to larger masses in recent years with technological opportunities (Zhang et al., 2006). This situation increases the quality of education, accelerates the learning process, offers equal opportunities, and reduces costs (Moreno & Mayer, 2007). Web 2.0 tools have an important place in terms of online learning environments and online learning materials (Uzunboylu et al., 2011). Making the education process more efficient, making learning permanent, facilitating the learning process, and providing effectiveness in education; It can be done more easily with Web 2.0 tools (Shih, 2011).

Web 2.0 is a communication network defined as a platform that covers all devices connected to the networks. Web 2.0 applications, on the other hand, have many advantages (Hew & Cheung, 2013). Creating software that is constantly updated with the use of a large number of people is one of these advantages (Tyagi, 2012). In addition, it enables the collection and use of mixed data from multiple sources, including individual users, and the use of this collected data by other users to reveal their data (Teo, et al., 2019). In this respect, it offers a world of opportunities far beyond Web 2.1.

Web 2.0 tools are accepted as a technological innovation that supports the change in the education system. For this reason, it is recommended to be adapted to educational environments (Kulakli & Mahony, 2014; Al Mamun & Lawrie 2023). Web 2.0 tools as educational materials, where students are active participants in the classroom and provide the opportunity to develop content that students also contribute to the creation of learning content, to organize and control the content they develop according to their liking (Wright & Akgunduz, 2018). Contrary to technological innovations, where the information given is only used by reading it on the screen, it is an important factor in the preference of Web 2.0 tools that more than one user can reach the same purpose or product in a more active and social environment at the same time with a common mind (O'Reilly, 2007). Accordingly, in this study, the attitudes of pre-service teachers towards Web 0.2 tools were evaluated after the interactive learning tools training given to the pre-service teachers.

### 1.2 Related Research

Below are given the selected research on Teacher Training for Interactive Learning Tools. Pan and Franklin (2011) revealed that teachers' ability to use web tools such as blogs, wikis, and podcasts is low. In some studies, conducted in the field, skype applications, one of the Web 2.0 tools, were handled in terms of interactive learning, and the efficiency of these applications was evaluated (Romana Correa, 2015; Gunther, 2016).

Vona Kurt (2017) stated in her study that students stated that Web 2.0 tools support the teaching process in many ways. In addition, in the research, it was determined that these tools could not use the opportunities offered to them sufficiently. Norton and Hathaway (2008) found that Web 2.0 tools such as blogs, podcasts, and wikis are used in education processes at the primary education level in the United States and that they provide opportunities to take individual differences into account. In addition, it was determined that beneficial results were obtained in terms of providing communication and improving student and parent motivation.

Cheon et al. (2010) stated that there is a correlation between pre-service teachers' intentions to use Web 2.0 tools and their beliefs about the qualities of these tools such as ease of use, usefulness, and facilitating learning. Torres Barzaba et al. (2022) conducted a survey on the "digital competence frameworks for teachers (DigCompEdu)" published by the European Commission in 2017, in which 214 teachers were evaluated. In their study, Sadaf et al. (2012) discussed the use of Web 2.0 tools by pre-service teachers in their professional lives. After the training given to the teacher candidates, their attitudes and opinions were evaluated. At the end of the research, it was determined that perceived usefulness and positive attitude were important predictors of pre-service teachers' intention to use Web 2.0 technologies. Apart from these, Martay and et al. (2021) researched interactive interdisciplinary online teaching tools for biomechanics and physiology teaching. Berry (2006) studied using photographic images as an interactive online teaching strategy. Graves et al (2009), a mentoring model for interactive online learning in support of a technology innovation challenge grant. Vásquez Peñafiel et al. (2023) investigation to describe the TDC in a specific context, such as an Ecuadorian public university, and the correlation between TDC, age, gender, and experience. All of the selected related research articles made important contributions to the field with their research titled.

Besides, when we look at the studies above, it can be said that they are not related to the innovative interactive environments that have emerged in recent years. When research on determining teachers' or teacher candidates' attitudes towards Interactive Online Teaching was examined, no significant research was found on how their attitudes change when they receive training on interactive learning tools. However, it is a necessity to provide training to teachers and teacher candidates on how to benefit from interactive learning tools in learning-teaching processes. There is a serious need for educational practice and research in the field.

### 1.3. Purpose of the Research

The purpose of this research is to determine the attitudes of teacher candidates toward interactive teaching. In the study, answers were sought to the following research questions created for this purpose.

1. What are the attitudes of the teacher candidates participating in the research towards interactive learning tools?
2. Do pre-service teachers' attitudes towards interactive learning tools differ according to the gender variable?
3. Do the attitudes of the teacher candidates participating in the research towards interactive learning tools differ according to the variable of the teaching field they are studying?
4. Do the attitudes of the teacher candidates participating in the research towards interactive learning tools differ according to the class variable they are studying?

## 2. Materials and Method

In this section, information about the interactive learning tools training prepared for teacher candidates and the "attitude scale for teachers towards interactive online teaching" developed by the researchers are given. The research method, sample group, research ethics, and data collection and evaluation processes are also included in this section.

### 2.1. Research Method

This research was carried out in the survey model. This research method aims to measure the main characteristics, expectations, attitudes, motivations, or beliefs of the study group determined for the research. In this method, the current situation is revealed as it is. It allows working with larger sample groups compared to other research methods (Cresswell, 2019; Sahmurova & Gursesli, 2020). For this reason, the survey model was found suitable to determine the attitudes of teacher candidates towards interactive learning tools.

### 2.2. Participants

Initially, the measurement tool was distributed to 362 teacher candidates. However, 242 teacher candidates answered the measurement tool by the specified time. While a significant portion of the remaining 120 teacher candidates did not answer, some answered late. The answers of these teacher candidates were not taken into account. However, the sample group of the research consists of 242 teacher candidates studying at various universities in Kazakhstan in the 2022-2023 academic year. Demographic information of teacher candidates is given in Table 1.

**Table 1**
*Demographic information of teacher candidates*

| **Gender** | **f** | **%** |
|---|---|---|
| **Female** | 133 | 54.9 |
| **Male** | 109 | 45.1 |
| **Total** | 242 | 100 |
| **Class of Study** | | |
| **1. Class** | 62 | 25.6 |
| **2. Class** | 52 | 21.5 |
| **3. Class** | 58 | 24 |
| **4. Class** | 70 | 28.9 |
| **Total** | 242 | 100 |
| **Department of Education** | | |
| **Primary School Teaching** | 49 | 20.2 |

| | | |
|---|---|---|
| **math teaching** | 52 | 21.5 |
| **Physics Teaching** | 44 | 18.2 |
| **Foreign Language Teaching** | 47 | 19.4 |
| **Pre-school teaching** | 50 | 20.7 |
| **Total** | 242 | 100 |

In Table 1, frequency and percentage distributions of the pre-service teachers participating in the research regarding the variables of gender, grade of education, and department of education are given. 54.9% of teacher candidates are female and 45.1% are male. Of the students participating in the research, 25.6% of the teacher candidates' studied in the 1st grade, 21.5% in the 2nd grade, 24% in the 3rd grade, and 28.9% in the 4th grade. 20.2% of the pre-service teachers studied in primary school teaching, 21.5% in mathematics teaching, 18.2% in physics teaching, 19.4% in foreign language teaching, and 20.7% in preschool teaching departments. sees.

### 2.3. Data Collection Tools

The data collection tool was developed by the researchers. The data were collected with the interactive learning tools attitude scale applied after the interactive learning tools training given to the pre-service teachers.

#### 2.3.1. Attitude Scale for Teachers Towards Interactive Online Teaching

The literature was searched to determine the items created while the scale was being developed. In particular, "Development and Validation of an Attitude Scale towards Online Teaching and Learning for Higher Education Teachers", whose validity and reliability was determined by Sangwan and at all., (2021), was used in the development process of some items. However, taking into account that the technology is universal, an effort was made to develop a scale suitable for Kazakhstan culture. Afterward, 45 items were created by the authors. The 45 items created to ensure content and face validity were submitted to the opinion of 4 educational technology area experts, which are they have professor. Experts were asked to choose the items they found most suitable for the content of the study from 45 items. The items on which all experts agreed were separated from the item pool to be included in the scale. Experts agreed on a total of 19 items.

Thus, a 19-item scale trial form was created. In addition, 3 questions were added to the form to determine the demographic characteristics of the pre-service teachers (gender, class they studied, department they studied). The trial application of the scale was applied to 209 teacher candidates studying in education faculties of various universities in Kazakhstan. The pre-service teachers who participated in the application were not included in the sample group of the study.

The suitability of the data set for factor analysis was evaluated by performing the Kaiser-Meyer-Olkin coefficient and the Bartlett Test of Sphericity. The KMO value was calculated as 0.902 and the Bartlett Test of Sphericity was found to be significant. Exploratory factor analysis was performed on the data set with the help of the SPSS 25.0 statistical program. It was decided to conduct an item analysis. The item-total correlation method was found suitable for item analysis. As a result of the test, it was determined that the item-total correlations of 19 items varied between 0.59 and 0.73. In this case, the item-total correlation coefficients were found to be over 0.30 for each item, and it was

determined that the items had good discrimination. It has been understood that the one-dimensional structure of the scale is capable of measuring the targeted feature. Then, the suitability of the model was tested with confirmatory factor analysis. SPSS Amos for this reverse 25.0 statistics program was used. Therefore, Chi-square / Degree of freedom ($x^2$/ df), Root means square error Approximation (RMSEA), Normed Fit Index (NFI), Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI), Incremental Fit Index (IFI), Goodness of Fit Index (GFI), Comparative Fit Index (CFI) and adjusted Goodness of Fit Index (AGFI) compliance criteria were examined. As a result of the analysis, regarding the suitability of the model; $\chi 2$ / sd was 1.893, RMSEA 0.053, NFI=0.94, NNFI=0.93, IFI 0.911, CFI=0.962 and AGFI 0.975. The obtained values show that the model has a good fit with the goodness of fit indices. Finally, the reliability study of the scale was conducted. Cronbach's for this alpha is calculated. The calculation revealed that the Alpha value of the single-factor structure of the scale was 0.88. This value shows that the scale has good reliability.

There is one dimension and nineteen items on the interactive learning attitude scale. I strongly agree (5 points), agree (4 points), somewhat agree (3 points), disagree (2 points), and severely disagree (1 point) on a 5-point Likert-type scale. The score interval coefficient for the arithmetic means is 0.80 [Score Interval = (Highest Value-Least Value)/5 = (5-1)/5 = 4/5 = 0,80], assuming that the intervals are equal. Teacher candidates have been evaluated in this direction: 1.01–1.80 extremely low, 1.81-2.60 low, 2.61-3.40 medium, 3.41-4.20 moderate, and 4.21–5.00 very high. The Appendix contains the scale.

### 2.3.2. Interactive learning tools training

This training is given to pre-service teachers to enrich their lectures in online learning environments and to enable them to integrate technology into education. In this direction, a 5-week online training program for Web 2.0 tools has been prepared. The distribution of the training contents according to the weeks is given below.

Week 1: Content management systems: PBWorks, Wikispaces, Edmodo, Edublogs, Weebly. Online Meeting: Voki, Todaysmeet, Chatzy, Interactive Online Assessments

Week 2: Online Storage & File Sharing: Google Suites, Dropbox, Screencast, Minus, SugarSync

Week 3: Interactive Presentations: Prezi, SlideRocket. Online Survey: Poll Everywhere, Survey Monkey

Week 4: Concept Map & Drawing Tools: Cacoo, us (bubbl.us), Scribblar, MindMeister

Week 5: Animation & Video: GoAnimate, Creaza, A nimoto, Kerpoof. Word Clouds: Wordle, TagCrowd, WordItOut

It was ensured that teacher candidates regularly participated in the prepared training program. The pre-service teachers were divided into 4 groups and took the lessons. The training for each group is planned to be 4 hours a week for a total of 20 hours.

## 2.4. Data Collection Process

Interactive learning tools training was given to teacher candidates by online method. After the training, interactive learning tools developed by the researchers were collected with the attitude scale. The scale application was carried out through Google Forms. The training process in the study took 5 weeks and the data collection took 2

weeks. The application time of "Attitude Scale for Teachers Towards Interactive Online Teaching" was measured as 15-20 minutes on average.

### 2.5. Compliance with Ethics

All of the investigations, including the scale development studies, that involved pre-service teachers at any point in the study process were done so willingly. A research information form that included details on the goal, parameters, and methodology of the study as well as a pledge to protect the privacy of personal data was distributed to pre-service teachers. Additionally, the teaching candidates signed a voluntary participation form. The researchers followed the guidelines of research ethics when they were drafting the study.

### 2.6. Data Analysis

Research data were analyzed with the SPSS 25.0 statistical program. Primarily, the Kolmogorov-Smirnov Test was performed and as a result of the test, p>.05 was determined for the variables. This result revealed that the data set showed a normal distribution. For this reason, parametric tests were performed on the data set. Descriptive statistics, T-test, and one-way analysis of variance (ANOVA) were performed.

## 3. Results

In Table 2, the weighted average and standard deviations of the interactive learning tools attitude scale of the pre-service teachers participating in the research are given.

**Table 2**
*Weighted average and standard deviations of interactive learning tools attitude scale*

| | ***M*** | **SD** |
|---|---|---|
| **Attitude Scale for Teachers Towards Interactive Online Teaching** | 4.07 | 0.893 |

Table 2 shows the "attitude scale for teachers towards interactive online teaching" weighted average and standard deviations (M=4.07, SD=0.893). This finding reveals that teacher candidates' attitudes towards interactive learning tools are on high positive way.

*Gender*

In Table 3, independent variables t-test results according to the gender variable of the pre-service teachers participating in the research are given.

**Table 3**
*T-test of independent variables according to gender variable*

| **Gender** | **N** | ***M*** | **SD** | **t** | **p** |
|---|---|---|---|---|---|
| **Female** | 133 | 3.98 | 0.688 | 14,277 | ,000 |
| **Male** | 109 | 4.17 | 0.821 | | |

Table 3 displays, broken down by gender variable, the opinions of teacher candidates taking part in the research about interactive learning tools. Results of the independent variables t-test are shown. The test result showed a significant difference in pre-service teachers' opinions toward interactive learning tools (t=14.277, p<0.5). The big differential is in favor of male candidates for teaching positions.

*Class Status*

Table 4 presents the findings of a one-way analysis of variance (ANOVA) based on the class variable of the teacher candidates who took part in the study.

**Table 4**
*One-way analysis of variance according to class variable ANOVA*

| | N | *M* | SD | F | p |
|---|---|---|---|---|---|
| **1. Class** | 62 | 3.99 | 0.841 | 4,776 | ,209 |
| **2. Class** | 52 | 3.95 | 0.810 | | |
| **3. Class** | 58 | 4.15 | 0.877 | | |
| **4. Class** | 70 | 4.18 | 0.895 | | |

The one-way analysis of variance (ANOVA) results of the research participants' pre-service teachers' views regarding interactive learning materials based on their educational background are displayed in Table 4. The test result showed that pre-service teachers' opinions regarding interactive learning technologies were not different based on the class variable they studied (F=4.776, p>0.5).

*Teaching Department*

Table 5 presents the findings of a one-way analysis of variance (ANOVA) categorized by the pre-service teachers' department of education who took part in the study.

**Table 5**
*One-way analysis of variance ANOVA by section variable*

| | N | *M* | SD | F | p |
|---|---|---|---|---|---|
| **Primary School Teaching** | 49 | 3.81 | 0.654 | 12,896 | ,000 |
| **Math Teaching** | 52 | 4.45 | 0.822 | | |
| **Physics Teaching** | 44 | 4.36 | 0.869 | | |
| **Foreign Language Teaching** | 47 | 3.89 | 0.621 | | |
| **Pre-school Teaching** | 50 | 3.85 | 0.610 | | |

The one-way analysis of variance (ANOVA) results of the pre-service teachers' attitudes toward interactive learning tools, broken down by the departmental variable they researched, are presented in Table 5. The test result showed that teacher candidates'

attitudes toward interactive learning technologies vary according on the departmental variable they examined ($F=12.896$, $p<0.5$). It was found that pre-service teachers enrolled in physics and mathematics teaching programs had the advantage.

## 4. Discussion

It was determined that the attitudes of the teacher candidates participating in the research on interactive learning tools were high. In some of the studies conducted in the field, it has been revealed that there is a high positive correlation between the use of Web 2.0 tools, which are considered interactive e-learning tools, and self-efficacy belief (Alhassan, 2017). For this reason, Coutinho (2008) stated in his study that providing pre-service teacher training content to provide technological competencies for Web 2.0 tools will facilitate the integration of these technologies into the classroom environment.

It is seen that there is a significant difference in the attitudes of teacher candidates toward interactive learning tools, according to the gender variable. The significant difference is in favor of male teacher candidates. In different studies carried out in the field, it has been revealed that there is a significant difference between men and women when self-efficacy and attitudes toward learning, especially in computer-oriented learning, are compared between men and women (Cassidy & Eachus, 2002; Ong & Lai, 2006; Aguillon et al., 2020). Contrary to these studies, Shapka and Ferrari (2003) found in their study that female teacher candidates have higher attitudes and self-efficacy perceptions towards computer-assisted education than male teacher candidates. study focused on the participation of 214 teachers who were administered the questionnaire (DigComEdu Check-in).

It is seen that the attitudes of the teacher candidates participating in the research towards interactive learning tools do not differ according to the class variable they are studying. Korkut and Akkoyunlu (2008) also revealed in their study that the class variable in which the teacher candidates see the student does not make any difference in the attitudes of the candidates.

Depending on the departmental variable they are studying, teacher candidates' attitudes toward interactive learning tools have been found to change significantly. Pre-service teachers enrolled in departments that teach physics and mathematics were found to benefit from the difference. In their investigation, Frye and Dornisch (2008) likewise came to conclusions that were comparable to those of this study. The study found that teachers of science and mathematics utilize technology more frequently than teachers of other subjects, and that these subjects are more directly tied to the use of technology. Furthermore, it has been found that educators in this profession are more adept at using technology.

## 5. Conclusion

Within the scope of today's contemporary education practices, information and communication technologies have been transferred to educational environments, providing many advantages for teachers, students, and parents, as well as access to education. In particular, supporting interaction with content and the widespread use of e-learning environments in education have led to the need for continuous updating of teacher training programs. Considering these needs, this study was aimed to determine the attitudes of pre-service teachers toward interactive learning tools.

The study's findings indicate that teacher candidates have positive attitudes toward interactive learning resources. The gender variable reveals a notable disparity in the perspectives of teacher candidates about interactive learning materials. The big differential is in favor of male candidates for teaching positions. Regarding interactive learning technologies, there was no discernible variation in the attitudes of the teacher candidates involved in the research based on the class variable under investigation. However, a notable distinction was observed in the teacher candidates' perspectives regarding interactive learning tools according on the departmental variable they are studying. Pre-service teachers enrolled in departments that teach physics and mathematics were found to benefit from the difference.

## 6. Recommendations

In line with the results obtained from the research, the following suggestions have been developed for future teachers to use interactive learning tools more effectively.

1. Interactive learning tools training should be given by creating course content for teacher candidates studying in all teaching fields in education faculties.
2. It is thought that the repetition of future research on determining the attitudes of teacher candidates towards interactive learning tools with teacher candidates studying in different teaching areas in education faculties will contribute to the field.
3. Not only teacher candidates but also teachers' attitudes towards interactive learning tools should be determined and teacher attitudes and competencies should be increased through in-service training programs.

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**Data Availability Statement**

The data will be made available on request. "The Attitude Scale for Teachers Towards Interactive Online Teaching" in Kazakh Language is available upon request.

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## Appendix 1

## Attitude Scale for Teachers Towards Interactive Online Teaching

| Item no | Items | Strongly Agree | Agree | Partially Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|
| 1. | Interactive online teaching provides great opportunity to a teacher for creating and sharing his/her presentations, video, handouts and weblinks. | | | | | |
| 2. | I appreciate the use of interactive online teaching in present time. | | | | | |
| 3. | Interactive online teaching is more interesting than classroom teaching. | | | | | |
| 4. | Students participate more actively during interactive online teaching. | | | | | |
| 5. | Interactive online teaching is very good platform for teachers and students | | | | | |
| 6. | I have sufficient knowledge about different interactive internet tools required for conducting online classes. | | | | | |
| 7. | Teacher has good command over Google Suite. | | | | | |
| 8. | Teachers can do interactive lessons with students using content management systems. | | | | | |
| 9. | Interactive online storage and file sharing environment facilitates the teacher's instructional tasks. | | | | | |
| 10. | With interactive presentations, students' interest and attention periods increase. | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 11. | The opinions and suggestions of the students for the teaching process can be obtained by online survey. | | | | | |
| 12. | Concept MAP & Drawing Tools offers students interactive learning environments. | | | | | |
| 13. | Animation & videos are indispensable tools if an interactive learning environment is to be created. | | | | | |
| 14. | I have clear idea about the use of various tools required for preparing interactive e-content. | | | | | |
| 15. | When students are performed with quiz and similar tests with interactive online assessments, students' learning level increases. | | | | | |
| 16. | I have sufficient knowledge about different internet tools required for conducting interactive online classes. | | | | | |
| 17. | I believe that digitally literate teachers have better future. | | | | | |
| 18. | Interactive online teaching has offered new ventures of creativity and opportunities for a teacher. | | | | | |
| 19. | Teachers keep themself updated with new interactive technological innovations in the field of teaching. | | | | | |