Effectiveness of Using the Quizizz Application in Islamic Religious Education

Abstract: Since the Covid-19 pandemic, in human life there have been many influences in the field of education—both in the form of systems and characters, as well as the learning media used. Every time there is a change, it is sure that there will be an innovation regarding learning media which is, of course, IT-based. This research was conducted to determine the effectiveness of the Quiziz application media in Islamic Religious Education subjects in improving student learning outcomes at SMA Negeri 7 Malang. This research uses descriptive quantitative methods, with data collected through observation, documentation and questionnaires. Data sourced from this study were taken from students and students of class X SMA Negeri 7 Malang. Based on the results of research conducted by researchers, it can be concluded that: (1) learning media using the Quizizz application can be applied in teaching and learning activities because the Quizizz application is an interactive and fun application in which there are various features such as quizzes, surveys, games and discussions. (2) in its application, learning media using the Quizizz application is quite liked by students. (3) from the results of this study, the researcher feels that learning media using the Quizizz application is very effective and can increase the motivation and desire of students to understand and explore the subject matter given by the teacher, especially Islamic Religious Education subjects.

Keywords: Interactive Learning, Quizizz, Islamic Religious Education
Introduction

After implementing the Online (In-Network) system during the Covid-19 pandemic, the use of social media is indirectly overgrowing. Several factors encourage each individual to be creative and innovative to develop their potential further when facing an increasingly sophisticated and advanced developmental process, which is increasing rapidly. A teacher’s activities in managing the classroom learning process can motivate students to be more active and competitive so that the planned goals can be realized (Bao, 2020). Therefore, a teacher must be able to arrange learning strategies that are more varied and also more enjoyable. In the 21st century, students are required to improve their creativity and skills further to face increasingly fierce competition in the world of work. Therefore, it is necessary to increase students’ hard skills and soft skills to increase their ability to be higher in dealing with changes and times (Lyu & Liu, 2021).

Learning media that use Android or mobile phones are examples of operational facilities that exploit arguments and advances in applied science and information in the field of knowledge. In teaching and learning activities, there is a unit that cannot be separated and has become something integrated into several learning methods that will be used, namely, a learning program that uses interactive learning media. More and more people are using cell phones with various kinds and variations of their use in everyday life so that in the future, they will not experience difficulties if one day they face various kinds of technology-based learning fields (Widad & Abdellah, 2022). In addition, Android users who can operate multimedia functions properly can also use it to play games on the internet that are still related to teaching and learning activities. Meanwhile, many interactive applications or games can currently be used for the learning process (Montandon et al., 2021). The users of interactive media or online games are beneficial in the course of activities during the learning process, mainly so they do not get bored while in class and can further improve the quality of student learning so that it is better than before in terms of the technology that takes place when learning to the results which will be obtained by students later.

E-learning or electronic learning is one of the utilization of the functions of information and communication technology that can be used as a media facility and infrastructure for teachers and students in conducting learning both online (in the network) and offline (outside the network). E-learning is learning by utilizing internet technology to make it easier for teachers to convey material in the distance learning process (Rudd et al., 2019). One of the e-learning media that is often used is Quizizz. Quizizz itself is an application with game features where 1 (one) player and another can interact with each other. This Quizizz application can also be operated or accessed using the website, or you can also download the
application directly from the Apps store or the Google Play store. The Quizizz application is an online game-based application in the form of an affordable quiz for students in the class. In addition, various kinds of features are already available in the media, so it attracts students’ attention at school to be used as an example in making the desired Quiz (Orhan Göksin & Girsoy, 2019). Thus, the Quizizz application is suitable for forming interactive relationships between 1 (one) student and another. Because by using this application, students can simultaneously take quizzes with their classmates and see their scores or rankings directly. So, enthusiasm to be the best arises in students’ minds (Jia, Hew, Jiahui, & Liuyufeng, 2023).

This research was conducted to gain knowledge about the effectiveness of Quizizz media in the subject of Islamic Religious Education in developing student learning outcomes at SMA Negeri 7 Malang. With the formulation of the problem taken by the researcher, namely: the effectiveness of the use of the Quizizz application on the subject of Islamic Education and Ethics in the CHAPTER "Understanding Itself and Realizing Monotheism with Syu'abul Faith (Branch of Faith)" in SMA Negeri 7 Malang in terms of student responses and student achievement.

Thus, it is hoped that using the Quizizz application media can become a bridge or the alternative way to e-learning-based learning, especially in the process of teaching and learning activities online and offline because in addition to developing oneself in technological advances, this is also expected to be able to help students in understanding and exploring the material explained by the teacher, to increase their learning motivation. In the 21st century, there have been many technological advances in the field of education, especially during the current industrial revolution 4.0; researchers are interested in researching "Effectiveness of Using the Quizizz Application in Islamic Religious Education Class X Class SMA Negeri 7 Malang".

Research Method

The research results we present are in the form of a descriptive quantitative research method, which later in the data collection process is obtained through observation at SMAN 7 Malang during Field Experience Practice. The distribution of questionnaires, documentation and data sources for this research were taken from students of class X SMA Negeri 7 Malang.

1. Quantitative research, in which there is a technique in the form of data analysis description, uses statistics in the form of pie charts and explanatory descriptions. Two
types of statistics are used, the first is inferential statistics and descriptive statistics (Goulouti et al., 2021). Analysis of the data used in this study using descriptive statistical analysis techniques.

a. What is meant by descriptive analysis is the analysis used to examine data by describing or reflecting on the data collected during the research. New data from research variables require a description that must be submitted as the final result of the research. This analysis consists of the mean, median, variance, skewness, kurtosis, minimum, maximum, and frequency distribution tables. Then the data collected is processed using the normality test followed by a partial correlation test to determine the variables between influences. To make it easier to find the results of the tests in this analysis, the author also uses 26 for windows software.

b. The normality test or prerequisite test is carried out before the hypothesis test. The normality test is the first part of examining data more precisely than what was initially general. Use the SPSS for the Windows version 26 program for this normality test.

c. This hypothesis test is used to measure how accurately the influence of independent variables in quantitative research is individually and partially associated with the dependent variable.

Data collection procedures

This research collected data through observation, questionnaire, and documentation regarding the research focus.

1) Observation

In research, observation can be interpreted as a method of making detailed accounting of ethics by looking at the behaviour of individuals or groups that will be studied directly. According (Cousineau, 2020), observation is the detailed bookkeeping of phenomena that appear on the analysis topic. Observations can be carried out in content or not depending on the needs of the research being carried out. Random observation means that the researcher directly reviews the topic of his research at the place and time of the incident. At the same time, indirect observation can be interpreted as observations made through specific tools or intermediaries, such as audio-visual, documentary films, video recordings, series of slides and several series of photos.

2) Questionnaire

The questionnaire method is a method of accumulating data in several arrangements of questions arranged sequentially to be disseminated to the informants.
3) Documentation
Documentation technique (documentary) is a technique of collecting research data that uses several documents, both in the form of written documents and recorded documents. Written documents can be in the form of diaries, memorials, clippings, collections of personal letters, autobiographies, archives, and so on. Meanwhile, recorded documents can be in the form of microfilm, tapes, photographs, films and so on.

Research Design
This analysis proposal is a methodological perspective in research projects. It can be interpreted that research projects have a broader meaning than research designs because research proposals have a more scientific flow than research that contains perspectives and literature reviews (Mac Giollabhui, 2021). However, is more interested in calling research proposals by the term research design or research design (in a broad sense). This research was conducted in response to the researcher's questions in CHAPTER one. The researcher's design for this study is to determine the problem formulation, data accumulation procedures and data analysis.

Sample and Population
1) Sample
The sample is part of the population and is the object of research. In collecting samples from the population, have a systematic; the sample is representative (representative) in the population. The sample in this study was taken from students and students of class X – 4 and X – 2 SMA Negeri 7 Malang.

2) Population
The population is something that will be studied as a whole. The population is also often referred to as the universe. This study's populations were all class X - 4 and X - 2 SMA Negeri 7 Malang, totaling 68 students.

Result and Discussion
Meaning of Effectiveness
In the Indonesian dictionary, the word Effectiveness has three meanings, the first being effect, consequence, and influence. The second meaning is efficacious or efficacious, and the third can bring results or use. So effectiveness can be interpreted as success or influence after doing something, according to John. In the Indonesian English dictionary, M. Echols and Hasan Shadily, etymologically, the word effect means result. In the General Dictionary of
Indonesian, effectiveness is a description that measures the results of tasks or success in achieving goals (Wang & Ma, 2021). We can understand that meaningful effectiveness shows the achievement of goals, and efforts can be said to be effective if the efforts achieve goals. The definition of effectiveness according to experts, namely as follows:

1) According to Agung Kurniawan, Effectiveness is the ability to carry out a mandate (operational program activities or mission) within the group's scope without being coerced into carrying this obligation.

2) According to Hidayat, Effectiveness is a measuring tool in describing how far the target is in the form of quality, and quantity within a predetermined time with the principle that the greater the percentage of targets achieved, the higher the effectiveness.

3) According to Effendy, effectiveness is an indicator of achieving a predetermined goal for evaluation where a target has been achieved with what was planned.

Effectiveness in general, can be interpreted as the existence of an influence and effect. Effectiveness does not only influence but also relates to success and goals, professionalism, setting standards, setting targets, and the existence of material programs, materials, which have to do with means or methods. facilities or targets can influence the goals to be achieved/achieved.

**Understanding the Quizizz Application**

Quizizz is a new application that can be used in the learning process. Quizizz can be used to make multiple-choice questions with four answer choices, with one of the choices being the answer to that question, which can be an open question or something else. If an educator asks a question that requires pictures, tables, graphs and some of it in this application, it is possible to display the desired illustration. After the questions have been prepared and are ready, the questions can be demonstrated to students by giving directions using a six-digit code that appears automatically when the questions are distributed to students. This application will also inform the analysis of questions; who can know the questions answered correctly by students and answered incorrectly by students? Another information is that the teacher will get information on students with the highest to lowest scores (Azlan et al., 2020). The advantage contained in this media is that it can be used outside of class hours, for homework (PR), for example. The time limit can be set if this application is used to make PR assignments. The questions in this application are also very likely to be randomized, so if used for a written exam, the opportunity to imitate other friends can be reduced (Zainuddin, Shujahat, Haruna, & Chu, 2020).
Definition of Islamic Religious Education

Experts put forward several definitions of Islamic Religious Education that Islamic religious education is a conscious and planned effort to prepare students to know, understand, be pious with good morals, disseminate Islamic religious teachings originating from the holy book of the Koran and hadith through training, teaching, as well as experience. According to that, Islamic religious education is a part of Islamic education in which there are efforts to educate Islamic teachings and their values so that they become one's views and attitudes in life. The form in this sense is (1) someone who carries out all activities to help a person or group of students in developing Islamic teachings and their values to serve as a way of life, which is manifested in attitudes and is applied in everyday life; (2) all phenomena or the growth and development of Islamic teachings and their values on one or several parties. Zakiah Daradjat said, quoted by Abdul Majid, that Islamic Religious education is a way of developing and increasing a thorough understanding of the religion of Islam for students. To explain and make Islam a guide to life (Saada, 2020). The results of the seminar on Islamic Religious Education throughout Indonesia, which was held from 7 to 11 May 1960 in Cipayung, Bogor, describes Islamic education, namely guidance in increasing physical and spiritual development according to Islamic teachings with the wisdom of controlling, educating, forming, nurturing, supervising the enactment of all Islamic teachings. From the above understanding, it can be concluded that Islamic Religious Education is a way of teaching, educating, guiding, and caring for the attitudes and characteristics of children. It is hoped that after their education, children can understand, live up to, and practice Islamic teachings as a guide and guideline for life in the world and the hereafter (Dogra et al., 2021).

Data Exposure and Analysis

The Effectiveness of Using the Quizizz Application to determine the effectiveness of using Quizizz via the students' responses, the researchers distributed questionnaires to find out the results of these responses. The form of a questionnaire that researchers to students have given is as follows:

| No. | Observed Aspects                                         | No. Items |
|-----|----------------------------------------------------------|-----------|
| 1   | Students’ interest in using Quizizz media                | 3, 4, 5, 6|
| 2   | Achievement of goals by using Quizizz media             | 1, 2, 9   |
| 3   | Learners’ perception of the use of Quizizz media        | 7, 8, 10  |
Table 2 Questionnaire related to class X student’s responses in learning PAI and Quizizz

| No | Query                                                                 | Answer |
|----|------------------------------------------------------------------------|--------|
| 1  | Learning PAI and Morals using Quizizz media can make it easier for me to go through the material "Understanding Reality and Creating Monotheism with Syu'abul Iman (Branch of Faith)," |        |
| 2  | Learning PAI and Morals using Quizizz media can make it easier for me to answer the question "Understanding the truth and Creating Monotheism with Syu'abul Iman (Branch of Faith)," which was presented by the teacher. |        |
| 3  | I was motivated when working on the question "Understanding the Reality and Establishing Monotheism with Syu'abul Iman (Branch of Faith)" using Quizizz media. |        |
| 4  | I am enthusiastic about understanding the material when doing tasks through Quizizz media. |        |
| 5  | I am motivated to pay attention to the learning of PAI and Budi Pekerti when using Quizizz media. |        |
| 6  | I was more serious when answering the question "Understanding the reality and Creating Monotheism with Syu'abul Iman (Branch of Faith)" via Quizizz media. |        |
| 7  | I easily understand the material presented, and I like working on questions using Quizizz media. |        |
| 8  | It is easier to remember the material conveyed when answering questions using the Quizizz media. |        |
| 9  | When working on questions through the Quizizz media, I am challenged to be superior. |        |
| 10 | With Quizizz media, I can think more critically.                      |        |

The results of the research data on the effectiveness of Quizizz can be reviewed from the 4 (four) Likert scale questionnaire with the following details:

1. STS (Strongly Disagree)
2. TS (Disagree)
3. S (Agreed)
4. SS (Strongly Agree)

To find out the students’ interest in using Quizizz media, we can see the results of the questionnaires at numbers 3, 4, 5 and 6. The results of The four questionnaires above are as follows:

1. I am motivated when working on the problem "Understanding the nature and Realizing Unity with Syu'abul Faith (Branches of Faith)" by using Quizizz media
From the diagram above, we can see that the percentage of students who STS (Strongly Disagree) is 5.3% with a total of 3 students' answers, TS (Disagree) is 7% with a total of 4 students' answers, S (Agree)) of 61.4% with a total of 35 students' answers and SS (Strongly Agree) of 26.3% with a total of 15 students' answers. Be concluded that students were very motivated to work on the question "Understanding the essence and Realizing Oneness with Syu'abul Faith (Branches of Faith)" when using Quizizz media because the highest percentage is in option S (Agree).

2. I am enthusiastic about understanding the material when doing assignments through Quizizz media.

From the diagram above, we can see that the percentage of students who STS (Strongly Disagree) is 3.5% with a total of 2 students' answers, TS (Disagree) is 1.8% with a total of 1 student's answers, S (Agree) of 56.1% with a total of 32 students' answers and SS (Strongly Agree) of 38.6% with a total of 22 students' answers. Thus, men who answered questions through Quizizz can encourage students to explore the material because the highest percentage is in option S (Agree).

3. I am motivated to pay close attention to PAI learning and ethics when using Quizizz media.
Figure 3 Motivated students to pay close attention

From the diagram above, we can see that the percentage of students who STS (Strongly Disagree) is 1.8% with a total of 1 student’s answer, TS (Disagree) is 3.5% with a total of 2 students’ answers, S (Agree) of 59.6% with a total of 34 students’ answers and SS (Strongly Agree) of 35.1% with a total of 22 students’ answers. Thus, using Quizizz media can increase student motivation to understand better learning well because the highest percentage is in option S (Agree).

4. I am more serious when answering the question "Understanding the nature and Realizing Unity with Syu’abul Iman (Branches of Faith)" through Quizizz media.

Figure 4 Serious when answer the question

From the diagram above, we can see that the percentage of students who STS (Strongly Disagree) is 1.8% with a total of 1 student’s answer, TS (Disagree) is 5.3% with a total of 3 students’ answers, S (Agree) of 63.2% with a total of 36 students’ answers and SS (Strongly Agree) of 29.8% with a total of 17 students’ answers. Thus, it can be concluded that students are serious when working on the question "Understanding the nature and Realizing Monotheism with Syu’abul Iman (Branches of Faith)" through Quizizz media because the highest percentage is in option S (Agree). To find out the achievement of the goals of using Quizizz media, we can find out by looking at the results of the questionnaires at numbers 1, 2 and 9. The results of the 3 (three) questionnaires are:

5. Learning PAI and Characteristics using Quizizz media can make it easier for me to understand the material "Understanding Reality and Realizing Unity with Syu’abul Faith (Branches of Faith)."
From the diagram above, we can see that the percentage of students who STS (Strongly Disagree) is 3.5% with a total of 2 students’ answers, TS (Disagree) is 8.8% with a total of 5 students’ answers, S (Agree) of 63.2% with a total of 36 students’ answers and SS (Strongly Agree) of 24.6% with a total of 14 students’ answers.

The conclusion that can be drawn from the percentages above is that learning using Quizizz media makes it easier for students to understand the material “Understanding Reality and Realizing Monotheism with Syu'abul Faith (Branch of Faith)” because the highest percentage is in option S (Agree).

6. Learning PAI and Morals using Quizizz media can make it easier for me to answer the question "Understanding the truth and Creating Monotheism with Syu'abul Iman (Branch of Faith)", which was presented by the teacher.

From the diagram above, we can see that the percentage of students who STS (Strongly Disagree) is 3.5% with a total of 2 students’ answers, TS (Disagree) is 3.5% with a total of 2 students’ answers, S (Agree) amounted to 78.9% with a total of 45 students’ answers and SS (Strongly Agree) amounted to 14% with a total of 8 students’ answers.

The conclusion that can be drawn from the percentages above is that learning using Quizizz media makes it easier for students to understand the questions "Understanding the nature and Realizing Monotheism with Syu'abul Faith (Branch of Faith)" given by the teacher because the highest number of percentages is in option S (Agree).
7. When working on questions through the Quizizz media, I am challenged to be superior.

![Figure 7](image1.png)

**Figure 7 Working on the question through quizizz media**

From the diagram above, we can see that the percentage of students who STS (Strongly Disagree) is 1.8% with a total of 1 student's answer, TS (Disagree) is 0% with a total of 0 students' answers, S (Agree) of 54.5% with a total of 31 students' answers and SS (Strongly Agree) of 43.9% with a total of 25 students' answers. Thus, when students work on questions through the Quizizz media, I feel challenged to be superior because the highest percentage is in option S (Agree). To determine students' attitudes towards the effectiveness of the Quizizz media, we can find out by looking at the results of the questionnaires at numbers 7, 8 and 10. The results of the 3 (three) questionnaires are as follows:

8. I easily understand the material presented, and I like working on my questions using Quizizz media

![Figure 8](image2.png)

**Figure 8 Easy to understand the presented subject in using media**

From the diagram above, we can see that the percentage of students who STS (Strongly Disagree) is 5.3% with a total of 3 students' answers, TS (Disagree) is 14% with a total of 8 students' answers, S (Agree) of 56.1% with a total of 32 students' answers and SS (Strongly Agree) of 24.6% with a total of 14 students' answers. Thus, it can be concluded that students enjoy working on questions using the Quizizz media because it makes it easier for students to understand the material provided. After all, the highest percentage is in option S (Agree).
9. I find it easier to remember the material conveyed when answering questions using the Quizizz media.

![Figure 9](image)

**Figure 9** More straightforward to remember the subject when using media

From the diagram above, we can see that the percentage of students who STS (Strongly Disagree) is 3.5% with a total of 2 students' answers, TS (Disagree) is 12.3% with a total of 7 students' answers, S (Agree) of 63.2% with a total of 36 students' answers and SS (Strongly Agree) of 21.1% with a total of 12 students' answers. Thus, students it is easier to remember the material conveyed when answering questions using the Quizizz media because the highest percentage is in option S (Agree).

10. With Quiz media, I can think more critically.

![Figure 10](image)

**Figure 10** Quizizz media can improve the critical thinking

From the diagram above, it can be seen that the percentage of students whom STS (Strongly Disagree) is 3.5% with a total of 2 students' answers, TS (Disagree) is 0% with a total of 0 students' answers, S (Agrees) is 61.4% with a total of 35 students' answers and SS (Strongly Agree) of 35.1% with a total of 20 students' answers. Thus, it can be concluded that Quizizz helps students to think critically because the highest percentage is in option S (Agree). From some of the circle diagrams above, it can be concluded that students agree with IT-based learning or learning using Quizizz media because it is more profitable during the learning
process. The components as supports and barriers to the effectiveness of the Quizizz Application Usage Factors There are several components, namely as follows:

1) Support Several factors influence or support the use of Quizizz media, namely accessing media which is relatively easy and does not need to use a lot of internet quota. Teachers are greatly facilitated when managing questions; some competitions and questions can be changed.

2) Obstacles The obstacles to using the Quizizz media or application are that at one time, this application can open two accounts at once, making it easier for students to go up and down. It is not easy to know who is accessing it.

Conclusions

The research regarding the effectiveness of the application of Quizizz media as a tool and learning material for Syu’abul Iman SMA Negeri 7 Malang can be concluded: Quizizz as a learning tool has various characters, namely, quizzes, surveys, games, & discussions. Furthermore, Quizizz has existed since 2015, and this application can be easily accessed from the website. However, unfortunately, this application has just been introduced and used in 2020. This application can also make students think quickly. This application is suitable as a media learning that is fun and interesting for students & girls. They can learn and understand the material easily because the process is relaxed, like playing games. Furthermore, the steps to use this application, namely: The teacher explains the material through Powerpoint. It can also be through each student's textbook, after that the students begin to understand, the teacher immediately tests it using quizzes by providing links and giving steps to take quizzes like games, and Furthermore, after that, the student scores will automatically appear after finishing the Quiz. From the Syu’abul Iman X subject quiz at SMAN 7 Malang and the student & student responses that took place effectively. All forms of learning media must produce results and change. Likewise, with the Quizizz media, either directly or indirectly. This is in line with the definition put forward by Purwanto: 2011 that learning outcomes are a change that causes humans to change their attitudes and behaviour. Thus, it is hoped that students can improve learning achievement with Quizizz media.
References

Azlan, C. A., Wong, J. H. D., Tan, L. K., MSN, A. D. H., Ung, N. M., Pallath, V., . . . Ng, K. H. (2020). Teaching and learning of postgraduate medical physics using Internet-based e-learning during the COVID-19 pandemic - A case study from Malaysia. *Phys Med*, 80, 10-16. [https://doi.org/10.1016/j.ejmp.2020.10.002](https://doi.org/10.1016/j.ejmp.2020.10.002)

Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. *Hum Behav Emerg Technol*, 2(2), 113-115. [https://doi.org/10.1002/hbe2.191](https://doi.org/10.1002/hbe2.191)

Cousineau, D. (2020). How many decimals? Rounding descriptive and inferential statistics based on measurement precision. *Journal of Mathematical Psychology*, 97. [https://doi.org/10.1016/j.jmp.2020.102362](https://doi.org/10.1016/j.jmp.2020.102362)

Dogra, S. A., Rai, K., Barber, S., McEachan, R. R., Adab, P., Sheard, L., & Childhood Obesity Prevention in Islamic Religious Settings Programme Management, G. (2021). Delivering a childhood obesity prevention intervention using Islamic religious settings in the UK: What is most important to the stakeholders? *Prev Med Rep*, 22, 101387. [https://doi.org/10.1016/j.pmedr.2021.101387](https://doi.org/10.1016/j.pmedr.2021.101387)

Goulouti, K., Favre, D., Giorgi, M., Padey, P., Galimshina, A., Habert, G., & Lasvaux, S. (2021). Dataset of service life data for 100 building elements and technical systems including their descriptive statistics and fitting to lognormal distribution. *Data Brief*, 36, 107062. [https://doi.org/10.1016/j.dib.2021.107062](https://doi.org/10.1016/j.dib.2021.107062)

Jia, C., Hew, K. F., Jiahui, D., & Liuyufeng, L. (2023). Towards a fully online flipped classroom model to support student learning outcomes and engagement: A 2-year design-based study. *The Internet and Higher Education*, 56. [https://doi.org/10.1016/j.iheduc.2022.100878](https://doi.org/10.1016/j.iheduc.2022.100878)

Lyu, W., & Liu, J. (2021). Soft skills, hard skills: What matters most? Evidence from job postings. *Applied Energy*, 300. [https://doi.org/10.1016/j.apenergy.2021.117307](https://doi.org/10.1016/j.apenergy.2021.117307)

Mac Giollabhui, N. (2021). Inflammation and depression: Research designs to better understand the mechanistic relationships between depression, inflammation, cognitive dysfunction, and their shared risk factors. *Brain Behav Immun Health*, 15, 100278. [https://doi.org/10.1016/j.bbih.2021.100278](https://doi.org/10.1016/j.bbih.2021.100278)

Montandon, J. E., Politowski, C., Silva, L. L., Valente, M. T., Petrillo, F., & Guéhéneuc, Y.-G. (2021). What skills do IT companies look for in new developers? A study with Stack Overflow jobs. *Information and Software Technology*, 129. [https://doi.org/10.1016/j.infsof.2020.106429](https://doi.org/10.1016/j.infsof.2020.106429)
Orhan Göksün, D., & Gürsoy, G. (2019). Comparing success and engagement in gamified learning experiences via Kahoot and Quizizz. *Computers & Education, 135*, 15-29. https://doi.org/10.1016/j.compedu.2019.02.015

Rudd, K. E., Puttkammer, N., Antilla, J., Richards, J., Heffron, M., Tolentino, H., . . . Santas, X. M. (2019). Building workforce capacity for effective use of health information systems: Evaluation of a blended eLearning course in Namibia and Tanzania. *International Journal of Medical Informatics, 131*. https://doi.org/10.1016/j.ijmedinf.2019.08.005

Saada, N. (2020). Perceptions of democracy among Islamic education teachers in Israeli Arab high schools. *The Journal of Social Studies Research, 44*(3), 271-280. https://doi.org/10.1016/j.jssr.2020.05.003

Wang, W., & Ma, W. (2021). Construction of a Meaning Effectiveness Model: A new interpretation of meaning in life. *New Ideas in Psychology, 63*. https://doi.org/10.1016/j.newideapsych.2021.100876

Widad, A., & Abdellah, G. (2022). Strategies Used to Teach Soft Skills in Undergraduate Nursing Education: A Scoping Review. *J Prof Nurs, 42*, 209-218. https://doi.org/10.1016/j.profnurs.2022.07.010

Zainuddin, Z., Shujahat, M., Haruna, H., & Chu, S. K. W. (2020). The role of gamified e-quizzes on student learning and engagement: An interactive gamification solution for a formative assessment system. *Computers & Education, 145*. https://doi.org/10.1016/j.compedu.2019.103729