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Implementation of ICT-Based Quiz Design Training in Improving the Pedagogic Competence of Madrasah Ibtidaiyah Teachers in Sei Tulang Raso District

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Abstract

Pelatihan desain kuis berbasis Teknologi Informasi dan Komunikasi (TIK) penting dalam meningkatkan kompetensi pedagogik guru-guru Madrasah Ibtidaiyah di Kabupaten Sei Tulang Raso. Dalam konteks pendidikan modern, penggunaan TIK sebagai perangkat pembelajaran memiliki peran yang sangat signifikan. Penelitian ini bertujuan untuk mengeksplorasi dampak pelatihan desain kuis berbasis ICT terhadap kemampuan pedagogik guru Madrasah Ibtidaiyah. Penelitian ini menggunakan pendekatan kuantitatif dan kualitatif untuk mengumpulkan data dari guru yang mengikuti pelatihan ini. Hasil penelitian menunjukkan bahwa pelatihan desain kuis berbasis ICT efektif dalam meningkatkan keterampilan pedagogik guru. Guru yang mengikuti pelatihan ini mengalami peningkatan dalam merancang kuis yang menarik dan interaktif menggunakan teknologi. Mereka juga mendapatkan pemahaman yang lebih baik tentang integrasi TIK dalam pembelajaran sehari-hari, yang pada gilirannya meningkatkan kualitas pengajaran di Madrasah Ibtidaiyah. Penelitian ini memberikan kontribusi penting bagi pemahaman kita tentang pentingnya pelatihan TIK dalam konteks pendidikan agama, khususnya di Madrasah Ibtidaiyah. Implikasi praktis dari penelitian ini adalah pengembangan strategi pelatihan yang lebih baik untuk mendukung guru dalam menghadapi tuntutan pembelajaran abad ke-21. Selain itu, hasil penelitian ini juga memberikan dasar kebijakan pendidikan yang lebih efektif dan relevan di masa mendatang.
Kata kunci: Desain kuis berbasis ICT, kompetensi peadagogik, guru Madrasah Ibtidaiyah, teknologi interaktif.

Implementation of ICT-Based Quiz Design Training in Improving the Pedagogic Competence of Madrasah Ibtidaiyah Teachers in Sei Tulang Raso District

Abstract

Information and Communication Technology (ICT)-based quiz design training is important in improving the pedagogical competence of Madrasah Ibtidaiyah teachers in Sei Tulang Raso District. In the context of modern education, the use of ICT as a learning tool has a very significant role. This study aims to explore the impact of ICT-based quiz design training on the pedagogical ability of Madrasah Ibtidaiyah teachers. This study used quantitative and qualitative approaches to collect data from teachers who attended this training. The results

showed that ICT-based quiz design training was effective in improving teachers' pedagogic skills. Teachers who attended this training experienced an increase in designing engaging and interactive quizzes using technology. They also gained a better understanding of the integration of ICT in daily learning, which in turn improved the quality of teaching in Madrasah Ibtidaiyah. This research makes an important contribution to our understanding of the importance of ICT training in the context of religious education, particularly in Madrasah Ibtidaiyah. The practical implication of this research is the development of better training strategies to support teachers in the face of 21st century learning demands. In addition, the results of this study also provide a basis for more effective and relevant education policies in the future.
Keywords: ICT-based quiz design, peadagogic competence, Madrasah Ibtidaiyah teacher, interactive technology.

Introduction

Education is one of the main pillars in the development of a country. To achieve quality education, teachers play a key role in shaping future generations. In the era of increasingly advanced information and communication technology (ICT), a learning approach that uses technology is a must. One form of application of technology in learning is through ICT-based quiz design. ICT-based quizzes provide an interactive and fun learning experience, while enhancing teacher and student technology skills. Madrasah Ibtidaiyah as a formal educational institution in Indonesia has an important role in educating the younger generation with religious values. In Sei Tulang Raso sub-district, Madrasah Ibtidaiyah teachers are faced with demands to improve the quality of their teaching in order to keep up with the times. Therefore, ICT-based quiz design training is an urgent need.

This study aims to explore the impact of ICT-based quiz design training on the pedagogical ability of Madrasah Ibtidaiyah teachers in Sei Tulang Raso District. Using quantitative and qualitative approaches, this study will present the results of the evaluation of the effectiveness of the training. It is hoped that this research can provide a deeper understanding of the importance of ICT integration in religious learning and contribute to the development of more technology-adaptive education policies. This introduction becomes the basis for describing the context, urgency, and purpose of this study. Through the implementation of ICT-based quiz design training, it is hoped that Madrasah Ibtidaiyah teachers in Sei Tulang Raso District can improve the quality of their teaching and simultaneously prepare students to face the demands of 21st century learning.

Method

This study uses a mixed methods approach that combines quantitative and qualitative methods to gain a comprehensive understanding of the implementation of ICT-based quiz design training in improving the pedagogical competence of Madrasah Ibtidaiyah teachers in Sei Tulang Raso District. Design This study adopts a pre-post experimental research design. Madrasah Ibtidaiyah teachers in Sei Tulang Raso sub-district will be measured in terms of pedagogic competence before and after attending ICT-based quiz design training. In addition, case studies and in-depth interviews will be conducted to understand teachers' experiences and perceptions during training. Data collection is carried out by qualitative collection i.e. initial measurement (Pre-Test): Before the training begins, teachers will take a pedagogic competency test. Training Implementation: Teachers will attend ICT-based quiz design training. Final Measurement (Post-Test): After the training

is completed, the teachers will take the pedagogic competency test again to measure improvement after the training. Furthermore, qualitative data are taken through case studies: Some teachers will be selected as case studies to see the impact of in-depth training on their teaching and conduct in-depth interviews with teachers who attended the training will be conducted to gain their views and experiences in more detail. Data analysis conducted by Quantitative using pedagogic competency test data will be analyzed using statistical methods of t-test (paired t-test) to measure significant differences before and after training. While qualitative data: obtained from case study data and in-depth interviews were analyzed using a content analysis approach to identify patterns and themes in teachers' experiences. Next, the interpretation of the results. Then the results of quantitative and qualitative analysis will be used to evaluate the impact of ICT-based quiz design training on the pedagogic competence of Madrasah Ibtidaiyah teachers in Sei Tulang Raso District. These findings will be used to provide recommendations to educational institutions and governments in the development of further training as well as the formulation of education policies that are more adaptive to technological developments.

Result and Discussion

Increased Pedagogic Competence

Teachers who attended the training showed significant improvement in the ability to design ICT-based quizzes. Improvement in the use of technology in everyday learning, improving communication and interactive skills in the classroom. The results are as follows:

Table 1. Percentage data of assessment results before teachers attend ICT-based quiz design training

	Teacher's Name	Understanding of ICT (%)	Ability to Design ICT-Based Quizzes (%)	Integration of ICT in Learning (%)	Interactive Communication Skills (%)
1	Master A	60	45	55	50
2	Master B	55	40	50	48
3	Master C	58	48	52	49
4	Master D	62	50	54	52
5	Master E	57	42	48	47
6	Master F	59	47	51	49
7	Master G	63	52	55	53
8	Master H	56	39	49	46
9	Master I	61	49	53	51
10	Master J	58	46	52	50
11	Teacher K	55	41	50	48
12	Master L	60	48	54	52
13	Master M	57	43	49	47
14	Master N	59	45	51	49
15	Master O	62	51	55	53
16	Master P	54	38	48	45
17	Master Q	61	50	53	51
18	Master R	56	42	49	47
19	Master S	58	44	50	48
20	Master T	55	40	48	46

From the results of the assessment before ICT design training on 20 teacher samples, several analyses can be taken as follows:

1. Understanding of ICT: The average teacher's understanding of ICT before training is 58%. The majority of teachers have a below-average understanding, showing the potential to improve their knowledge of information and communication technology.
2. Ability to Design ICT-Based Quizzes: The average ability to design ICT-based quizzes is 44%. This shows that most teachers have limited skills in designing quizzes using technology.
3. ICT Integration in Learning: The average ICT integration in learning is 50%. Teachers have a better level of ability to integrate technology in their learning, although there is still room for improvement.
4. Interactive Communication Skills: The average interactive communication skill is 48%. This shows that most teachers have fairly good communication skills,

but there are still areas that can be improved.

5. Technology Skills Limitations: Most teachers do not yet have adequate technology skills, especially in designing ICT-based quizzes. This shows that training is an urgent need to improve the technological skills of these teachers.
6. Potential for Better ICT Integration: Although most teachers have a basic understanding of ICT integration in learning, there are opportunities to increase the use of this technology in everyday learning contexts.
7. Interactive Communication to Improve: Although the average interactive communication skills are relatively good, there is room for improvement for teachers to be more effective in communicating with students using technology.
8. Customized Training Requirements: This analysis highlights the need for customized training according to teachers' initial knowledge and skill levels. Training should be designed to empower teachers with the skills necessary to integrate ICT effectively into their learning.
9. Improved Teaching Quality: By improving technology skills and ICT integration, it is hoped that the teaching quality of Madrasah Ibtidaiyah teachers in Sei Tulang Raso sub-district can improve significantly, creating a better learning experience for students.

Table 2. Percentage data on the results of teacher pedagogic competency assessment after attending ICT design training, based on data from 20 samples.

No.	Teacher's Name	Understanding of ICT (%)	Ability to Design ICT-Based Quizzes (%)	Integration of ICT in Learning (%)	Interactive Communication Skills (%)
1	Master A	75	80	85	78
2	Master B	80	85	88	79
3	Master C	78	82	86	77
4	Master D	82	88	90	82
5	Master E	77	83	87	79
6	Master F	79	84	89	80
7	Master G	83	89	91	83
8	Master H	76	81	87	78
9	Master I	81	87	89	81
10	Master J	78	85	88	80
11	Teacher K	75	82	86	77
12	Master L	80	86	90	83
13	Master M	77	83	88	80
14	Master N	79	84	89	81
15	Master O	82	88	91	84
16	Master P	74	79	85	77
17	Master Q	81	87	90	82
18	Master R	76	82	88	79
19	Master S	78	84	89	80
20	Master T	75	81	87	78

From the results of the assessment of teacher pedagogic competence after attending ICT design training on 20 teacher samples, several analyses can be taken:

1. Understanding of ICT: The average teacher's understanding of ICT after training is 78%. There was an increase of 23% from before the training. This shows that the training successfully improved teachers' understanding of information and communication technology.
2. ICT-Based Quiz Design Ability: There has been an average increase of 21% in ICT-based quiz design skills. The teachers

have developed their technical skills in designing quizzes that are interactive and relevant to the curriculum.

3. ICT Integration in Learning: There has been an average increase of 19% in ICT integration in everyday learning. Teachers are able to integrate technology more effectively in the learning process, creating a more interactive and engaging learning environment.
4. Improved Interactive Communication Skills: Interactive communication skills also improved by an average of 18%. Teachers can more effectively communicate with students using technology, increasing student engagement in learning.
5. Stability and Uniformity: It is seen that there is not only an increase in individuals, but there is also a uniformity of improvement across the sample of teachers. This demonstrates the success of the training in providing consistent understanding and skills to all participants.
6. Significant Improvement: The assessment results showed significant improvement in all aspects of teacher pedagogic competence after attending ICT design training. This confirms the effectiveness of training in improving teachers' knowledge and skills in using technology in learning.
7. Positive Influence on Learning: With improved ICT-based quiz designing skills and better technology integration, teachers can create more interactive and participating learning experiences for students, improving the overall quality of learning.
8. Enhanced Communication Skills: Improved interactive communication skills show that teachers can better adapt to developments in communication technology, enriching students' learning experience.
9. Positive Omens for the Future: With these positive results, teachers are now better prepared to take on the challenges of technology in education and can continue to develop technology-based learning in their classrooms. This creates a solid foundation for relevant and effective education in the digital age.

Positive Response from Students and Parents

Students and parents provide positive feedback towards the use of technology in learning, feel more engaged and support their children's learning.

Table 3 percentage of positive student response results in participating in learning using ICT-based quizzes

No.	Evaluation Aspect	Percentage of Positive Student Responses
1	Fun in Learning	90%
2	Engagement in Learning	85%
3	Increased Concentration	88%
4	Satisfaction with the Use of Quizzes	92%
5	Assessment of Question Quality	87%
6	Confidence in Answering	86%
7	Motivation to Learn	89%
8	Involvement in Class Discussions	84%

From the results of positive responses of students in participating in learning using ICT-based quizzes can provide an idea of the effectiveness of this learning method. The following is an analysis of the results of the table of the percentage of positive responses of students:

1. Fun in Learning (90%): Students' enjoyment levels indicate that the use of ICT-based quizzes makes learning more interesting and enjoyable for them.

Students who enjoy learning tend to be more motivated and actively participate in the learning process.

2. Engagement in Learning (85%): A high level of engagement signifies that ICT-based quizzes can sustain students' attention. Student involvement in learning is key to ensuring deep understanding and good information retention.
3. Increased Concentration (88%): Increased student concentration suggests that ICT-based quizzes can help students stay focused on the learning material. This is important to ensure deep understanding and effectiveness of learning.
4. Satisfaction with the Use of Quizzes (92%): A high level of satisfaction indicates that students are satisfied with the use of quizzes as a learning method. Student satisfaction is an important indicator of the success of learning methods.
5. Assessment of Question Quality (87%): A positive rate in the assessment of question quality indicates that students consider the quiz questions to be quality and relevant. Good questions can test students' understanding well and encourage them to think critically.
6. Confidence in Answering (86%): High self-confidence indicates that ICT-based quizzes help increase students' confidence in answering questions. Self-confidence is an important factor for increasing student participation in class discussions and other learning activities.
7. Motivation to Learn (89%): A high level of motivation signifies that ICT-based quizzes encourage students to learn with passion. Motivation is a key factor in effective and continuous learning.

The assessment indicators are seen from:

a) Enthusiasm for Learning: Children show an increase in their enthusiasm for the learning process. They become more excited and interested in learning through the use of ICT-based quizzes.
b) Initiative in Learning: Children show greater initiative in taking part in learning activities. They actively seek out additional material and feel motivated to explore topics relevant to their learning.
c) Active Participation in the Classroom: Children tend to be more active in participating in class discussions, answering questions, and contributing to group learning activities. They feel more comfortable speaking in front of the class.
d) Willingness to Learn More: Children show greater interest in continuing learning outside of school time. They may express a desire to read more books or seek additional information on the topic they are studying.
e) Increased Self-Confidence: Children feel more confident in their learning abilities. They have greater self-confidence that they can cope with learning tasks and understand the material better.
f) Improved Academic Outcomes through daily grades.
g) Pride in Achievements: Children take pride in their achievements in learning. They have a higher sense of confidence and achievement because they feel successful in understanding and mastering the subject matter.
h) Interest in certain Subjects: Increased learning motivation can also create greater interest in certain subjects. Children may begin to develop a deeper interest in the topic or subjects they are learning through ICT-based quizzes.
i) Participation in Extracurricular Activities: Children who are motivated to learn tend to be more

active in extracurricular activities related to learning, such as science clubs, debates, or research projects.

j) Improved Metacognitive Skills: Children begin to develop metacognitive skills, i.e. the ability to understand and manage their own learning process. They can identify effective learning strategies and better monitor their progress.

k) This increase in learning motivation indicators reflects that learning methods using ICT-based quizzes have succeeded in creating a learning environment that motivates, arouses interest, and inspires children to learn with high enthusiasm and enthusiasm.

l) Engagement in Class Discussions (84%): The level of engagement in class discussions indicates that students feel more active in discussions after taking the quiz. Involvement in discussions helps students to develop speaking and argumenting skills.

m) Effective Learning Methods: Positive results in all aspects show that ICT-based quizzes are an effective learning method. Students feel happy, engaged, and motivated, while also increasing confidence and engagement in learning.

n) Enhancing the Learning Experience: ICT-based quizzes not only measure students' knowledge, but also enhance their learning experience. Students feel more engaged and satisfied with the use of technology in learning.

o) Contribution to Active Learning: These results suggest that ICT-based quizzes can support an active learning approach where students are actively engaged, think critically, and create a dynamic and interactive learning environment.

p) Importance of Question Quality: A positive assessment of question quality emphasizes the importance of designing challenging and relevant quiz questions. Good questions are key to testing students' understanding well and improving their learning.

In addition to students who gave positive responses related to changes in teacher learning patterns involving ICT with quiz giving patterns, parents also gave positive responses regarding changes in their children's learning, while the survey results with positive responses from parents in participating in learning using ICT-based quizzes provide an important picture of the effectiveness of this learning method from the parents' point of view. Analysis of the results of the student positive response percentage table can provide valuable insights into the acceptance and impact of this learning method. Here is an analysis of those results:

1. Parental Trust in Learning Effectiveness (90%): A high level of trust indicates that parents believe that learning methods using ICT-based quizzes are effective. Parental trust is a key factor in measuring the success and acceptance of learning methods.
2. Increased Student Interest and Engagement (88%): Parents reported increased student interest and engagement in learning after using ICT-based quizzes. This is a positive sign that this method successfully makes learning more interesting for students.
3. Increased Concentration and Learning Focus (87%): Increased student concentration and learning focus are indicators that ICT-based quizzes help students focus on learning material. Increased focus can improve understanding and retention of information. Indicators of increased

focus on parents' positive response surveys after their children have taken part in learning using ICT-based quizzes can include the following aspects:

a) Extension of Concentration Time: Children demonstrate the ability to maintain their concentration on learning material for longer periods of time when using ICT-based quizzes. They may not be easily distracted and can focus on studying for a longer time.
b) Increased Participation in Discussions: Children become more active in class discussions related to the material they are learning through ICT-based quizzes. They can provide more detailed and focused responses when participating in group discussions.
c) Decreased Absenteeism and Absenteeism Rates: Children's school attendance increases because they feel interested and focused on learning through ICT-based quiz methods. They tend to be more diligent in attending because they are looking forward to an interesting learning experience.
d) Distraction Coping Ability: Children can cope with distractions that may arise around them and stay focused on their learning tasks while using ICT-based quizzes. They have the ability to re-engage in learning after the distraction has passed.
e) Improved Memory: Children show improvement in retaining the information and concepts they learn through ICT-based quizzes. They can remember learning material better due to their increased focus during learning.
f) Improved Ability to Overcome Challenges: Children show better ability to face and overcome learning challenges. They become more persistent and focused when faced with difficult or complex material, striving to understand it better.
g) Learning Skills: Children can better use the knowledge they gain through ICT-based quizzes in real situations or in the context of other learning tasks and projects. They are able to apply the concepts they have learned with great focus.
h) Improved Quality of Work and Tasks: The quality of work and tasks produced by children increases. They can accomplish tasks better, in greater detail, and with a greater focus on important details.
i) This improvement in focus indicators reflects that learning methods using ICT-based quizzes have helped children to focus their attention on learning, produce more immersive learning experiences, and improve their skills in understanding, analyzing, and applying subject matter.

4. Technology Skills Development (92%): The high percentage in technology skills development signifies that parents see the added value of this learning method in teaching technology skills to their children. Technology skills are key skills in the digital age.
5. Increased Child Interest in Learning (89%): Parents saw an increase in their children's interest in learning after using ICT-based quizzes. High interest can increase student motivation to learn and actively participate in class.
6. Improved Communication and Cooperation Skills (86%): The level of improvement in communication and cooperation skills indicates that ICT-based quizzes encourage social interaction and cooperation between students. These

skills are important for children's social development.

7. Parental Acceptance: Parents' positive response rate indicates that they accept and support the use of ICT-based quizzes in their children's learning. Parental acceptance is an important factor for the success and continuity of learning methods.
8. Increased Learning Engagement and Interest: Increased student engagement, interest, and learning focus is a positive outcome of using ICT-based quizzes. This method successfully makes learning more interesting and motivates students to learn with enthusiasm.
9. Technology-Based Skills Development: The high percentage in technology skills development signifies that this method is effective in teaching skills relevant to the modern world. This is important to prepare students for the demands of a future dominated by technology.
10. Improvement in Social Skills: Improvements in communication and cooperation skills emphasize the importance of these methods in supporting students' social skills development. Interaction and cooperation in learning are important aspects in the development of children's personalities.
11. Positive Encouragement for the Use of Technology in Education: Parents' positive responses provide positive encouragement to further integrate technology in learning. This creates opportunities to improve the quality of learning and helps students develop skills relevant to an ever-evolving world.

Conclusion

This community service has succeeded in improving the pedagogical competence of Madrasah Ibtidaiyah teachers in Sei Tulang Raso District through the use of ICT-based quizzes in learning. In the long run, it is hoped that this will help improve the quality of education in MI and prepare students for an increasingly digitalized future. ICT-based quiz design training in Sei Tulang Raso sub-district has provided participants with understanding and skills related to the use of technology in education. Participants have acquired knowledge on how to design interactive quizzes using information and communication technology (ICT). They have also become familiar with various online quiz creation platforms and tools. In addition, this training has opened participants' insights into the potential of ICT-based education in increasing student engagement and enhancing learning.

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