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DEVELOPMENT OF ICT-BASED ACADEMIC SUPERVISION TO IMPROVE THE PROFESSIONAL COMPETENCE OF SANTA LUSIA KINDERGARTEN TEACHERS IN KEUSKUPAN AGUNG MEDAN

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Abstract: *This research aims to develop an academic supervision model based on Information and Communication Technology (ICT) to improve the professional competence of teachers at Santa Lusia Kindergarten, Keuskupan Agung Medan. The method used is Research and Development (R&D) with the ADDIE model (Analysis, Design, Development, Implementation and Evaluation). The research results show that the implementation of ICT-based academic supervision significantly increases teachers' professional competence, especially in mastering material, applying innovative learning methods, and using digital media in the learning process. ICT-based supervision also increases collaboration between teachers and efficiency in reporting and evaluating performance.*

Keywords: *Academic Supervision, ICT, Kindergarten Teachers, Model Development;Professional Competence*

1. INTRODUCTION

Improving the quality of education is a top priority in Indonesia, especially at the early childhood education (PAUD) level. Teacher professional competence is one of the key factors that determines the quality of education. Therefore, academic supervision is important to ensure that teachers can develop their abilities optimally. Information and Communication Technology (ICT) has proven effective in various educational fields, including academic supervision. This research aims to develop an ICT-based academic supervision model at Santa Lusia Kindergarten in order to improve teachers' professional competence.

2. METHODOLOGY

This research uses the Research and Development (R&D) method with the ADDIE model approach which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation.

1. Analysis: Conduct a needs analysis to identify problems and needs in academic supervision at Santa Lusia Kindergarten.
2. Design: Designing an ICT-based academic supervision model that suits your needs.
3. Development: Developing ICT tool applications that will be used in supervision.
4. Implementation: Implementing an ICT-based supervision model at Santa Lusia Kindergarten.
5. Evaluation: Evaluate the effectiveness of the supervision model that has been implemented.

3. RESULTS AND DISCUSSION

The research results show that the ICT-based academic supervision model has several advantages:

1. Material Mastery: Teachers can more easily access various digital learning resources that help them deepen their mastery of the material.
2. Innovative Learning Methods: The use of ICT applications and devices helps teachers implement more varied and interesting learning methods.
3. Utilization of Digital Media: Teachers are more skilled in utilizing digital media to support the learning process.
4. Collaboration and Efficiency: ICT-based supervision increases collaboration between teachers and speeds up the reporting and performance evaluation process.

4. DATA AND ANALYTICS

To support the writing of this research, data and analysis were compiled covering each stage of the ADDIE model used.

1. Analysis

Requirement Data:

- Observation: Observe teaching and learning activities at Santa Lusia Kindergarten.
- Interviews: Conduct interviews with teachers, principals and related staff to identify needs and problems in academic supervision.
- Questionnaire: Distribute questionnaires to teachers to collect data about the challenges they face in teaching and supervision.

Analysis Results:

- Many teachers find it difficult to access up-to-date learning resources.
- Existing academic supervision is less efficient and does not utilize technology.
- There is a need to improve teachers' digital skills.

2. Design

Design Data:

- Supervision Model Design: Designing the structure of an ICT-based academic supervision model, including main components such as the digital platform to be used, the type of training required, and collaboration mechanisms between teachers.
- Technical Specifications: Determine software and hardware requirements, as well as the main features that will be in the supervision application.

Design Results:

- ICT-based supervision model that includes e-learning platforms, online discussion forums and digital evaluation tools.
- Key features include online training modules, access to digital learning resources, and an automated performance reporting system.

3. Development

Development Data:

- Application Development: Developing a designed ICT application or platform, conducting initial trials with several teachers to get feedback.
- Teacher Training: Develop training programs for teachers in the use of ICT applications and digital devices in learning.

Development Results:

- The ICT-based academic supervision application has been developed and tested.
- The designed training program successfully improves teachers' basic digital skills.

4. Implementation

Implementation Data:

- Implementation of Supervision: Implementing an ICT-based supervision model at Santa
- Lusia Kindergarten during a certain period.
- Monitoring and Evaluation: Collecting data during implementation through observations,interviews and questionnaires to measure the effectiveness of the supervision model.

Implementation Results:

- Teachers show improvements in mastery of subject matter, use of innovative learning
- methods, and use of digital media.
- Collaboration between teachers increases, and the reporting and performance evaluation process becomes more efficient.

5. Evaluation

Evaluation Data:

- Teacher Performance: Assessing changes in teacher professional competence before and after implementation of the ICT-based supervision model.
- Model Effectiveness: Using qualitative and quantitative data to evaluate how well ICT-based supervision models improve teachers' professional competence.

Evaluation result:

- Data shows a significant increase in teachers' professional competence, especially in the aspects of material mastery, learning methods, and use of digital media.
- The ICT-based supervision model is effective in increasing efficiency and collaboration in the supervision process.

Data Analysis

Descriptive statistics:

- Using average, median, and standard deviation to describe the level of improvement in teacher competence.
- Comparing pre-test and post-test results to measure changes in teacher professional
- competence.

Qualitative Analysis:

- Thematic analysis of interviews and questionnaires to understand teachers' experiences in using ICT-based supervision models.
- Identify key themes such as improving digital skills, effectiveness of learning methods, and the impact of teacher collaboration.

Data Table:

Competency Aspects	Before Implementation	After Implementation	Improvement (%)
Material Mastery	65	85	30
Innovative Learning Methods	60	80	33.3
Utilization of Digital Media	55	90	63.6

Competency Aspects	Before Implementation	After Implementation	Improvement (%)
Collaboration Between Teachers	70	95	35.7

(Table showing the increase in teacher competence in various aspects after implementing the ICT-based supervision model)

With this data and analysis, this research provides strong evidence that the development of ICT-based academic supervision can significantly improve teacher professional competence, especially at Santa Lusia Kindergarten. This research also provides recommendations for implementing similar models in other educational institutions to improve the overall quality of education.

4. CONCLUSION

The development of an ICT-based academic supervision model at Santa Lusia Kindergarten has succeeded in increasing teacher professional competence. The application of ICT in academic supervision not only helps teachers in mastering learning materials and methods, but also increases efficiency and collaboration in the supervision process. This research suggests that ICT-based supervision models can be adopted in other schools to improve the overall quality of education.

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