http://infor.seaninstitute.org/index.php/infokum/index
JURNAL INFOKUM, Volume 10, No.4, October 2022 ISSN : 2302-9706

THE DESIGN OF KNOWLEDGE MANAGEMENT SYSTEM APPLICATIONS IN THE FORUM OF MGMP TEACHERS AT SMK NETWORK COMPUTER ENGINEERING EXPERTISE

Gunawan Ali [1], Wulan Andang Purnomo [2], Fauzi Tri Yuniko[3]
[1,2, 3]Fakultas Ilmu Komputer Universitas Dharmas Indonesia
goenawanalie@gmail.com[1], wulanap2@gmail.com[2], fauzioptiplex@gmail.com[3]

Article Info
Received, 01/10/2022
Revised , 29/10/2022
Accepted, 30/10/2022

Abstract

This research discusses the knowledge management information system to improve the skills and professional competence of vocational school teachers in the field of network computer engineering expertise. This research was conducted on the basis that the network computer engineering MGMP forum was not yet optimal in increasing the skills and competence of the vocational school teachers who were members of the MGMP forum. This research is to develop and test the knowledge management system application through validity and practicality tests. The research methodology used is development research with 10 steps of activity. Analysis of the research data shows the knowledge management system application is valid (0.89) and practical (86.98). The results of this study can be concluded that the knowledge management system application that has been developed meets the feasibility of being used.

Keywords: Knowledge Management System, MGMP Forum, Vocational, Network Computer Engineering

1. INTRODUCTION

Vocational High School (SMK) is a vocational education that is prepared to produce graduates who are ready to work in accordance with the National Education System Law no. 20 of 2003, therefore it is necessary to prepare teachers who have good professional competence. One way to improve the professional competence of educators is through the Subject Teacher Consultation (MGMP). MGMP Computer Network Engineering is a forum or forum to bring together teachers of Computer Network Engineering subjects.

The role of the Network Computer Engineering MGMP forum is not yet optimal in developing professional competence, even though if you look at the usefulness of this forum it is very important to support the improvement and development of the professional competence of teachers of Vocational High School of Network Computer Engineering Expertise. The ineffectiveness of this kind of forum is reinforced based on the results of field studies conducted with teachers who are members of the Computer Network Engineering Subject Teacher Conference (MGMP) namely several teachers from Vocational High Schools in the Sijunjung regency (SMK N 7 Sijunjung) and several Vocational High School teachers in Dharmasraya regency (SMK N 1 Pulau Punjung and SMK N 1 Sitiung) stated that the implementation of professional competency development through this forum was not yet optimal.

This kind of sharing event is still limited to routine meetings in the form of the Network Computer Engineering MGMP which is held once in 2 or 3 months, so it can be said that the sharing of resources at the Network Computer Engineering MGMP has not functioned optimally in increasing the professional competence of Vocational High School teachers of Network Computer Engineering. . This condition reflects that knowledge management in the Network Computer Engineering MGMP has not been conceptualized and has not been managed properly so that it has not provided mutual benefits among its members. Given the importance of the existence of MGMP to facilitate educators in developing professional competence, it is necessary to conceptualize and develop a model for developing professional

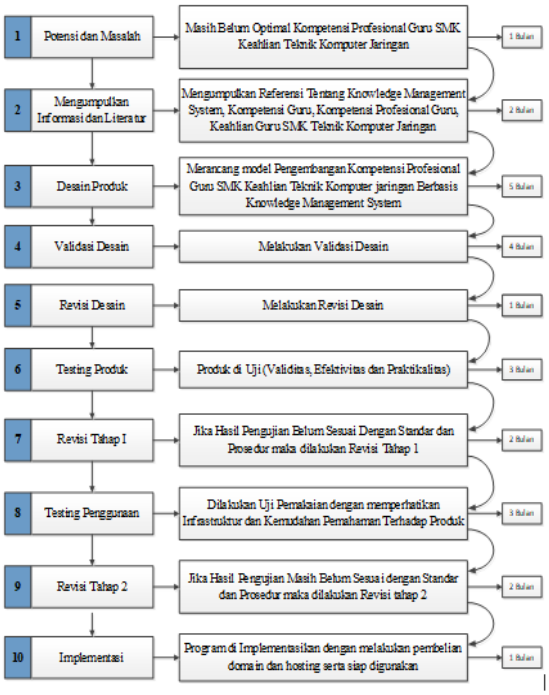
competence for teachers of Vocational High Schools with Computer Engineering Skills Network based on Knowledge Management Systems. Knowledge Management System is a system designed to document, classify and disseminate knowledge.

Another reason is the existence of a professional competency development model for Vocational High School teachers with Computer Network Engineering Skills based on a Knowledge Management System, then all matters relating to Computer Network Engineering expertise will be well documented and distributed to all teachers appropriately and quickly. All teachers can share knowledge, experience, both in the field of learning, career or expertise. Thus, the unity of Vocational High School teachers with Computer Network Engineering expertise who have superior professional competence will be realized, become facilitators and partners for students to achieve learning goals in bringing students to achieve their goals

2. METHOD

The research applied the Research and Development research method. In designing this research, there are 10 steps that can be done, namely, (1) Potential and problems: still not optimal development of professional competence of teachers of SMK Networking Computer Engineering Expertise. The development of a Knowledge Management System as a form of Knowledge Sharing among teachers of Vocational High Schools with Computer Engineering Expertise Networks can provide opportunities for teachers and institutions to share knowledge in order to develop teacher professional competencies and as a supporter of competency empowerment through Subject Teacher Consultations (MGMP); (2) Gathering Information and Literature: this research requires a lot of information, journals and other literature such as literature on Knowledge Management System, Knowledge Engineering and Teacher Professional Competence; (3) Product Design: the product of this research is in the form of a Knowledge Management System application which will later be used in developing the professional competence of teachers of SMK Networking Computer Engineering Expertise; (4) Design Validation: The process of validating a product that has been built can be carried out with several experts in their field, which is adjusted to the needs of the system being built. Experts will provide notes on the advantages and disadvantages of the existing system, as well as suggestions. (5) Design Revision: the next process is to revise the Design from the notes of experts who have validated the system: (6) Product Testing: Testing cannot be carried out directly on the product that has been designed

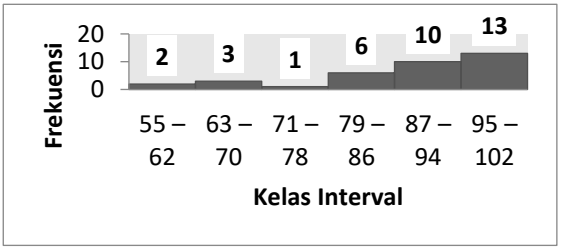
The product being employed is a finished product that is ready for use. This product can be tested. Testing can be done by comparing the old system process with the new system process on effectiveness, efficiency; (7) Revision of Product Phase 1: from the testing process carried out there is a record of system weaknesses, it can be repaired and concluded that the new system built can provide solutions for the weaknesses of the old system; (8) Usage Trial: the new system that has been built and tested has been implemented, in the process of application or trial, keep recording the weaknesses or shortcomings of the new system, so that it can be developed again at the next stage; (9) Product Revision Phase 2: The new system that has been implemented is expected to always evaluate the work system; (10) Implementation: After all testing and validation have been completed, the last stage of the Research and Development method is implementation, where the products that have been made are ready to be used and distributed. This research was conducted in West Sumatra Province by taking a sample of teachers who are members of the West Sumatra Network Computer Engineering Subject Teacher Conference



Picture 1. Research Methods for Designing Applications for KMS-PKPG SMK TKJ

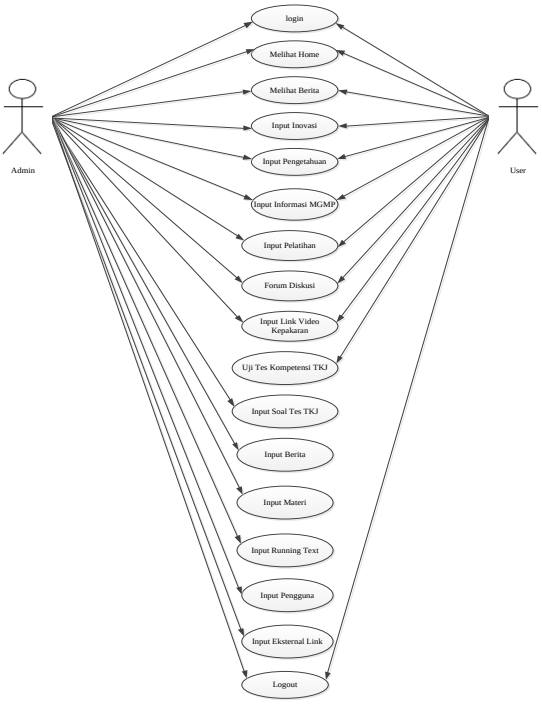
3. RESULTS AND DISCUSSIONS

The high need for the Knowledge Management System application as a training medium to increase the professional competence of vocational school teachers with the expertise of Network Computer Engineering reaches a percentage of 83.65%, meaning that the need for this system is high and very much needed. Figure 2 is the result of the distribution of data frequency needs analysis.



Picture 2. Frequency Distribution of Needs Analysis Data

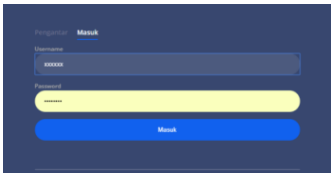
In building an application, a system design analysis is needed, the Use-Case Diagram is a functional design by looking at what activities are carried out by the actors involved in this system. Figure 3 is a Use-Case Diagram, there are two actors, namely admin and user (teacher).



Picture 3. *Use Case Diagram*

1) User Page

a) Login Display Before entering the main system page, the user must first log in according to their respective accounts



Picture 4. *Login Screen*

a) Main Page

On the main page there are menu tabs that will be used by the user. On the main page view can also be seen news related to the field of Computer Network Engineering expertise that is inputted by the admin.

Picture 5. Main Screen

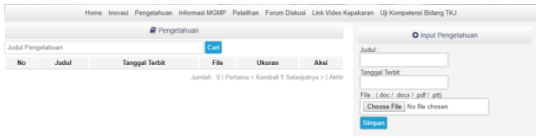
a) Innovation Input Page

In this menu tab, the user can input innovation data according to the field of expertise in Network Computer Engineering.

Picture 6. Innovation Input Page

a) Knowledge Input Page

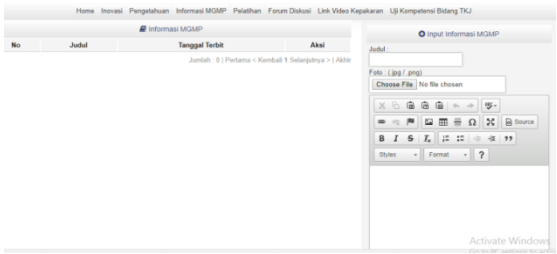
In this menu tab, the user can input knowledge data according to the area of expertise in Computer Network Engineering.



Picture 7. Knowledge Input Page

a) MGMP Information Input Page

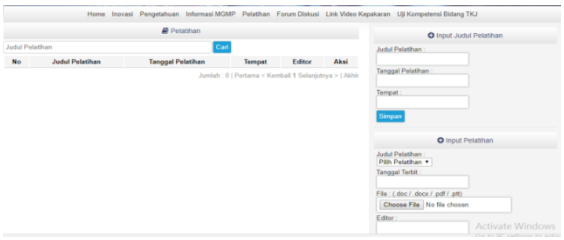
In this menu tab, the user can input information related to MGMP in the field of Computer Network Engineering expertise.



Picture 8. MGMP Information Input Page

a) Training Input Page

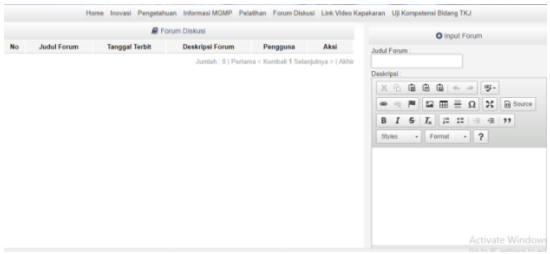
In this menu tab, the user can input the training data followed by the user/user according to the area of expertise in Computer Network Engineering.



Picture 9. Training Input Page

a) Discussion Forum Page

In this menu tab, users can conduct discussions on the discussion forum page



Picture 10. Discussion Forum Page

a) Expert Video Link Input Page

Users can input links to videos related to Computer Network Engineering expertise

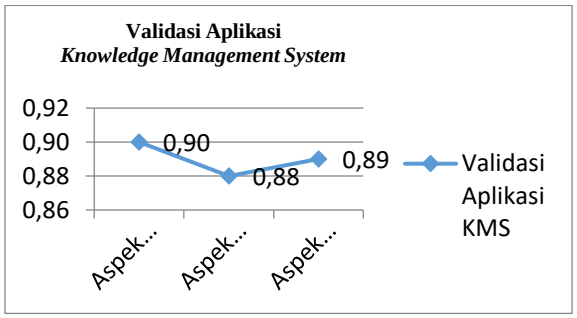
Picture 11. Expert Video Link Input Page

a) Competency Test Page

This page is used by the user to conduct a competency test in the field of Computer Network Engineering.

Picture 12. Competency Test Page

The following are the results of the validity test of the Knowledge Management System Application from the validator: 1) Design Aspect has an average score of 0.90 with a valid category, 2) Operational Aspect has an average score of 0.88 with a valid category, and 3) Benefit Aspect has an average score an average of 0.89 with a valid category.



Picture 13. Knowledge Management System Application Validation Graph

The results of the practicality test of Knowledge Management System Applications in the perceptions of participants (Teachers of Vocational Computer Network Engineering) with an average value of 88.04% in the Practical category, the perception of IT Practitioners/Assistant Teachers with an average value of 85.33% in the Practical category, Administrator perceptions with a score of an average of 87.56% in the Practical category.

4. CONCLUSIONS

The conclusion of this research is the development of professional competence of teachers of Vocational High School with Computer Engineering Skills Network based on Knowledge Management System. The results are very significant and teachers are motivated to develop their professional competencies and institutional development becomes faster because of the Knowledge Management cycle pattern of knowledge, all knowledge is archived correctly and can be accessed easily. Suggestions from this study, it is necessary to have a thorough evaluation of the Knowledge Management System application so that the purpose of this research is to improve the professional competence of teachers of Vocational High Schools with Computer Network Engineering Expertise can be achieved.

References

[1] K. Rukun, A. Huda, D. Irfan, M. Ihsan and G. Ali, "The Practically of Training Models Based on Knowledge Management System," in *Proceedings of the 5th UPI International on Technical and Vocational and Training*, Bandung, 2018.

[2] G. Ali, K. Rukun and Syahril, "Training Model Based Knowledge Management System for Vocational High School Teachers Skill Engineering Computer Network," 2017.

[3] E. M. Perdana, D. Manongga and A. Iriani, "Model Konseptual Bagi Pengembangan Knowledge Management di SMA Menggunakan Soft System Methodology," *Jurnal Teknologi Informasi dan Ilmu Komputer*, vol. 6, no. 2, p. 169, 2019.

[4] M. H. Wei, X. Z. Chen, X. X. Zhan, Z. X. Zhang, S. J. Yu and W. R. Yan, "The Effect of a Web Based Training for Improving Primary Health Care Providers Knowledge About Diabetes Mellitus Management in Rural China: A Pre-Post Intervention Study," *PloS ONE*, vol. 14, no. 9, pp. 1-11, 2019.

[5] T. I. Prasetyo and G. Gintoro, "Pengembangan Model Pelatihan Online Berbasis Web untuk Keunggulan Bersaing pada PT Intellisys Tripratama," *CommIT (Communication and Information Technology) Journal*, vol. 4, no. 2, p. 109, 2010.

[6] M. Nurwegiono, S. Nurdiati and S. H. Wijaya, "Pengembangan Sistem Manajemen Pengetahuan di Organisasi Asosiasi Alumni Program Beasiswa Amerika-Indonesia (ALPHA-I)," *Jurnal Teknologi Informasi dan Ilmu Komputer*, vol. 7, no. 3, p. 511, 2020.

[7] A. C. Wardhana, Y. Nurhadryani and S. Wahyuni, "Knowledge Management System Berbasis Web Tentang Budidaya Web-Based Knowledge Management System Concerning Hydroponic Cultivition to Support Smart Society," *JTIIK*, vol. 7, no. 3, 2020.

[8] I. Kaniawulan, M. R. Muttaqin and D. Ulhaq, "Sistem Manajemen Pengetahuan Forum DIskusi Dosen Knowledge Management System of Lecture Discussion Forum," *Jurnal Teknologi Informasi dan ILmu Komputer (JTIIK)*, vol. 7, no. 1, pp. 51-58, 2020.

[9] Vitriani, G. Ali, D. W. Nanda, Syahril, Y. Desnelita, R. Satria and U. Verawadina, "The Validity of Training Models Based on Knowledge Management Systems," *International Journal of Innovation, Creativity and Change*, vol. 12, no. 12, pp. 726-741, 2020.