THE DESIGN OF OBJECT-ORIENTED KNOWLEDGE MANAGEMENT SYSTEM FOR TEACHERS IN ISLAMIC BOARDING SCHOOL OF ROUDLATUL QURAN METRO CITY

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ABSTRACT

Knowledge is contextual, relevant and actionable information. Knowledge is different from data and information, because it is inside a person's mind. To make knowledge become intangible asset that can be managed and used by many people requires a knowledge management.

Islamic Boarding School of Roudlatul Quran Metro city is a educational foundation with resourceful teaching staffs, but they are not well-organized, so their teaching skill is considered static because they are not accustomed to having a share of teaching knowledge and materials with others. With the implementation of knowledge management, it is expected that the teachers' teaching and subject knowledge will become intangible assets that can used optimally.

The development of Knowledge Management System (KMS) uses Knowledge Management Roadmap (KMR). Knowledge Management Roadmap helps the development of KMS development implementation, from making Business-Driven knowledge, analysis and design, system development and implementation. The system development method done in the making of KMS uses Object Oriented System. The result of the research is a portal of web-based Knowledge Management System used as media to document and share subject knowledge extensively.

KEY WORDS: Knowledge Management System (KMS) Knowledge Management Roadmap (KMR), Object Oriented

1. INTRODUCTION

Along with the advancement of science and technology in the globalization era, it is obviously found the shift of science about potential resource management has inspired enterprises to be smarter and more innovative.

Along with the growth of business doers awareness of knowledge assets more important than other business resources. Consequently, it demands enterprises to have strategies to become one step ahead of other business competitiors. Knowledge asset exploration as intangible assets is done through knowledge management by making use of information technology.

Islamic Boarding School of Roudlatul Qur'an (PPRQ) is an educational foundation as *pondok pesantern.* Variety of subject knowledge, subjects and teachers competence is valuable to improve the excellence and educational quality.

At Islamic Boarding School of Roudlatul Qur'an (PPRQ), the varieties of subject knowledge are not synergistic from one teacher to another. The culture to share subject knowledge among teachers does not occur, so their teaching competence seems static. As an example, when one teacher is absent for a class, another teacher is not able to substitute the absent teacher to teach for certain reasons. It happens because the subject knowledge sharing

culture does not exist and there is no media as a portal or data base for keeping teaching materials.

2. THEORITICAL FRAMEWORK

Knowledge is information or announcement consciously known by a person. It cannot be restricted with description, hypothesis, concepts, theories, principles and procedures probably correct and advantageous. [1]

Overall, there are two types of knowledge: *tacit knowledge* and *explicit knowledge.*

1. Tacit knowledge

Tacit knowledge is knowledge generally existing in organizations. It is something we recognize and experience, but it is difficult to say clearly and completely. It is very hard to be transferred to another person because it is saved in everyone's mind in an organization according to his/her competence.

2. Explicit knowledge

Explicit knowledge is knowledge and experiences that can be uttered and described clearly and systematically in the form of data, patterns, specification,

products, manuals, common principles and others.

Based on the definition, Knowledge Management is a system constructed to document, classify, and share knowledge in an organization. In addition, another opinion says, *"knowledge is the systematic process of finding, selecting, organizing, distilling, and presenting information in a way that improves an employee's comprehension in a specific area of interest".*

3. Result and Discussion

3.1 *Knowlede Management Roadmap*

In developing *Knowledge Management System (KMS)* for teachers at Islamic Boarding School of Roudlatul Quran (PPRQ), the analysis and design of the systems use Knowledge Management Roadmap method [5]. It helps develop KMS development, starting from making a Business-Driven Knowledge Management, analysis and design, development and implementation of KMS. In general, there are 4 phases in Knowledge

Management : Infrastructure evaluation, Analysis, Design and KMS development, System development and Implementation .

Those four phases are elaborated into *Knowledge Management Roadmap,* as presented in the table below:

Table 3.1 *Knowledge Management Roadmap*

3.1: Infrastructure evaluation
3.1.1 Existing infrastructure analysis
3.1.2 Conformity of Business strategies and knowledge management
3.2 : Analysis, Design and KMS development
3.2.1 Design and KM architecture
3.2.2 KMS blue print
3.3: System development
3.3.1 System development phases
3.4 : Implementation

3.1.1 Conformity of Business Strategies and Knowledge Management

Conformity of business strategies and knowledge management applied at PPRQ is done using business analysis. Business analysis is done by using *Strength, Weakness, Opportunities and Threat* (SWOT) analysis. Table of SWOT analysis can be seen in the following table.

Table 3.2 SWOT Internal Analysis at PPRQ

Strength	Weakness
Qualified teachers	Many experienced teachers resign or leave the jobs
Reputation known out of cities	Facilities and infrastructure are incomplete.

Table 3.3 SWOT External Analysis at PPRQ

Opportunities	Threats
High public trust to PPRQ	Learning and teaching process in trouble
Increasing number of prospective students (*santri*) to register.	Decline of Public trust

3.2 Analysis, Design, and KMS Blue Print

The result of the research is a system of knowledge management in a web portal. The blue print is made to document the subject knowledge of the teachers. Overall, there are 3 components of KMS:

1. *Repositories* as media to save /store knowledge,
2. *Knowledge* as teaching knowledge,
3. *Network* as communication supports i.e. internet network,
4. *Culture* makes teachers share knowledge with others.

3.2. 1 System Development

In the development of KMS system, an object-oriented analysis and design is used. *Object orientation* is a technique for solving existing problems in the design or software development. The tool used is *Unified Modeling Language (UML).*

3.2.2 System Development Phases

At the system development process, there are several steps done repeatedly and every time focused on different parts of the system. The KMS system development phases done in the research can be seen below:
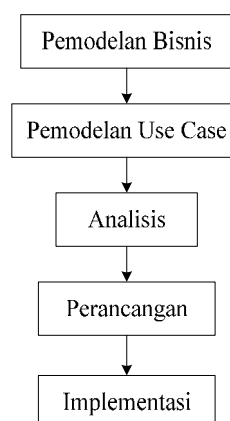

Figure 3.1 System Development Phases[4]

3.2.3 Business Modeling

At Business Modeling, the modeling of an organizational business system at PPRQ is done by including current business use case diagram, and business entities that interact with the organization. The current learning process at the *pesantren* can be seen in the figure below:
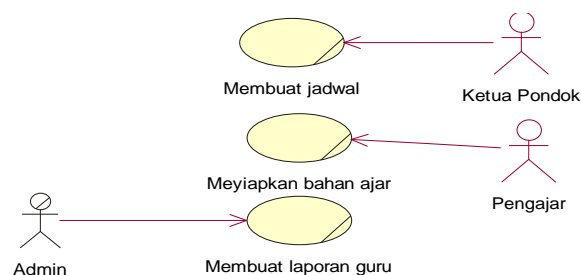

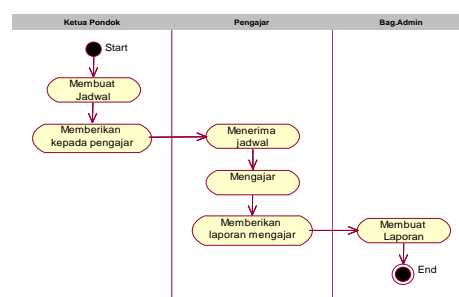**Figure 3.2 *Use Case* of Current Learning Process**

Figure 3.3 *Activity Diagram* of Current Learning Process

3.2.4 Use Case Modeling

At this phase, the modeling of proposed subject knowledge management system is done. The model made is a proposed learning *use case diagram.* The proposed

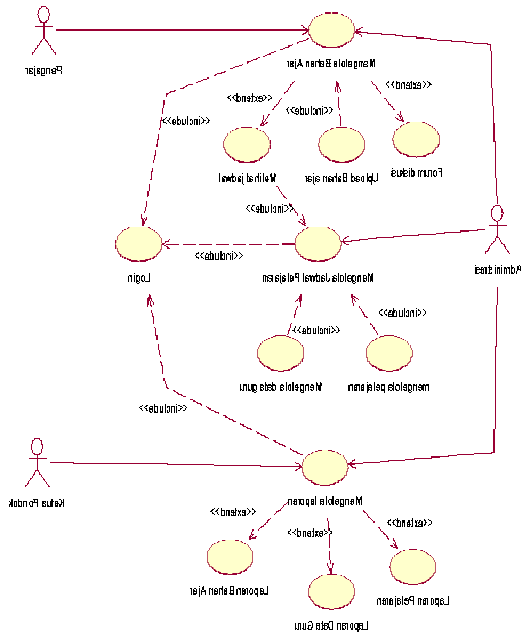learning process at the *pesantren* can be seen in the following table:

Figure 3.4. Use Case Diagram of A Proposed Learning Process

Teaching Material Management Activity

At this activity, a teacher or an administration staff can do activities such as uploading teaching materials, discussing and seeing the class schedule. The teaching material management activity can be seen in the following table:
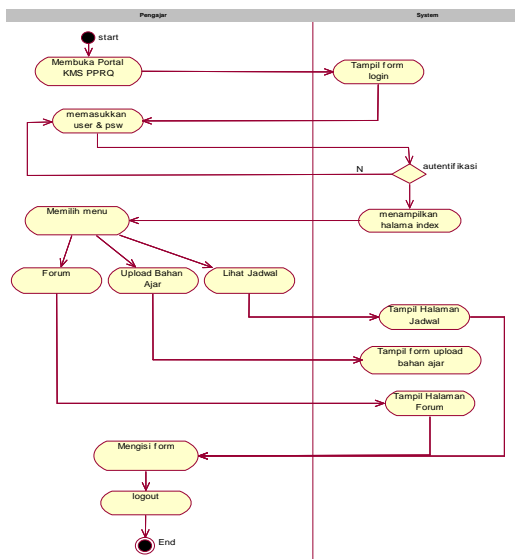

Figure 3.5. Diagram of Teaching Material Management Activity

Class Schedule Management Activity

An administrator manages class schedules to be seen by teachers. The class schedule management activities can be seen in the following table:
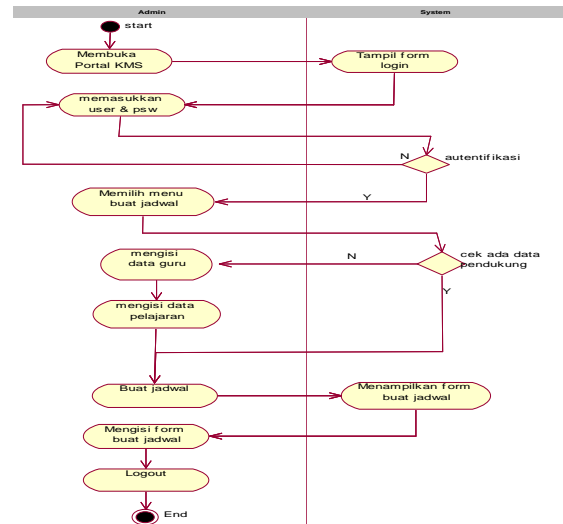

Figure 3.6. Diagram of Class Schedule Management Activity

After several models of KMS system are made at the object design phase, they are then translated into a programming language, data base, and hardware implementation fitted to a good use of software.

4. CONCLUSION

Based on the result of the research and the discussion, it can be concluded that :

1. Teaching material management plays an important role in supporting vison and mission of Islamic Boarding School of Roudlatul Quran (PPRQ).

2. With the subject knowledge share culture, the absence of teacher does not make any sense since another teacher is able and ready to substitute the main teacher.

3. The teacher can teach more than one subject because they have known teaching material knowledge shared by the main teacher.

5. SUGGESTION

The writer gives suggestion to Islamic Boarding School of Roudlatul Quran as follows:

1. There should be a teaching material knowledge management to promote/ reach Vision and Mission of Islamic Boarding School of Roudlatul Quran.

2. There should be a knowledge sharing culture to promote the teaching-learning process in accordance with vision and mission of Islamic Boarding School of Roudlatul Quran.

3. There should be an administrator or a portal staff to manage teaching material knowledge management to be used by the teachers.

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