

LEARNING DOCUMENT DESIGN FOR NEW EMPLOYEES IN SCOOTER LAYUR WORKSHOP USING SECI AND ADDIE METHODS

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Abstract

Scooter Layur Workshop is a company engaged in the European scooter workshop. Many scooters come to Scooter Layur Workshop, but Vespa 3V and Vespa Iget are the scooters who do the most of this workshop. Scooter Layur Workshop Has five mechanics, two of which are senior mechanics. In the Scooter Layur Workshop has two new mechanics who do not understand how to service and maintain a European scooter. This causes delays in service and maintenance processes because new mechanics have to ask senior mechanics; it creates delays for senior mechanics and mechanics. In the need for all media to learn for new mechanics, a media that helps for knowledge sharing is a learning document. From the available data, seven service and maintenance processes are taken most often by mechanics, so there are seven types of service and maintenance that will be made into learning documents. This study uses the SECI (Socialization, Externalization, Combination, and Internalization) method to create learning document content, namely by exploring the knowledge and experience of two senior mechanics. There is a difference in knowledge between the two senior mechanics after that the FGD and brainstorming are done to determine the best process. The result is the basis for making learning documents. ADDIE method is used to create learning documents. From the evaluation results obtained by mechanical knowledge increased after the existence of a learning document in terms of the value of the quiz.

Keyword : FGD, Brainstoming, ADDIE, SECI, Leaning Document

1. Prelimiary

Scooter Layur Workshop is a service company engaged in the maintenance for europe scooter vehicle, with its head office and workshop on Jl Layur No. 48 Rawamangun, Pulogadung, Jakarta Timur. Scooter Layur Workshop is a one of the best repair shop in Indonesia and the first European scooter workshop in Indonesia. Services offered by the company Scooter Layur is Routine services such as oil change, axle oil and brake lining replacements, there is also a comprehensive service where the scooter engine is lowered from the body. There is a place to modify the engine to increase the capacity of the scooter engine. Scooter Layur Workshop has been established since 2008. After 12 years of operation, Scooter Layur Workshop has become a leading company that meets the needs of its customers. In providing services, Scooter Layur Workshop has 5 mechanics working form 09:00 a.m. to 17:00 p.m this workshop are open everyday expect Eid Mubarak and Eidul Adha. In this workshop, service recipients from Italian and European motorcycles such as Piaggio, Aprilia, Vespa and Peugeot. These four brands are the biggest scooter brands in Europe, and the Scooter Layur Workshop only accepts scooters with four-stroke engines as of 2004 until now. The service provided by Scooter Layur is a routine service, routine service for European scooters is somewhat different from many motorcycles in Indonesia. European scooter treatment is more complicated because the A continuously variable transmission part is different in size from Japanese motorcycles that are widely circulating in Indonesia. After all, the European scooter CVT section if dirty with dust will cause the scooter to vibrate and not feel comfortable driving. European scooter engines also heat faster compared to other scooters because it must have special maintenance and engine oil. [1]

However, for now, there are so many Vespa in Indonesia that many Vespa scooters want to be serviced at Scooter Layur's workshop. So Scooter layur requires mechanics to help other mechanics in their work, but it is complicated to find a mechanic who understands very well with European Scooters in particular. but if they pay a contract, the experienced mechanics will spend big money. At present Scooter Layur has additional mechanics for vocational graduates. They only understand Japanese scooter engines. Obviously, it's very different from Vespa scooters. Senior high school graduates who understand Japanese motorcycle technicians really need the mechanics in Scooter Layur to guide them in the process of repair in the Scooter Layur Workshop, but when many are customer waiting it will be difficult for mechanics to help these Vocational graduates.

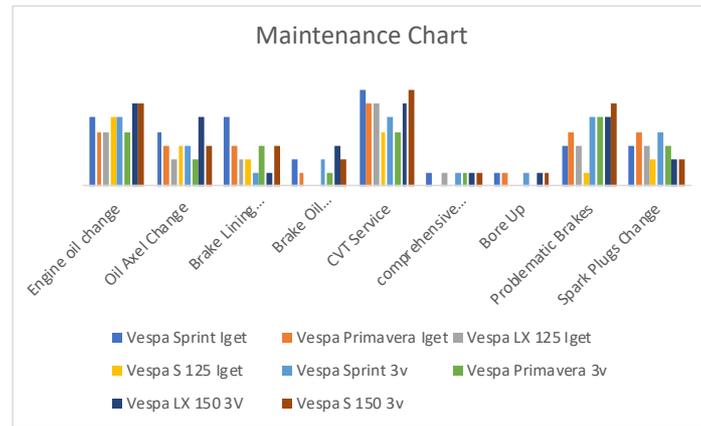


Figure 1 Maintenance Chart

The results of observations at the Scooter Layur Workshop company do not have learning media to help new employees carry out service and maintenance activities. The way new employees learn is by asking senior mechanics and helping them to do service and maintenance activities. There is no documentation regarding the knowledge held by senior mechanics. Knowledge is an important asset for a company so that documentation is needed than the knowledge is maintained in the company (Kurniawati, 2015). This research will document senior mechanics knowledge, from senior mechanic knowledge documentation will be designed into learning documents for new mechanics. In the learning document, there is a process maintenance flow, an explanation of the process, picture and quiz questions, thus new mechanics can learn independently without having to depend on senior mechanical guidance (Hidayat, Hartono, & Sukiman, 2017). This research aims to improve the competence of new employees in the service and maintenance process. In evaluation stage, there will be a comparison of the quiz before the learning document and after the learning document.

The purpose of this research is to design Learning Document content so that assets owned by companies can be maintained by documenting the knowledge held by a mechanic and help the new mechanic to understand the process of service and maintenance. In this research, to design learning documentation content using SECI and ADDIE methods. The SECI method is used to convert data into information; then, the information becomes knowledge. The SECI method is used because the data obtained from Scooter Layur Workshop is in the form of tacit knowledge obtained from an experienced mechanic

The ADDIE method is used for designing learning document because the ADDIE method is appropriate as a means for developing learning tools, ensuring there is an evaluation of the needs of the learning process. The ADDIE method is structured and systematic and there is a more precise and better evaluation process (Hidayat, Hartono, and Sukiman, 2017). Then, the existing learning documentation content is made in the form of hardcopy. With the learning documentation will help in the learning process of maintenance service scooter at Scooter Layur Workshop

The advantages of using learning documents are the new employees do not need to be guided by senior mechanics to carry out Vespa 3V and Iget service and maintenance activities and increase the effectiveness of new mechanics and senior mechanics to carry out service and maintenance activities. From the above review, it can be concluded that the absence of learning media will cause problems for Scooter Layur, namely delays in the service and maintenance process and ineffective service and maintenance processes. To increase the effectiveness, a learning document is made to become a learning media, and new employees can learn independently without guidance from senior mechanics. In addition to increasing the effectiveness of the service and maintenance processes, learning documents can also improve the competence of new employees in the service process and monitoring of Vespa 3v and Iget.

2. Literature Review

2.1 Knowledge

Knowledge is a combination of experience, values, contextual information, expert views and basic intuition that provides scope and framework for evaluating and integrating new experiences with information (Davenport & Prusak, 1998). According to Ettore Bolisani and Constantin Bratianu knowledge is an abstract concept without reference to the real world. Knowledge is a very powerful concept, but so far, it has no clear definition. From Greek philosophers to presenting experts in knowledge management, people tried to define the knowledge, but the results were still very vague, then explained that knowledge is a term with many meanings depending on the context[2]

2.2 Knowledge Management

Put Knowledge Management (KM) can be interpreted to do what it wants to get the most out of knowledge resources. Knowledge Management is a work program to carry out the process of capturing, storing and sharing knowledge, so we will be able to carry out the process of learning from his work experience that is used to meet his future. Knowledge management (KM) was initially defined as the process of applying a systematic approach to capturing, compiling, managing and disseminating knowledge throughout the organization to work faster, reuse best practices, and reduce expensive rework from project to project (Dalkir, 2005). . An example of how vital the role of KM is when a company faces a case of resignation from employees who have prominent knowledge, while at the time there was no transfer of knowledge for its successors. Employee transfers can occur, followed by customer transfers (Yuniarto, 2018). [3]

1. Data

According to Indrajani, data are raw facts and then managed to produce information that is important for a company or organization (Indrajani, 2015).

2. Information

Definition according to Agus Mulyanto, information is "data that is processed into a form that is more useful and more meaningful for those who receive it, while the data is a source of information that describes a real event. (Mulyanto, 2009)

3. Knowledge

Knowledge is a combination of experience, values, contextual information, expert views, and basic intuition that provides an environment and framework for evaluating and integrating new experiences with information (Davenport and Prusak, 1998)

1. Tacit knowledge is knowledge gained from experience, and activities carried out and challenging to describe. For example, usually shared through discussion and stories. Is difficult to communicate with other parties, is personal and specific.

2. Explicit knowledge is the knowledge that is formulated, often presented in written form in the form of regulations, books, and literature. Explicit knowledge can also be transformed into formal and systematic forms of language.

2.3 SECI Method

Developed a dynamic model of knowledge creation that explains a critical assumption that human knowledge is created and expanded through social interaction between tacit and explicit knowledge (Nonaka and Takeuchi, 1995). The name of the interaction is knowledge conversion. According to (Nonaka and Takeuchi, 1995), knowledge conversion can be done through four processes or commonly referred to as the SECI method (Tung, 2018)[4]

1. Socialization

It is the transfer of knowledge from tacit to tacit. Through socialization, a person is expected to be able to absorb tacit knowledge from others and otherwise.

2. Externalization

It is a transfer of knowledge carried out from tacit to explicit. At this stage, the attempt to concretize tacit knowledge becomes explicit through metaphors, analogies or models.

3. Combination

It is a process of making concepts systematically into structured knowledge. Combination is the process of enriching explicit knowledge with other explicit knowledge.

4. Internalization

the process of converting explicit knowledge into tacit knowledge activities on internalization activities is easier to understand by practising, when knowledge is run and used in various situations and becomes a routine

2.4 ADDIE Method

A learning design model that is more general in nature, namely the ADDIE model (Analyze, Design, Development, Implementation, Evaluation). Here are the 5 stages of development (Patel, Margolies, Covell, Lipscomb, and Dixon, 2018)

- Analysis

In the analysis phase, problems in learning are explained, instructional goals and objectives are set. The existing learning environment, knowledge and skills are then identified.

- Design

At the design stage, learning objectives, content, lesson planning, and media selection will be determined through a design document, or which serves as a blueprint for building learning documentation.

- Development

At the development stage the results of the design stage in the form of document design will be accepted and used as a basis in building the learning documentation multimedia module

- Implementation

The implementation phase is tested on learning documentation, while testing the function of the features of learning documentation will be evaluated. At this stage feedback will be obtained to correct errors and improve user experience.

- Evaluation

At this stage quantitative and qualitative methods can be carried out as part of formative and summative evaluation of learning documentation. Formative evaluation comes from feedback received from learning documentation users and learning documentation developers during the initial pilot phase. Summative evaluation comes from the Kirkpatrick model for training evaluation.

2.5 Learning Document

Learning documentation or a hardcopy of learning is a book that includes a variety of processes, such as learning in the form of writing, learning in the form of a learning flow for using machines or procedures. Learning documentation is an Education system that allows learners to get Education anytime [6]

3. Research Methodology

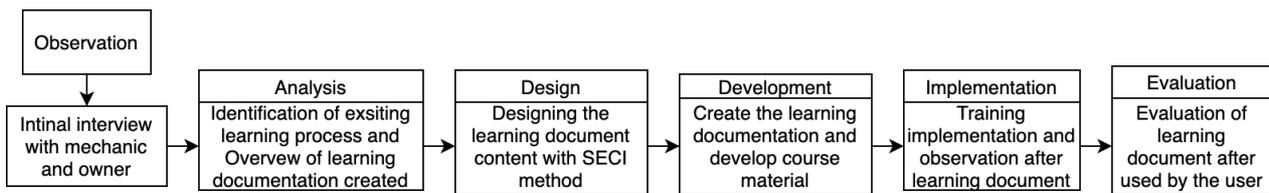


Figure 2 Research methodology

Based on figure 2, the first thing to do is to observe the object of research, then conduct interviews with the owner and mechanic. Next is the analysis to identify the learning media process. After getting what the user wants entry into the design stage, the design phase is designing learning document content using the SECI method. After the design phase is completed, the development stage is to make a physical form of the learning document. After the learning document is made at the implementation stage, training for new mechanics and observations after the learning document is done. The last is the evaluation stage, the stage of evaluating the learning document that has been used by the user

4. Results and Analysis

4.1 Analyze

Analysis is the initial planning stage regarding making learning documentation using the ADDIE method. At the analysis stage is the stage to identify and analyze the current condition of the company Scooter layur Workshop in order to obtain a services and maintenance activities for scooter.

Table 1 Initial Interview Implementation

Speaker	Activities	Implementation Date
Owner of Scooter Layur Workshop	Identification of the existing Learning Process in Scooter Layur Workshop	24-04-2020

Based on table 1 it is found that the repair service process at XYZ Workshop is carried out with personal experience from the operator and there is no learning media in repair service activities.

Table 2 Analysis of the Current Learning Process

No	Employee	Result
1	Every mechanic has his own way in the process of services and maintenance	Standardization is needed in the services and maintenance process
2	There is no learning media for new employees only asks how to do the services to senior mechanic	New learning media needed for new employees

4.2 Design

The design stage, the design of the content on the Learning Document Service and Maintenance activities of Vespa 3V and Iget is done. In designing Learning Document content, the method is SECI. The initial stage of the SECI method is Socialization, this stage is an interview with the resource persons, namely senior mechanics regarding service and maintenance activities

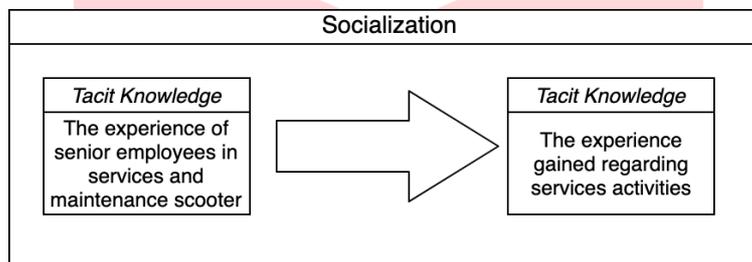
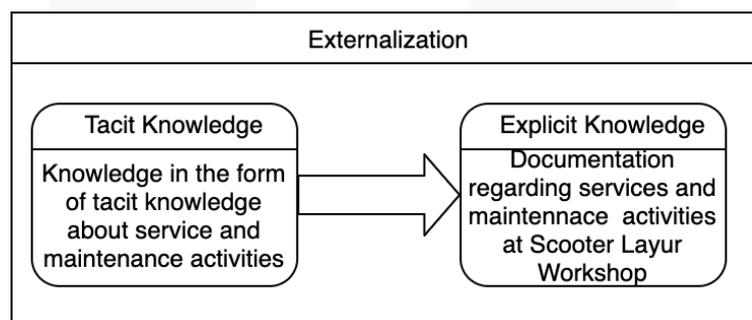


Figure 2 Stage Socialization Scheme

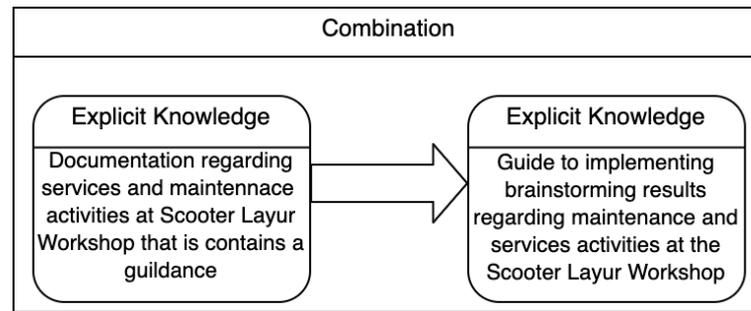
In the picture it is explained that there is a knowledge conversion, that is, the knowledge held by senior employees is still in the form of tacit knowledge, then the knowledge delivered by senior employees to the interviewer will then be used at the externalization stage to design learning documentation content. In the picture is a summary of the results of the interview.

The externalization phase aims to change the tacit knowledge gained from the experience of two senior employee to explicit knowledge in the form of guidelines in conducting services and maintenance scooter.



At this stage, a process guide is obtained in the implementation of service and maintenance on the Vespa 3V dan Iget which consists of 7 service and maintenance processes, namely the Engine Oil Change, Prolematic Brakes, Oil Axle Change, Front Brake Lining Change, Rear Brake Lining Change, Sparkplugs Change

The combination phase is making the conversion of Explicit knowledge is converted into explicit knowledge in the form of guidance in the process of maintenance and service in Scooter layur workshop. At this stage, a guide is made in comparing the scooter Vespa 3v and Iget maintenance and service process, based on the senior mechanic interviewed with the aim of producing the best guide in conducting maintenance and scooter services.



the results of the externalization stage are in the form of process maintenance and service from Mr. Agus, and Mr. Rahmat as a senior mechanic at Scooter Layur Workshop, the results of the process were obtained from interviews with the two senior mechanics. From the results of externalization, a comparison was made because the knowledge from the two senior mechanics had differences.

the Combination stage, a discussion or brainstorming is conducted to determine the best process of maintenance and services on the Scooter Vespa 3V and Iget in the Scooter Layur Workshop. Here are is the result of brainstorming with both senior mechanics

4.3 Development

The development stage is the learning document creation stage. Learning documents are created by taking into account the needs of users who have been identified at the analysis stage. Learning documents are made creatively so that new employees can learn easily and can be understood by prospective new employees graduating from high school easily.

1. Designing Learning Documents

In the design phase of learning documents made as attractive as possible so that prospective employees with vocational school degrees can be understood easily. There is an initial overview of learning documents such as background scooter, the specifications of scooters who often come to Scooter Layur Workshop. Most importantly there are ways for services and maintenance for Vespa 3V and Iget Scooters In the learning document is also equipped with photos to facilitate prospective new employees to understand the lesson.

2. Making Quiz

A quiz is used to measure new mechanical expertise in service activities and maintenance of Vespa 3V and IGET scooters. The quiz is designed in the form of multiple choice. Quiz created 50 questions.

4.4 Implementation

In the implantation stage, a new simulation is performed by each new employee in the learning document stage. Learning documents that have been made at the development stage are disseminated to new employees to be learned from new employees. all completed learning document designs are made in physical form and are ready for use by new employees. After the learning document has been made at the development stage, a new employee will be delivered, a brief explanation of the existing learning document. Then each new employee is given a learning document. After that, new employees are invited to work on quiz questions on the learning document. After working on the quiz questions, employees are invited to use the learning media that is learning document, after doing the learning the new employee will work on the quiz questions, which later will see the difference in the evaluation stage.

4.5 Evaluation

In the evaluation phase, the learning phase evaluation is carried out, namely the learning document learning media. Evaluation is done at the end or after the learning activity is over. Evaluation in the form of working on the quiz conducted by new mechanics to find out the competencies owned by the new mechanics for service and maintenance activities. At this stage also carried out related learning documents that are made to find out whether the learning media that are made are influential or not. To check before there is a "learning document" and after there is a learning document done from the quiz and the results of the quiz before and after the paired t-test is done.

The process of working on the quiz is done in two stages, stage one: the new mechanical stage has not yet learned to use the learning document. Stage one is carried out after a brief explanation of the learning document. The second stage is done after the new mechanics do the learning document, the results of the evaluation in the form of the test scores for the first and second quiz can be seen in the Table

Table 3 New Mechanic 1 Quiz

Quiz	Quiz Score before Learning document	Quiz Score After Learning Document
1	70	90
2	50	70
3	60	90
4	60	80
5	50	80
Total	290	410
Mean	58	82

It can be seen that there is a definite increase in the value of the quiz before and after the use of learning documents from new mechanics 1. The average quiz score increases in the quiz after using the learning document.

Table 4 New Mechanic 2 Quiz

Quiz	Quiz Score before Learning document	Quiz Score After Learning Document
1	50	80
2	50	70
3	50	80
4	60	90
5	40	70
Total	250	390
Mean	50	78

It can be seen that there is a definite increase in the value of the quiz before and after the use of learning documents from new mechanics 2. The average quiz score increases in the quiz after using the learning document.

It appears that the average value of the results of the new mechanical quiz one and new mechanic two has increased after using the learning media, compared to before using the learning document the value has increased which is quite influential

5. Conclusion

Based on the results of research that has been done, it can be concluded that the SECI method for creating learning document content. Following the research objectives and through the SECI (Socialization, Externalization Combination and Internalization) stages, the learning document content design was obtained in the form of guidelines for implementing service and maintenance activities on the Vespa 3V and Iget scooters. From many types of service and maintenance, there are seven service and maintenance implementation guidelines, namely CVT service, problematic rear brakes, engine oil change, axle oil change, front brakes linings change, rear brakes lining change, and sparkplugs change. The service and maintenance guide that has been made there is the process flow, a description of the tools used, and tacit knowledge. ADDIE method is used to create a physical form of a learning document. There are photos, process flow, descriptions, and quizzes for new mechanics. From the evaluation results, it was found that mechanical knowledge only increased after the application of the learning document, the quiz value that had been given increased

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