ISO 9001:2015 IMPLEMENTATION PLANNING IN NON-FORMAL EDUCATIONAL INSTITUTIONS IN THE FIELD OF PROGRAMMING IN INDONESIA

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Abstract

This study aims to develop an implementation plan for ISO 9001:2015 in non-formal educational institutions in the programming field in Indonesia. The approach used in this study is descriptive qualitative with data collection techniques used are observation, interviews, and documentation studies. The study results show that non-formal educational institutions in the programming field in Indonesia have several deficiencies in implementing ISO 9001:2015, such as the absence of adequate documents to support the quality management system implementation. Based on the results of this study, an ISO 9001:2015 implementation plan can be prepared which consists of three stages. First, the preparation stage includes understanding the ISO 9001:2015 standard, document preparation, and employee training. Second, the implementation phase provides for the implementation of a quality management system according to ISO 9001:2015 standards and the measurement of system performance. Third, the maintenance stage includes the evaluation of the quality management system that has been implemented and follow-up on the results of the evaluation. The results of this study are proof that the application of ISO 9001:2015 in non-formal educational institutions in the field of programming is very important. The application of the ISO 9001:2015 concept is very important and this can be done immediately, without having to wait for the certification process.

Keywords: ISO 9001:2015, non-formal educational institutions, programming course

Abstrak

Penelitian ini bertujuan untuk menyusun rencana implementasi ISO 9001:2015 pada lembaga pendidikan non-formal bidang pemrograman di Indonesia. Pendekatan yang digunakan dalam penelitian ini adalah kualitatif deskriptif dengan teknik pengumpulan data yang digunakan adalah observasi, wawancara, dan studi dokumentasi. Hasil penelitian menunjukkan bahwa lembaga pendidikan non-formal bidang pemrograman di Indonesia memiliki beberapa kekurangan dalam mengimplementasikan ISO 9001:2015, seperti belum adanya dokumen yang memadai untuk menunjang implementasi sistem manajemen mutu tersebut. Berdasarkan hasil penelitian ini, dapat disusun rencana implementasi ISO 9001:2015 yang terdiri dari tiga tahap. Pertama, tahap persiapan meliputi pemahaman terhadap standar ISO 9001:2015, pembuatan dokumen, dan pelatihan karyawan. Kedua, tahap implementasi meliputi penerapan sistem manajemen mutu sesuai standar ISO 9001:2015 dan pengukuran kinerja sistem. Ketiga, tahap pemeliharaan meliputi evaluasi

terhadap sistem manajemen mutu yang telah diterapkan dan tindak lanjut atas hasil evaluasi tersebut. Hasil penelitian ini menjadi bukti bahwa penerapan ISO 9001:2015 di lembaga pendidikan non-formal bidang pemrograman sangat penting untuk dilakukan. Penerapan konsep ISO 9001:2015 sangat penting dan ini dapat dilakukan dengan segera, tanpa harus menunggu proses sertifikasi.

***Kata kunci:** ISO 9001:2015, lembaga pendidikan non-formal, kursus pemrograman*

Introduction

Programming is one of the fields that is needed in today's digital era (Kraus et al., 2021). Many non-formal educational institutions in the field of programming have sprung up to meet these needs (Nair, 2019). However, not all of these institutions have a good quality management system (Tu et al., 2018). ISO 9001:2015 is an international standard for quality management systems that can be used by non-formal education institutions (Hunusalela et al., 2021) to improve the quality of their services. The implementation of ISO 9001:2015 in non-formal education institutions is a process that involves adjusting the existing quality management system to the requirements listed in the ISO 9001:2015 standard. Implementation of ISO 9001:2015 can help non-formal education institutions improve the quality of services provided to students and other stakeholders (Hadidi et al., 2017). The implementation of ISO 9001:2015 has been widely implemented in various organizations, ranging from schools (Fernández-Cruz et al., 2019), universities (Ab Wahid, 2019), MSMEs (Zimon & Dellana, 2019), the automotive industry (Almeida et al., 2018), to the health industry (Nurcahyo et al., 2019).

The number of organizations that implement ISO 9001:2015 is evidence that its implementation can help them to improve service quality (L. M. C. M. da Fonseca et al., 2019). However in non-formal educational institutions, there are still very few found. This includes the industry of non-formal educational institutions in the field of programming that usually organize bootcamps. Whereas the application of ISO 9001: 2015 is very important. Many administrative and organizational structural problems in non-formal educational institutions in the field of programming are projected to be resolved by implementing ISO 9001: 2015. However, human resources are often not qualified, implementing ISO 9001: 2015 is quite difficult (Zografaki et al., 2017). The lack of financing in companies (usually start-ups) has also not led to the adoption of ISO 9001: 2015 (Klute-Wenig & Refflinghaus, 2020). These kinds of things ultimately trigger non-formal educational institutions, in this case, educational technology start-ups, still do not have the plan to implement ISO 9001: 2015.

The purpose of this study is to analyze the implementation planning of ISO 9001:2015 in non-formal educational institutions in the field of programming in Indonesia. This research will include case studies of non-formal educational institutions in the field of programming in Indonesia that plan to implement ISO 9001:2015. The output of this research is a procedure for how a non-formal educational institution prepares its organization to be able to implement ISO 9001: 2015 and how the implementation of the process has been carried out by the organization that is the case study in this research. The results of this research are expected to provide an overview of the steps that must be taken by non-formal educational institutions in the field of programming that want to implement ISO 9001: 2015.
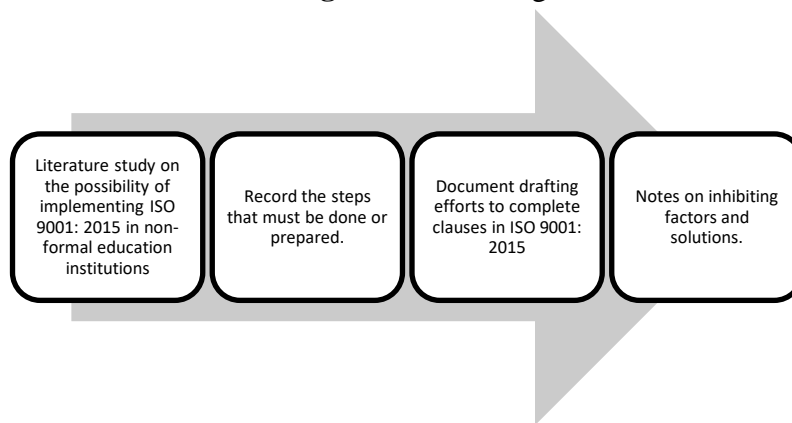
Research Method

This research uses a qualitative descriptive method, conducted to achieve the main objective of the research, which is to describe in detail how ISO 9001: 2015 implementation planning can be carried out in non-formal educational institutions in the field of programming in Indonesia. The case

study in this research is a non-formal educational institution that organizes online bootcamps in Indonesia. The learners in this institution are students, fresh graduates, and career shifters. Data was collected through documentation studies and direct research to the field by researchers to obtain data to understand deeply about the issue being studied. Data analysis was carried out qualitatively, the results of which were then continued in the process of preparing a draft quality manual document to verify whether the non-formal education institution under study could implement ISO 9001: 2015 or not, how the possibility of implementation, and what are the problems that become obstacles, accompanied by solutions.

Result and Discussion

The purpose of this study is to analyze the implementation planning of ISO 9001: 2015 in non-formal educational institutions in the field of programming in Indonesia. This research begins with a literature study process regarding the possibility of implementing ISO 9001: 2015 in the institution in question, then a search for what stages must be prepared, then drafting the document text in each clause, and the last is an analysis of inhibiting factors and their solutions.

Image. Research Stages

Literature study on the possibility of implementing ISO 9001: 2015 in non-formal education institutions

Record the steps that must be done or prepared.

Document drafting efforts to complete clauses in ISO 9001: 2015

Notes on inhibiting factors and solutions.

Based on the stages of research that have been carried out, the following are details of each implementation in this study.

1.   Literature study of ISO 9001:2015 implementation in non-formal education institutions

ISO 9001:2015 is an international standard that can be applied by all types of organizations (L. Fonseca & Domingues, 2017), regardless of whether they are commercial organizations, government agencies, non-profit organizations, or non-formal educational institutions. The standard was developed by the International Organization for Standardization (ISO) and covers quality management systems that aim to improve the quality of services and products provided by organizations (Rogala & Wawak, 2021). Implementation of ISO 9001:2015 can provide many benefits to organizations, including improving organizational efficiency and effectiveness (Nurcahyo et al., 2019), increasing customer satisfaction (Hadidi et al., 2017), and improving organizational competitiveness in the marketplace (Nurcahyo et al., 2021). The standard can also be a useful tool for organizations in managing risks and minimizing the likelihood of adverse incidents occurring.

To ensure that an organization meets the requirements of ISO 9001:2015, it must follow a certification process conducted by an accredited certification body (Zimon & Dellana, 2019). This certification process includes an audit of the quality management system implemented by the

organization and will result in a certificate if the organization is proven to meet the requirements of the standard. However, experts also mention that the concept of ISO 9001:2015 is very likely to be implemented by an organization without having to do certification first (Behnam & Juanzon, 2017).

Thus, ISO 9001:2015 can be applied by all types of organizations to improve the quality of services and products provided, as well as managing risks that may occur. Based on this explanation, it can also be concluded that ISO 9001:2015 can be applied to non-formal education institutions. This standard provides guidance for organizations in managing their processes in an effective and controlled manner, to ensure that the products and services provided are by customer needs (Hadidi et al., 2017).

In implementing ISO 9001:2015, non-formal education institutions need to pay attention to the basic principles contained in the standard, namely: conformity (relevance), accountability (ability to provide accountability), transparency (clarity and openness), and continuous improvement (continuous progress) (Gillett et al., 2015; Tricker, 2016). Overall, ISO 9001:2015 can help non-formal education institutions improve the quality of their services to customers and meet customer needs and expectations (Hunusalela et al., 2021).

2.   Listing the steps to be taken or prepared for

To implement ISO 9001:2015 in a non-formal education institution, it is first necessary to identify the processes that exist in the institution. Then, it is necessary to define the goals and objectives of each process and develop procedures that will be used to manage these processes. Furthermore, it is necessary to monitor and evaluate the implementation of these processes and make improvements if necessary. The following are the steps that can be taken in implementing ISO 9001:2015 in non-formal education institutions. First, understand the requirements listed in the ISO 9001:2015 standard. Non-formal education institutions must understand what is meant by a quality management system, how to manage the system, and what is expected from the implementation of ISO 9001:2015.

Second, develop a quality management system document. After understanding the requirements of ISO 9001:2015, non-formal education institutions should develop a quality management system document that complies with the standard. The document should include the objectives of the quality management system, the PDCA (Plan-Do-Check-Act) cycle and the procedures needed to manage the system. Third, develop a quality management system manual. In addition to the quality management system document, non-formal education institutions should also develop a quality management system manual that explains how the system works. The manual should include information about the institution's organizational structure, the responsibilities and authority of each personnel, and the procedures that must be carried out in managing the quality management system.

The fourth step is to conduct training. After the quality management system document and the quality management system manual have been prepared, the non-formal education institution must conduct training for its personnel to understand and implement the quality management system by the ISO 9001:2015 standard. The last step, the fifth step, is to implement the quality management system. After all the previous stages have been carried out, non-formal education institutions must implement the quality management system that has been prepared by the ISO 9001: 2015 standard.

3.   Document drafting efforts to complete the clauses in ISO 9001:2015

Bootcamp is a training program that takes place intensively, with material that has been designed in such a way as to be relevant to IT careers (Bikanga Ada & Foster, 2021). Intensive

training makes learning time shorter. By participating in the training program, soft skills and hard skills will be well honed. This boot camp program is specifically structured according to the real needs of the world of work in the IT field (Nair, 2019). Thus, making this program the right choice for those who want to have skills in the IT field to develop careers.

The implementation of learning at the bootcamp must be standardized to run successfully and meet the needs of customers, in this case, the learners. There has been some discussion on the impact of ISO 9001:2015 implementation on the quality of learning in formal schools. For example, its implementation can improve the quality of school management and planning (Rodríguez-Mantilla et al., 2021), improve the quality of collaboration between teachers and school administrators (Rodríguez-Mantilla et al., 2019), improve the quality of teacher-led learning processes (Fernández-Cruz et al., 2019), and its overall implementation can also develop end-to-end school quality (Murtadlo & Rofiah, 2019).

In this research, which took a case study of one of the non-formal educational institutions in the field of programming in Indonesia, the texts required to follow the ISO 9001: 2015 standard were successfully prepared. The preparation process is based on the routine implementation of existing business processes, then improvements are made to achieve ISO 9001: 2015 quality standards. The following are the documents that have been prepared.

Table. Script documents on ISO 9001:2015 implementation efforts

CLAUSES	DOCUMENT
Clause 4 - organizational context	1. Formulation of Vision, Mission, Goals, Values and Organizational Structure 2. SWOT Analysis 3. Internal and External Issues Table 4. Needs and Expectations of Interested Parties 5. Business Process Map 7. Scope of Quality Management System
Clause 5 - leadership	1. Quality Policy 2. 1 Set of Job Description in 1 Learning Division
Clause 6 - planning	1. Risk and Opportunity Analysis 2. Quality Objective
Clause 7 - supporters	1. Competency Standards 2. Competency Matrix 3. Training Program 4. Training Evaluation 5. SOP Controlling Document
Clause 8 - operations	1. Customer Property List 2. Design & Development 3. Supplier Evaluation Result 4. Supplier Selection Result Form 5. SOP Learning Need Analysis 6. Supplier List 7. Supplier Evaluation SOP 8. Supplier Selection SOP
Clause 9 - erformance evaluation	1. Nonconformity Report Form - Corrective Action
Clause 10 -	2. Management Review Meeting

Improvement	
Main documents	1 Set of Quality Manual Documents

The documents that have been prepared are then reviewed by interested parties, and then improvements are made again. The source of knowledge to compile the document texts was taken from a literature study on the knowledge management system owned by the organization. In addition, direct research to the field by researchers to obtain data to understand in depth the issue being studied was also carried out, one of which was through interviews.

Furthermore, based on the document scripts that have been prepared, the organization's leaders can conduct training to inform the concept of ISO 9001: 2015 to be implemented. Then mentoring can be done until the implementation can be done by all employees. The next step of the organization's leadership is to determine whether this non-formal education institution will be certified ISO 9001: 2015 or not. Wherever the decision is, the implementation of the ISO 9001: 2015 concept must still be done.

4.   Notes on inhibiting factors and their solutions.

Several factors can be an obstacle to the implementation of ISO 9001: 2015 in non-formal education institutions. This is a combination of documentation studies conducted by researchers, as well as from the experience of researchers while preparing the document manuscripts needed to achieve ISO 9001: 2015 standardization.

Table. Inhibiting factors and solutions in the implementation of ISO 9001: 2015

PROBLEMS/BARRIERS	SOLUTION
Lack of awareness and commitment from management to the importance of the quality management system	Socialization and training on the importance of a quality management system for non-formal education institutions can be conducted.
The absence of adequate documents to support the implementation of the quality management system	Documents can be made by ISO 9001: 2015 standards and by the conditions and needs of non-formal education institutions.
Lack of resources available for quality management system implementation	Appropriate resource planning can be carried out by the needs of implementing a quality management system.
Lack of support from employees for the implementation of the quality management system	Training and socialization can be carried out regarding the importance of the quality management system for employees, as well as providing incentives to employees involved in implementing the quality management system.
Differences in views and attitudes towards the implementation of the quality management system between management and employees	Effective communication can be done to resolve the differences in views and attitudes and provide clear explanations related to the objectives and benefits of implementing a quality management system for non-formal education institutions.

Conclusion

The implementation of ISO 9001:2015 in non-formal educational institutions in the field of programming in Indonesia can be done with the stages that have been set, namely the preparation stage, the implementation stage, and the maintenance stage. The preparation stage includes

understanding the ISO 9001:2015 standard, document development, and employee training. The implementation stage includes implementing a quality management system according to the ISO 9001:2015 standard and measuring the performance of the system. The maintenance stage includes the evaluation of the quality management system that has been implemented and follow-up on the results of the evaluation. In the implementation process, several inhibiting factors can be overcome with appropriate solutions, such as increasing awareness and commitment from management to the importance of the quality management system, creating adequate documents, preparing the right resources, providing support and incentives to employees, and resolving differences in views and attitudes related to the implementation of the quality management system. The results of this study provide evidence that the implementation of ISO 9001:2015 in non-formal educational institutions in the field of programming is very important. The implementation of the ISO 9001:2015 concept is very important and this can be done immediately, without having to wait for the certification process.

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