Utilizing ICT-Based Academic Information to Improve Vocational High School Cullinary Art Program Quality in North Sulawesi

by Louisa Kandoli

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Louisa Nicolina Kandoli
Djoko Kustono
Eddy Sutadji
Rina Rifqie Mariana
Universitas Negeri Malang

Abstract:- Information and Communication Technology within education in Vocational High School serves as paramount necessity. The utilization within vocational education process is not only as a form of keeping up with the development of technology, yet it deals with the implementation for learning teaching process. In fact, unfortunately, a number of obstacles occurred in the utilization of ICT to manage learning teaching in school. ICT is indeed will bring a positive benefit the moment the teachers are capable of utilizing it as academic information to improve the learning quality. This present study aims at examining the utilization of ICT-based academic information system in Vocational High School Cullinary Art Program in North Sulawesi. This research employed Research and Development approach or as known as R&D suggested by Plomp (1997). After pre-development and development phase were conducted, it was followed by making a generalization that the ICT-based academic information system is effective and valid for being utilized by teachers in Vocational High School Cullinary Art Program in North Sulawesi.

Keywords: Information Technology, Academic Information Utilization.

I. INTRODUCTION

Education, principally and practically, serves as imperative elements for human beings. Through the quality of education possessed, human beings are capable of developing numerous science, knowledge, and technology existed which are beneficial for the human beings themselves. It is inevitable that the development of varied discipline and knowledge such as politics, social and culture, economics, and technology could be accomplished well through education.

National Education system, within Law No. 20 of 2003 Chapter II Article 4 explains that National education aims at ensuring society's intelligence and developing Indonesians as qualified human beings, as well as manufacturing religious, lawful, and civilized human beings who possess qualified knowledge, skills and ability, good in physical and mental condition, excellence in personality, independent, and responsible for social and national matter.

Vocational High School (SMK) is part of the national education system that aims to prepare workers who have the skills and knowledge in accordance with the needs of employment requirements and able to develop his potential in adopting and adapting to technological developments.

The key factor of education success is the quality of teacher as the main actor in the process of transfer of knowledge. This is in line with the statement of Kartadinata (2010) which states that one of the key indicators of educational quality is teacher quality. The teacher's role is significant for every successful learning process (Jones, Jenkin & Lord, 2006: 1). Furthermore, Harris, DN and Sass, TR (2011: 798) states that: "It is Generally acknowledged that promoting teacher quality is a key element in improving primary and secondary education in the United States". Some of these statements expressly state that the quality of teachers as a key element or indicator in improving the quality of education. This is because teachers are the main actors in learning therefore the successful transfer of science and technology will work well if supported by qualified teachers. One of the goals of Sustainable Development Goals (SDG, 2015-2030), to improve the quality of teachers in Indonesia into a strategic effort should be made which will determine the quality of the next generation of the Indonesia.

The utilization of academic information based on IT provides many facilities for use in schools, such as administration, learning process, more specially designed self-designed learning so as to give impact to the quality of education. The results of research Elly Meilani et al (2009), states thatweb-based learning applications, delivering information to become more effective because the information is easy to obtain and the information obtained is also more detailed, accurate, and relevant. Thus, the IT-based academic information will greatly support the learning in the school so that it will reflect the quality of the school itself. According to Brynjolfsson, E., &

McAfee, A. (2011), we live in astonishing advancement with digital technology that has hardware, software and computer networks at its core, that the transformation generated by digital technology will be very beneficial for users , In this case the world of education.

The quality of education can not be separated from the attention of the government and even the public. The demand to solve the problem of the quality of education is an urgent problem that can not be delayed anymore. Vocational High School in North Sulawesi, especially culinary art program is still relatively low when compared with Vocational High School in other area or city. The one factor is the absence of academic information system which is a resource for everything in the form of information that is related to academic problems.

Alternatives to solve problems in order to optimize the quality of education, especially vocational education of culinary skill training program in North Sulawesi, it is necessary to design or create a model to improve the quality of vocational education through the utilization of IT-based academic information.

II. METHOD

This study was a research & development (Research and development). Research development (R & D) is a process or steps to develop a new product or refine an existing product. According to Borg & Gall (1983), development research is a type of research that is not aimed at testing theory, but this

research is a process of developing and validating a product produced and used in education. The focus of this study was the use of academic information in improving the quality of vocational programs culinary art program in North Sulawesi, carried out in two stages, based on the Plomp (1997) is a pre-stage development (research) and development stage (development). Pre-development or research as the first phase include: (1) The preliminary study phases (preliminary investigation / initial investigation), (2) phase of the design (design), (3) the realization of the design phase (realization / construkction). Development or development as the second phase include: (4) phase of testing, evaluation, and revision (test, evaluation and revision), and (5) the implementation phase (implementation). In the implementation of products include: Soft-ware that has been designed, validated and utilized by vocational high school teachers.

The above development stages can be mapped out in three ways: (1) pre-development stage, (2) development stage, and (3) model implementation stage. The pre-development phase of the IT-based academic information model includes preliminary study activities including reviewing relevant theories, literature, and research results as well as conducting field observations. Phase development model includes the implementation of application utilization activities in the form of information-based academic IT. Phase of application of IT-based academic information utilization model includes validation, trial, evaluation and revision, and final product presentation / final model. Operationally the phases of developing the use of academic information as shown below:
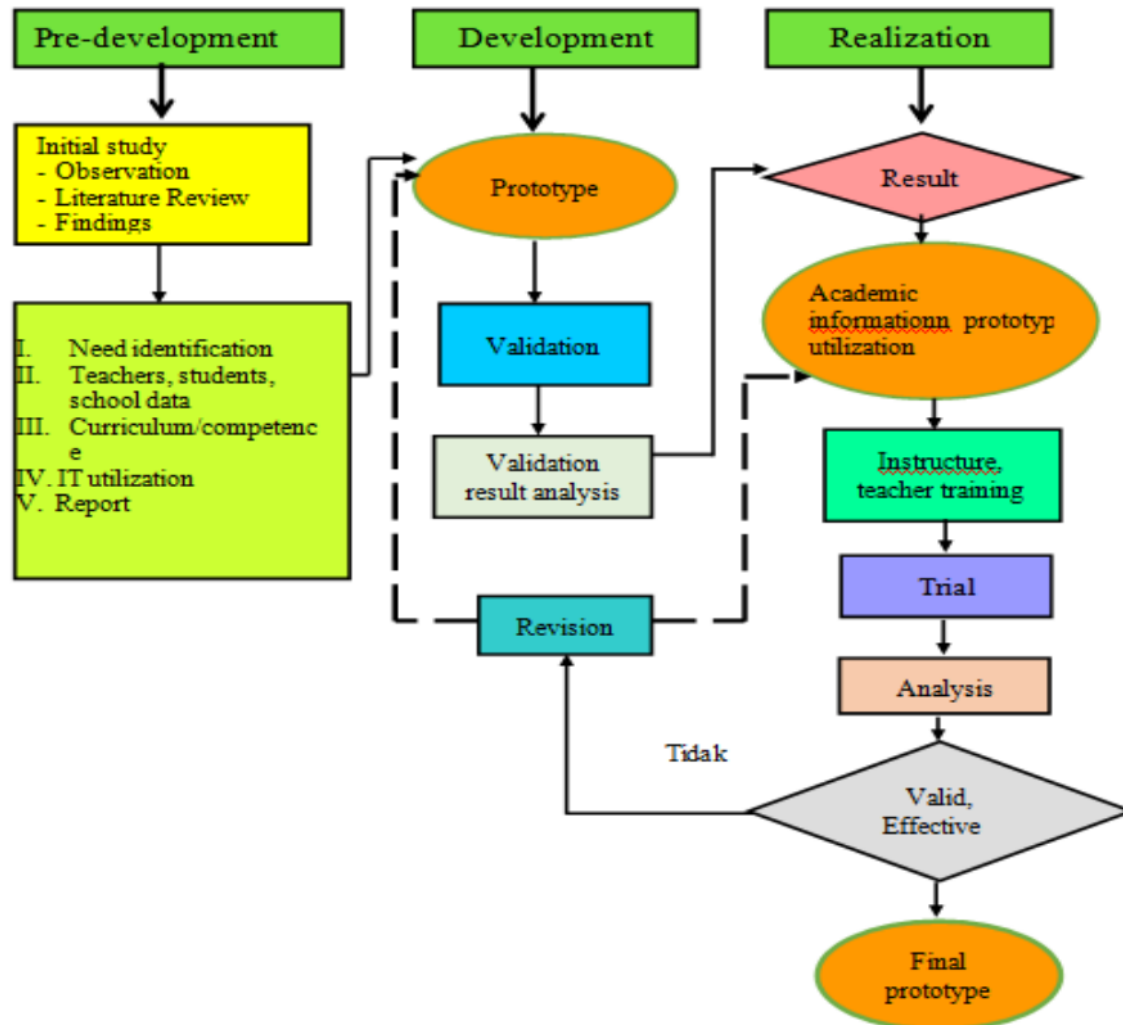
Figure 1. Development Phase Diagram

III. DEVELOPMENT PROCEDURE

The development procedure in this study refers to the stages described previously, including conducting preliminary studies by looking at empirical realities and reviewing relevant theories, defining prototypes and designing products, performing designs, conducting trials, evaluating and Revision, advanced development of tested products, then presents / implements the final product. Procedures for the development of IT-based academic information utilization are operationalized in the following description:

A. Initial Stage (Pre-development/Research)

a). Initial Investigation

Informasi akademik berbasis IT di Sekolah Menengah Kejuruan.
The initial stage in the development research to be undertaken is to define the problem or preliminary study of problems such as components related to academic information, as well as to analyze the context in which the program will be applied. Beginning of this investigation phase, researchers conducted

observations to collect information relating to the use of IT-based academic information in Vocational High School.

Based on the information, the activities undertaken are: (1) Examining the problems that exist in schools, such as the availability of computers / lap top and other equipment related to information technology, (2) examining the use of information technology in schools.

b). Design Phase

Activities undertaken during this design phase are:

* Specifying what products will be in the development.
* Designing the instrument to be used. In this phase will produce an academic information system design, the design of the instrument software based devices that exist.

c). Realization Phase

This phase of realization is to arrange or realize the previous phases, such as compiling what is needed in the utilization of academic information systems, compile or set the instrument and theory as the theoretical basis of the model to be made.

d). Testing, Evaluating, and Revising

In this phase, the use of academic information systems is done through field trials and assessments. From the test results will be seen whether it can be developed next to the better, thus will be evaluated and revised.

e). Implementation

After passing the evaluation and revision phase, it proceeded with implementation. Through the implementation phase will be found answers from previous phases. The implementation phase is carried out by the instructor by using or using the facility through software utilization.

B. Second Stage (Development)

The second phase activity is the development stage by validating the model through field trial on the utilization of academic information that has been prepared. Next, it will be described this second phase activity through product trial.

Product Trials

The trials in this development research is to obtain inputs, suggestions, comments, and information needed for research and development of the use of academic information based on information technology.

a). Subject

The subjects in field trials are vocational high school teachers of culinary art training programs in North Sulawesi who are not the main unit of analysis and data sources

* *Trials and Validation*

The procedure in this development is to conduct individual trials. The trial was conducted in one of the vocational schools in North Sulawesi involving teachers of vocational culinary skills program as a subject.

* *Small Group Trial*

After the test results are revised, furthermore to test the quality of IT utilization implementation is tested in small group. Small group trials were conducted on the experimental object of the culinary skill teacher program. If there are no obstacles or obstacles from the trials, then it will be applied to the model validation test. In the model validation test, it is expected to obtain empirical evidence stating that the utilization of academic information based on IT developed has met the valid criteria.

* *Test Validation Model*

After a small group trial, the actual model of IT-based academic information utilization was subsequently tested in school as an empirical validation of the developed model. If still encountered obstacles in the implementation of the revision will be done again until fulfilled the criteria of validity and validity.

If the model developed in the form of an IT-based academic information utilization model has been declared effective in its field testing, the model is the final model.

IV.   RESULTS AND DISCUSSION

The results showed, through the results of the assessment of the teacher about the application of academic information utilization for teachers of vocational high school cullinary art program in North Sulawesi. The result was found that there are no obstacles for teachers in the use of applications ranging from *install* to fill the data and utilize it as information academy. Based on the analysis, there are 3 (three) items answered agreed and other items strongly agree. It shows that the academic information through the application can be said to be *the first;* agree that the application can help make decisions or strategies equally from the user of the system of academic information, *second;* the application can improve the quality of learning, and *a third;* the application used is valid and effective.

No	Questions	Answers				Average	Criteria
		1	2	3	4		
1	Providing data information in accordance with academic activities undertaken at school	0	0	0	2	4	Valid
2	Producing precise and complete academic data for its users	0	0	0	2	4	Valid
3	Producing academic data containing the truth that is in accordance with the calculations that exist in the process	0	0	0	2	4	Valid
4	Producing information that can help make the same decisions / strategies from various users of academic information systems	0	0	1	1	3,5	Valid
5	The information presented is clear to understand by using language that is easily understood by the user	0	0	1	1	3,5	Valid
6	Presenting value information in terms of numbers and letters clearly	0	0	1	1	3,5	Valid
7	Improving teacher performance productivity	0	0	0	2	4	Valid
8	Improving the quality of learning	0	0	0	2	4	Valid
9	Increasing student competence	0	0	0	2	4	Valid
10	Improving school quality	0	0	0	2	4	Valid

Table 1. The Results of Teachers Assessment on the Application of Academic Information.

Based on the results in the table above, it can be described the data obtained as a whole is valid that is: (1) in case the information in accordance with academic activities undertaken in the school declared valid with an average value of 4 which means strongly agree that the application provides information in accordance with academic activities. (2) Produces the right and complete academic data for the user is valid with the average value of 4, which means strongly agree with the application to produce accurate and complete academic data. (3) Produces academic data containing the truth that is in accordance with the calculations that exist in the process and it considers valid with an average value of 4, which means strongly agree with the application because it produces academic data containing the truth. (4) Produces information that can help taking the same decision or strategy from various users of the academic information system and it considers valid with an average value of 3.5, which means agree with the application as it can assist in decision making. (5) The information presented is clear to understand by using a language that is easily understood by the user and considers valid with an average of 3.5 results, which means the application is clear, understandable because the use of language is easy to understand. (6) Presents information values in the form of numbers and letters are clearly declared valid with an average value of 3.5, which means both the numbers and letters clearly legible. (7) Improve productivity of teachers' performance and valid with average result 4, which means by utilizing the application can improve teacher performance productivity. (8) Improve the quality of learning which is valid with the average result 4, which means by utilizing this application can improve the quality of learning. (9) Increasing the competence of students which is valid with the average value of 4 which means that by utilizing this application can improve student competence. (10) Improving the quality of the school which is valid with an average value of 4, which means that this application can improve the quality of school.

Thus, it can be assessed as a whole application is valid and efficientand can be utilized and make a positive contribution to be used in the learning process at Vocational High School Cullinary Art Program in North Sulawesi.

V. CONCLUSION AND SUGGESTION

CONCLUSION

Based on the description of data and discussion of research results as mentioned above, it can be concluded that:

- The applications can be utilized as information providers for academic activities at Vocational High School.
- The applications can be utilized as producers of information in decision making.
- The applications can improve the performance of teachers and the quality of students.

Thus, the overall application is valid and can be utilized by teachers efficiently to improve the quality of schools, especially vocational high school in culinary skills program in North Sulawesi.

SUGGESTION

Based on the conclusions presented above, then:

- For teachers to maintain the facilities and cultural use of IT-based academic information that has been established, and continue to develop it to support the performance of teachers.
- For schools to have a server, so that it can easily principal and the education office to monitor learning programs prepared teachers through information technology.
- Provide support to teachers to further develop themselves in the use of information technology in academic activities.

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