Evaluation of Acceptance toward Decision Support Systems for New Student Admission Management

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Keywords: Validity, Reliability, Critical Factors, ISO 9001, SMEs

Abstract: To be able to survive amid intense organizational competition, Small Medium Entrepreneurs (SMEs) require strategies to improve the quality of products/services offered. Quality improvement is clearly needed so that companies have high competitiveness. Good product/services can be produced by good internal processes. ISO 9001 Quality Management System is a framework that has been used extensively by SMEs to ensure the quality of the process. But not a few SMEs have successfully implemented and obtained QMS certification. Many factors influence the process of implementing ISO 9001 QMS, especially in the context of SMEs that have many limitations. This study aims to test the validity and reliability of scale for implementing ISO 9001's Critical Factors in SMEs level. The method used is a quantitative survey of four SMEs that have successfully implemented and obtained ISO 9001 certification. Data from the survey were analysed using the Aiken approach to show the level of validity and reliability. The results showed that of the 20 items tested, only 19 items were met the criteria. Item of Employee Acceptance was eliminated from scale because the implementation of ISO 9001 is mandatory for all stakeholders so the factors could be ignored.

1 INTRODUCTION

The use of Information and Communication Technology (ICT) today is an inevitable necessity. Even the use of ICT is one of the opportunities that can be used by organizations in increasing competitive advantage. Ray (2007) states that ICT users can support organizational business processes and even increase business value. This has also penetrated into the world of education, including vocational high schools (SMK). At the vocational level, there are several activities to support the learning process, vocational school management or vocational administration. These activities include: learning process, student data processing, new student admission, student data management, delivery of information to the community, teachers and students, library management, payment of school fees, etc. ICT can be used to support these activities so that the effectiveness and efficiency of the use of existing resources can be optimized. One of the uses of ICT is to automate existing business processes (Wardani, 2017). Based on some literature, it turns out there are still many SMKs that

have not used ICT optimally. Business processes that are running are not yet automated, causing problems such as slow processing, inaccurate recording, difficulty tracing data, etc. Portraits that are often found in schools in general are still manual systems, printed media that is still attached, data storage is still conventional, that is written on a book and stored in a large closet that requires a special room or place (Hartono, 2014; Hasbi, 2015; Wardani, 2017). This study emphasizes the business processes of new student admissions, especially in the Information Technology Vocational High School. The new student admission system in vocational schools is still mostly manual where prospective new students register by writing their own data on the paper on the registration form provided. After the form is filled in and then recapitulated by the school into the computer. The data collection process for new students also uses paper and then processed in software such as Microsoft Excel (Nugroho, 2007; Herdianto, 2014). Processing of test scores and selection results is announced through an information board so that prospective students must be obliged to come to school. Bina Informatika Vocational Schools, such

as schools, generally select new student admissions based on students' talents, interests and abilities. This vocational school offers several departments that are of interest to prospective students so that it is expected that prospective students can choose an appropriate department and are able to take part in the productive learning process of the chosen department. Therefore, the process of selecting new prospective students must be done well, otherwise losses will occur on both sides of the school and students themselves. In addition, the limited capacity of each department, the school is expected to be able to select prospective students based on the highest score in each entrance examination. To produce information quickly, precisely and accurately from the results of the overall value obtained by prospective students, of course the school needs an information technology developed. Decision support systems have been developed to assist management in selecting prospective students based on established criteria. This study aims to evaluate the extent to which the system can be accepted by users so that it can eventually be used optimally. This is because an application of the right information technology in an organization is not an easy thing, it often fails because of technical and non-technical constraints (Saktiyanto, 2016). Therefore, evaluation of user acceptance is very important to predict the use of these technologies in the future. According to Delon & McLean (2003), user acceptance of a technology is directly proportional to its adoption rate.

According to Jogiyanto (2007), technology users will have behavioral interests using technology if they feel the technology is useful and easy to use. The technology acceptance model that has been widely used is the Technology Acceptance Model (TAM) which identifies two key factors of individual acceptance of technology namely perceived usefulness and perceived ease of use. This study uses the TAM model to determine the level of user acceptance of the decision support system in the new student admissions process that has been developed.

2 METHODS

This research is quantitative descriptive which aims to describe the extent of acceptance of the decision support system of new students in Bintaro Informatics Development Vocational School from the user's perception. Decision support system (DSS) was developed to assist schools in selecting

prospective new students who take the entrance screening test, making it easier for management to obtain data quickly and accurately in making decisions.

A total of 24 people were involved in the research survey including the Principal, Deputy Principal, Deputy Head of Education, Deputy Head of Student Schools, Deputy Principal of Facilities and Infrastructure, Head of Information and Communication Technology, Head of Arts and Creative Industries and members of the New Student Admissions Team which was formed to manage the running PSB process. This is due to the many criteria tested which include academic tests, aptitude tests, psychological test, interview tests and physical tests. All respondents filled out a questionnaire that had been tested for validity and reliability.

The distribution process and filling out the questionnaire takes a long time, namely for 1 month (July 2018). This is because filling out the questionnaire must simultaneously use the decision support system directly so that there is an element of practice. Previously using DSS, respondents were given an explanation of how the system works and what features are included in it. After the respondent uses the system, a questionnaire can be done. The questionnaire distributed in this study consisted of a total of 15 statement items (indicators), including 2 independent variables and 1 dependent variable. The independent variable used to predict the level of user acceptance is the perception of benefits consisting of 4 statement items and perceived ease of use as many as 6 statement items. While the dependent variable measured is the level of user acceptance which consists of 5 items (indicators). The assessment dimension uses a Likert scale, starting from a scale of 1 = "strongly disagree (SDA) to score 5 =" strongly agree (SA)". The level of approval of the benefits and ease of use aspects can predict the level of user acceptance of the developed DSS. In addition, it can be evaluated what aspects are still lacking in the performance of the system so that it becomes a recommendation for future improvements.

This study uses the technology acceptance model (TAM) which aims to predict the level of user acceptance of technology. The original TAM model actually consists of five variables: perception of ease of use, perception of usefulness, attitude towards use, interest in the use of actual systems and use of behavior. However, in the literature study conducted, several studies show that attitude attitudes variables have not proven to be significant and are dropped from the TAM model (Venkatesh &

Davies, 1996; Venkatesh & Davies, 2000; Venkatesh et. Al, 2003; Chuttur, 2009). They are arguing that the role of attitude in explaining behavioral intention or actual adoption is the behavior is very limited and is a partial mediator in the relationship between beliefs and the adoption behavior or intention. Several other studies (Gahtani, 2001; Sanjaya 2002) simplify the TAM model by combining the use behavior variable with actual system use into a variable, user acceptance. The operational model in this study can be presented in Figure 1 as follows:
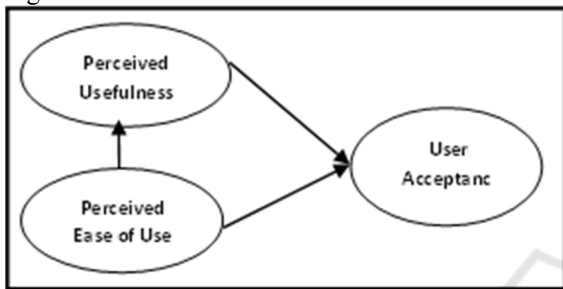

Figure 1: Growth of ISO 9001 Penetration (ISO, 2014)

The operational table of the research can be seen in Table 1 where each variable both independent and bound variables are latent (abstract) so it needs to be operationalized by adding several items/ measurement indicators. The measurement instrument in this study consist of perceived usefulness (6 items/indicators), perceived ease of use has 6 items/indicators and user acceptance has 3 items/indicators (Davies, 1989) as presented in Table 1 below:

Table 1: Measurement Instrument

No	Variable	Item/Indicator
1.	Perceived Usefulness	Accelerate completion of tasks (PU1)
		Improve performance (PU2)
		Simplify work (PU3)
		Increasing Effectiveness (PU4)
2.	Perceived Ease of Use	Easy to learn (PE1)
		Easily calculate participant value (PE2)
		Easily get ranking information (PE3)
		Easy to understand (PE4)
		Skill using (PE5)
		Easy to use (PE6)
3.	User Acceptance	Increase frequency (UA1)
		Interest in using (UA2)
		Real use (UA3)
		User satisfaction (UA4)
		Motivate others (UA5)

Testing of user acceptance of DSS is analyzed descriptively with the first two levels based on the number of frequencies of the respondent's answer distribution and the second, with a statistical indicator in the form of the average value of the total respondents' answers to each variable and item. In this study it is assumed that the mean value of a variable exceeds 4 then it can be concluded that the level of agreement of respondents is assumed to be high. For example, if the ease of use perception variable has an average value equal to or greater than 4 (4), it can be said that the system proved easy to use by the user. Conversely, if the mean value is below 4 (<4), the system is assumed to be difficult to use. Statistical calculations are also carried out not only for variable levels, but also for each item in the questionnaire.

3 RESULT & DISCUSSIONS

Based on the results of the questionnaire that has been processed obtained descriptive statistics that can be presented in Table 2 as follows:

Table 2: Response Frequency : Perceived Usefulness

Item/Indicator	Response Frequency				
	SA	A	N	DA	SDA
Accelerate completion of tasks (PU1)	33%	59%	8%	-	-
Improve performance (PU2)	17%	43%	50%	-	-
Simplify work (PU3)	17%	34%	58%	-	-
Increasing Effectiveness (PU4)	18%	33%	58%	-	-

SA= Strongly Agree, A=Agree, N=Netral, DA=Disagree, SDA=Strongly Disagree

Based on Table 2 of the perceived usefulness aspect that is assessed, the majority of respondents' answers are neutral and agree. The indicator "accelerating completion of work" gets the highest percentage of 59% of respondents agree and 33% of respondents said strongly agree. In addition, if the average value of each indicator calculated for indicators obtained for PU1 items, the average score of 4.25, PU2 4.00, PU3 and PU4 has the same score of 3.92. From the average scores obtained, almost all get a mean score of 4.00 so that it can be said that the decision

support system developed is considered useful for users, especially in accelerating task execution, improving work performance and effectiveness in helping new student admission activities in school. The results in terms of perceived ease of use can be shown in Table 3 below:

Table 3: Response Frequency : Perceived Ease of Use

Item/Indicator	Response Frequency				
	SA	A	N	DA	SDA
Easy to learn (PE1)	33%	50%	17%	-	-
Easily calculate participant value (PE2)	34%	58%	8%	-	-
Easily get ranking information (PE3)	34%	58%	8%	-	-
Easy to understand (PE4)	25%	42%	33%	-	-
Skill using (PE5)	17%	50%	33%	-	-
Easy to use (PE6)	17%	50%	33%	-	-

In Table 3 it can be seen that the majority of frequency answers are at the agreed level where the highest agreed frequency is on the indicator "easy to calculate the value of participants (PE2)" and "easy to get information (PE3)". When viewed in PE2 and PE3 items, users find that the decision support system can provide information quickly and easily regarding the rank of prospective students who have taken the exam based on the calculation of the value criteria tested. Based on the average value calculated, the PE1 items obtained got a score of 4.17, PE2 & PE3 4.25, PE4 3.92, PE5 & PE6 reaching 3.83. In general, the average score obtained is 4.00 although there are several indicators that must be improved. Thus it can be said that the decision support system can provide ease of use for users to select prospective new students in the school environment.

Furthermore, in this section also analysed aspects of user acceptance which can be presented in Table 4. Based on Table 4 below, it can be shown from the overall indicators that are assessed, the frequency of respondents' answers at the level strongly agrees and agrees is higher than the other alternative answers. For example, the item "interest in using (UA2)", the number of respondents who chose a very agreeable answer reached 50% (12 of 24 respondents) and agreed also 50%.

There are no other answers besides the two answers. This means that the interest of respondents to use the system is very high. The average value obtained for each item is as follows: UA1 4.42, UA2

4.50, UA3 4.33, UA4 4.33 and UA5 get an average score of 4.08. From the average score it can be shown that all items measured have a mean value above 4 (> 4) so that it can be said that each indicator shows that user acceptance is also high for the decision support system that has been developed. The mean score summarized for each variable that also shows the same results as the analysis carried out is for perceived usefulness (4.02), perceived ease of use (4.04) and user acceptance (4.39). All varaibel have an average score above the number 4 (<4) where the variable perceived ease of use has a higher value than perceived usefulness.

Table 4: Response Frequency : User Acceptance

Item	Response Frequency				
	SA	A	N	DA	SDA
Increase frequency (UA1)	50%	42%	8%	-	-
Interest in using (UA2)	50%	50%	-	-	-
Real use (UA3)	42%	50%	8%	-	-
User satisfaction (UA4)	42%	50%	8%	-	-
Motivate others (UA5)	3%	42%	25%	-	-

This shows that the factor of ease of use is preferred by the user in this case which encourages high user acceptance. This will certainly greatly support its adoption in the future.

4 CONCLUSIONS

Based on the research that has been carried out, it can be concluded the survey results of user acceptance evaluation that the user considers the decision support system developed is very useful in supporting the completion of work more effectively and efficiently and improving performance, especially management and the new student admission team. In terms of ease of use, users are also perceived to be very good, especially easy to calculate the value of participants and easily get information on the rankings of the participants resulting from the selection. Both of these independent variables proved to be in line with the level of user acceptance which was also perceived as high especially for the interest in using the system. The evaluation results provide input and

recommendations for the school management in increasing the use of the system in the future.

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