THE ACCEPTANCE OF AN ONLINE EDUCATION MANAGEMENT INFORMATION SYSTEM (EMIS) AMONG DATA AND INFORMATON TEACHERS

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ABSTRACT: The aim of this study is to examine the relations of usability, ease of use, and attitude with satisfaction of Data and Information (DI) teachers in using an online EMIS for the management of data and information in school. The study used a quantitative approach based on a survey involving 120 DI teachers recruited from a secondary school in the state of Pahang, Malaysia. Pearson Correlation and Linear Regression statistical procedures were performed on the survey data. The results showed that all the four variables were highly rated, suggesting that the acceptance of the EMIS by the DI teachers is significantly high. Furthermore, there were significant positive relations of strong magnitudes among usability, ease of use, attitude, and user satisfaction of DI teachers in using the online EMIS. Also, there were significant differences in attitude and user satisfaction based on demographic factors, involving those whose ages were within 31 to 35 years and 36 to 40 years and those who had high frequency of use, respectively. Overall, these findings strongly suggest that usability and ease of use are critical factors in influencing attitude, which in turn influences user satisfaction of DI teachers to accept such an online system.

1. INTRODUCTION

The continual improvement and sophistication in Internet technology has drastically changed every sphere of the society, encompassing a wide spectrum of activities. Arguably, organizations, companies, or agencies, either public or private, across the globe rely on such technology for their operations. Their dependency on Internet technology is almost total—where working without it is unthinkable. Almost all organizations use the Internet technology, most notably for their management and administration operations. Malaysia is no exception as the use of Internet technology has pervaded into every sector of the nation. For example, the Malaysia's Ministry of Education (MMOE) has invested heavily in technology to cope with the management and administration of schools throughout the nation. Such investment included the development and implementation of several web-based systems to deal with the ever-increasing demand for handling and controlling of vast amount of data and information. More specifically, these systems were put in place to help boost accessibility to data, enabling all the stakeholders, particularly

school administrators and teachers, to use accurate, important information for all their activities.

The Educational Planning and Research Department (EPRD) of MMOE, as the agency entrusted with the management of information and accounting related to education, has adopted an Educational Management Information System (EMIS) to collect data online. The adoption of such online data collection system was necessary to help the above agency to collect, process, store, and disseminate data and information. Having access to such data enables decision makers and senior managers of agencies under the MMOE to perform their tasks more efficiently and promptly (BPPDP, 2008). More importantly, the use of data and information of EMIS would help in the planning and accounting of future educational endeavours.

As part of the effort to facilitate the smooth implementation of EMIS, every school throughout Malaysia has appointed a Data and Information (DI) teacher, who is responsible for collecting and updating data of his or her school. In essence, such an appointment would help maintain and manage the online EMIS more efficiently. Nonetheless, the implementation of EMIS was not without controversies, as there are many comments or complaints by end-users (teachers), which consistently appear on social media blogs (e.g., Facebook) and in mainstream newspapers, clearly casting a bad spell on such a system (Aslina & Ermie Dharlya, 2015). Arguably, the successful adoption of any system is determined by the acceptance of users rather than by its supposedly sophisticated features. In other words, users must be satisfied when they use such a system, otherwise the system would be deemed irrelevant. In this regard, it is important to understand why a particular technology will be accepted, or rejected, by users (Liaw, Chen & Huang, 2008). In light of this importance, this study was carried out to examine the acceptance and satisfaction of DI teachers with regard to the use of EMIS in Malaysia. In particular, the focus of the research was on the factors that influence the acceptance of EMIS, namely usability, ease of use, attitude, and satisfaction. To guide the study, four research objectives relating to the EMIS were formulated as follows:

1. To determine usability, ease of use, acceptance, and satisfaction of DI teachers in using the EMIS.
2. To examine the relations among usability, ease of use, acceptance, and satisfaction of DI teachers in using the EMIS.
3. To investigate the differences in acceptance and satisfaction of DI teachers based on demography.
4. To determine the impact of usability and ease of use on acceptance and the impact of acceptance on satisfaction of DI teachers in using the EMIS.

In undertaking this study, the researchers used a conceptual framework that was adapted from Davis' TAM (1989) model and DeLone and McLean's *Information System Success* model (2003). The adapted model was deemed appropriate in view of the mandatory use of EMIS as an online information system that is managed by DI teachers for the management of school information.

To facilitate discussion, this paper is organised as follows: (a) literature review (related to management information systems used in schools, notably online EMS), (b) research methodology, (c) data collection and analysis, (d) research findings, and (e) discussion and conclusion of the study.

2. Literature Review

The application of online EMIS for the management of school information is one of the top priorities in Malaysia's educational reform. Such a system in essential to help all relevant bodies, such as schools and state education departments, among others, to access and manage data that are reliable and up-todate. Thus, a concerted effort by all concerned bodies is entailed to ensure the success of the implementation of EMIS. Otherwise, the system will succumb to failure as experienced by other ill-fated systems. Given that EMIS is the core component of nation's management information system, teachers have been trained to help them become well-versed and expert in using the system. With high level of expertise, they could not only function as data and information teachers but as agents who could introduce changes to all concerned in school, in which information and data will be used and managed more responsibly.

Currently, there are several types of information systems that have been introduced in the Malaysian schools. Despite the euphoric reactions on the first few months of their introduction, some of these systems have attracted many negative comments and criticisms. For example, a report in the national news agency *BERNAMA* (2011) showed that the system used for the management of school examination, notably *Sistem Analisis Peperiksaan Sekolah* (SAPS), was not easy to use.

Unfortunately, many teachers have found the system to be burdensome and, in extreme cases, frustratingly unbearable, forcing them to use the system way too late at night. In addition, some teachers have encountered technical problems, such as poor or slow Internet connection. As the problems continue to prolong, these teachers have no alternatives but to air their grievances over the social media blogs (Azrul Affandi Sobri, 2011), casting SAPS as a poor, problematic system. Further entrenching the poor perception of this system, an article appearing in *Berita Harian* (2013) entitled "Sistem Penilaian Berasaskan Sekolah (PBS) bebankan guru" (School-based Assessment System burdening teachers) highlighted similar problems. In essence, this article reported that the online system for the updating of examination-related information had increased teachers' workload, especially those working in urban schools that typically had bigger student population. Further compounding the problem, slow Internet connection forced some teachers to carry out the updating process at home, not at school.

Another article appearing in *The Star* (2011) homed in on the main problem of this online system. The title of the article "Many teachers complain over slow online system" was ominous, unreservedly blaming the speed with which the system was operating—it was pathetically slow. Besides, the teachers perceived the system was unstable (particularly at night) and not userfriendly. Thus, it was hardly surprising that the teachers had to key in data at late hours, which were the time when the line was not busy. As a result, teachers' morale took a downward spiral as they lacked the time and energy to prepare their lesson for the following days.

Several scholars have been worried by such predicaments faced by teachers. For example, Mohammad Agus Yusoff (2013) wrote a compelling essay entitled "Dengarlah Keluhan Para Guru" (Listen to the teachers' grievances), in which he rightly pointed out that the problem of the system seemed to originate in the process

of entering data, which was painfully slow due to high volume of data traffic. Thus, teachers resorted to entering data at night, not on normal working hours. Consequently, they became lethargic and tired on the following day, severely undermining the quality of the teaching and learning process. Without proper remedy, their students were devoid of quality learning as the teachers spent too much time on 'clerical matters', not on their core task that was to teach. To make matter worse, the same system on numerous occasions "hanged up" or became unresponsive, which further made the teachers more stressed and frustrated (Mohammad Agus Yusoff, 2013).

In addition to the official reports appearing in newspapers and personal blogs, teachers' complaints and dissatisfactions have been highlighted on social media (e.g., Facebook) to the extent that a survey has been carried out to examine the negative impact of the system on teachers' morale. As anticipated, many respondents noted that the system had not contributed significantly to ease their work. In fact, their believed that the system had a reverse effect — making their work more burdensome. In general, the system was perceived to be slow and not user-friendly. Getting connected to the system was also mentioned, indicating limited bandwidth that precluded high volume of data transmission. In addition, some teachers complained that they were not provided with any kind of training to use the system. Thus, it was not surprising that the system received such a negative rating, indicating that the user acceptance of EMIS (as an online system for the management of school data) is a major issue that needs immediate redress.

User satisfaction is often used as an indicator of system performance (Kelly & Swindell 2002). Using such an indicator, system administrators can gauge the current performance of their system so that improvement can be made as necessary. With such continual improvement, the system can provide better service to clients, the impact of which the clients become satisfied and loyal. Ultimately, such satisfied clients or users will continue to use the system persistently. This repeated, persistent use of the system also serves as an indicator of user satisfaction (Muylle, Moenaert & Despontin, 2003).

The recommended approach to enhance the usability of a system among users should be based on two factors, namely user satisfaction and user acceptance (Noraidah, 2012). In this respect, several theoretical approaches can be used to help measure such factors. In many studies, these approaches have been used empirically to test user satisfaction. More specifically, several acceptance models have been conceptualized to deal with questions of why and how users adapt new information technology. For this study, the conceptual framework to help the researchers examine user acceptance of the mandatory information system was based on Linders's (2006) model, Davis's (1989) technology acceptance model (TAM), and DeLone and McLean's (2003) Information System Success model.

Many researchers have used TAM consistently to examine technology acceptance in many research contexts involving diverse organizations, computer-based technologies, and user populations. For online EMIS, there are several factors that influence the acceptance of this technology, such as usability, ease of use, and teachers' attitude. In fact, the first two factors are two of the original factors of TAM (Davis, 1989). According to this model, "usability" and "ease of use" are factors that help explain users' behaviours that lead to their acceptance of such a technology. In particular, TAM provides the foundation in identifying the effects of

external factors on users' belief, attitude, and intention (Victoria & Marios, 2009). Given its strong theoretical underpinnings, TAM has been applied and adapted successfully in many studies that focused on user acceptance in many diverse contexts.

For this study that focused on the acceptance of EMIS by DI teachers, the dependent variable was the teachers' attitude (ATT), and the independent variables were the usability (PU) and ease of use (PEOU) of the system. The moderator variables were the demographic factors of teachers, namely age, gender, experience (in using the system), frequency of use, and level of training. Figure 1 highlights the conceptual framework involving the above variables and the presumed relations.
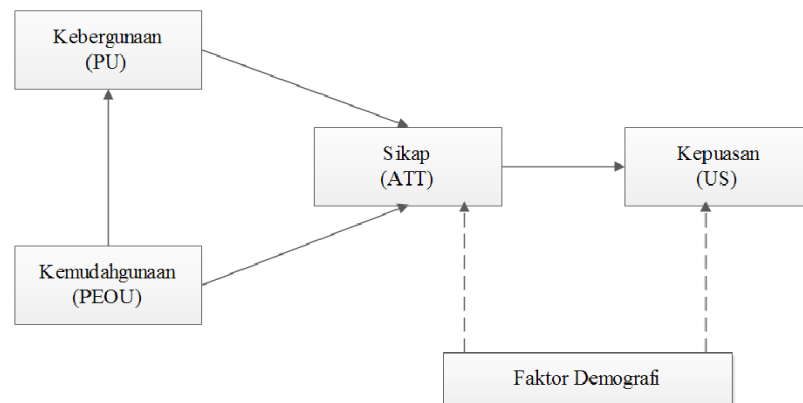

Fig.1. The conceptual framework (adopted form Linders, 2006)

3. METHODOLOGY

The research method used in this study was based on a quantitative approach using a survey. The research instrument used was a survey questionnaire, which helped measure the relevant factors related to EMIS namely, usability (PU), ease of use (PEOU), attitude (ATT), and satisfaction (US). The study sample was made up of 120 DI teachers, who were chosen randomly from various schools in the state of Pahang.

According to the *Risalah Maklumat Asas Pendidikan* (2012), 162 mainstream secondary schools had DI teachers for the management of data and information. Using Krejcie and Morgan's (1970) table, the required sample size based on the above population of DI teachers was determined to be 120. The administration of the survey was done online where all the DI teachers were sent with an email with a link (url) to the survey website. On reaching the target number of 120, the online survey was closed. The survey data were then analysed to yield descriptive and inferential statistics concerning the demographic and the variables of the study.

A pilot study was carried out before the survey, which involved 30 DI teachers selected from several secondary school in Pekan, Pahang. The purpose of this pilot study was to establish the reliability of the research instrument used, indicating the ability of a research tool to measure consistently the variables of a study across time, place, and sample (Mohd Salleh, 2000). The measure used for this factor was the Cronbach Alpha coefficient, α, ranging from "0" to "1". The computed

coefficients for usability, ease of use, attitude, and satisfaction were .91, .89, .82, and .88, respectively, all indicating high reliability.

Correlational analysis based on Pearson Correlation was performed to examine the strengths of relations of usability and ease of use with attitude, and attitude with satisfaction. The interpretation of the strengths of the above factors was based on the guidelines proposed by Chua (2006). An analysis of variance (ANOVA) was also performed to examine whether differences in attitude and satisfaction based on respondents' demographic (in particular, age and experience) were significant or not. For this analysis, the level of significance was set at .05. In addition, regression analysis was carried out to determine the contribution of usability, ease of use, and attitude, as predictor variables, to explain the variance in acceptance of EMIS.

The survey questionnaire used in this study comprised three sections, consisting of items that were rated along 5-point Likert scales. The first section, Section A, elicited demographic information such as gender, age, experience (as DI teacher), computer skills, computer ownership, ease of access, frequency in using EMIS, and training in using EMIS. The second section, Section B, contained 20 items that helped measure three factors, namely system usability (PU), ease of use of the system (PEOU), and teacher attitude (ATT). The first fourteen items (B1 to B14), which were modified from Davis's (1989) items, helped measure system usability and ease of use of the system. The remaining items (B15 to B20), which were adapted from *Internet Self Efficacy Scale* (Torkzadeh & Van Dyke, 2001), helped measure respondents' attitude toward technology. The last section, Section C, which contained 20 items (C1 to C20) that were been adapted from *User Perceived Web Quality Instrument* (Adel & Prashant, 2002), helped measure DI teachers' satisfaction with the use of the online EMIS.

4. Data Analysis

Descriptive analysis was carried out to measure all the variables of the study. In essence, this analysis helped address the main research question of the study: "What are the levels of usability, ease of use, user acceptance, and user satisfaction of the DI teachers with EMIS?" Data were analysed using the Statistical Package for Social Science (version 19.0), yielding descriptive statistics based on the percentages and mean scores of all the variables of the study. In terms of gender, 55% (*n* = 66) of the respondents were male and the remaining 45% (*n* = 54) were female. In terms of age, respondents whose ages ranged from 31 to 35 years recorded the highest percentage, with 38.3%. Tailing closely were those whose ages were below 30 years, registering 34.3%. Respondents whose ages were within the range of 36 to 40 years represented 24.2% of the respondents. Finally, at 3.3%, respondents whose ages were above 41 years represented the lowest percentage of all the respondents in the study.

In terms of experience, slightly more than half (54.5%) of the respondents had some experience working as DI teachers between 5 and 10 years. Those who had working experiences as DI teachers beyond 10 years and less than 5 years represented 16.7% and 29.2% of the total respondents, respectively. A majority of the respondents, at 67.5%, reported that they had high computer skills, and the remaining 32.5% indicated that their computer skills were moderate. A great

majority of them, at 89.2%, indicated that they owned a computer, by which they used it at home to access the online EMIS. Only 10.8% of the respondents reported that they used computers at schools. Likewise, at 79.2%, a high percentage of the respondents indicated that they had Internet access at home to access the online system. The remaining 20.8% of them had Internet access only at school using *streamyx*, *schoolnet,* and *YES 4G*.

In terms of frequency of use, all the respondents indicated that they used the EMIS for the management of data and information of their schools. Slightly more than half (50.8%) of the respondents reported that they used the system consistently on a weekly basis. Likewise, slightly less than half (49.2%) of them indicated that they used the EMIS consistently on a monthly basis. In terms of training, more than two-thirds of them, at 78.3%, had undergone some form of formal training in using EMIS. In contrast, those who had no official training accounted for 21.7% of the total respondents.

4.1. Usability (PU)

In this study, usability (PU) was defined as the degree to which DI teachers believe that using the EMIS will improve their performance. Respondents were required to state their agreement, or disagreement, with eight statements or items concerning the usability (PU) of EMIS based on 5-point Likert scales, ranging from "1" (*strongly disagree*) to "5" (*strongly agree*). The eight items were adapted from Davis' (1989) research instrument.

Item relating to the impact of which EMIS helps ease DI teachers' work was rated the highest, attaining a mean score of 4.3. Next, the item that concerns the ability of EMIS to help them work faster was rated second highest, registering a mean score of 4.10. The third highly rated item was the item that refers to the usefulness of EMIS in helping DI teachers to carry out their work, standing at a mean score of 3.91. In contrast, item relating to the ability of EMIS to facilitate the work of DI teachers was rated the lowest, scoring a mean score of 3.78. Overall, the grand mean score of this construct suggests that the user acceptance (PU) of EMIS among the DI teachers is high.

4.2. Ease of Use (PEOU)

Ease of use was defined as the degree to which a user believes that his or her interaction with EMIS does not require maximum effort. Respondents were required to state their agreement, or disagreement, with six statements or items concerning this construct (PEOU) of EMIS based on 5-point Likert scales as that of the above (PU) factor. Similarly, the items were adapted from Davis' (1989) research instrument.

Statement regarding respondents' perception that learning to use the system is easy was the highest rated item, recording a mean score of 3.98. Not far behind, with a mean score of 3.85, item relating to the ease of using the system was the second highest rated item. For this construct, item concerning the respondents'' perceived lack of enjoyment in using the system received the lowest rating, with a mean score of 3.78, suggesting that they had some difficulties in directing the system to perform in certain ways. Overall, the respondents agreed that the EMIS was relatively easy to use, as attested by the grand mean score of 3.83. Thus, the

ease of use (PEOU) of this system is relatively high given the positive feedback of the DI teachers.

4.3. Attitude (ATT)

Attitude was defined as the degree to which a user feels interested to use the EMIS. Similarly, respondents were required to state their agreement, or disagreement, with six statements or items concerning this construct (ATT) of EMIS based on 5-point Likert scales, ranging from "1" (*strongly disagree*) to "5" (*strongly agree*). The six items were adapted from *Internet Self Efficacy Scale* (Torkzadeh & Van Dyke, 2001).

Item relating to the use of EMIS in helping DI teachers to improve the management of educational matters was the highest rated item, attaining a mean score of 3.94. Following closely, with a mean score of 3.89, item concerning the perception that the system has not failed their expectations was the second highest item. Item relating to the positive impact of EMIS on easing DI teachers' data management efforts was also rated quite high, as evidenced by a mean score of 3.79. The lowest rated item, with a mean score of 3.63, was the item that concerns with the use of EMIS that does not incur extra burden in carrying out educational management tasks. In view of the above feedback, the attitude of DI teachers toward the use of EMIS is deemed relatively high.

4.4. Teacher Satisfaction (US)

User satisfaction (US) was defined as the opinion of the DI teachers toward the online EMIS. There were 20 items to which respondents were asked to state their opinions regarding their satisfaction in using the EMIS. Again, the scales used were based on 5-point Likert scales, ranging from "1" (*strongly disagree*) to "5" (*strongly agree*). The 20 items were adapted from *User Perceived Web Quality Instrument* (Adel & Prashant, 2002).

Item relating to the ability of EMIS to provide accurate information received the highest rating, securing a mean score of 4.00. Item relating to the good design of the system interface attained a mean score of 3.95, placing it as the second highest rated item. Item referring to improved communication within their organization recorded a mean score of 3.68. Finally, item concerning the good reputation of EMIS gained a mean score of 3.68, making it the lowest rated item for this construct. With the above mean scores, the overall rating of user satisfaction of EMIS was rendered quite high, achieving a mean score of 3.81. Thus, in light of the calculated mean scores, the usability (PU), ease of use (PEOU), attitude (ATT), and user satisfaction (US) of the EMIS are relatively high.

4.5 Hypotheses Testing

The section highlights the findings of the correlational analysis, one-way ANOVA, and regression analysis, the details of which are as follows:

4.5.1. Correlational Analysis

Correlational analysis is one of the important statistical techniques used to examine the relation between two or more variables. Typically, this statistical technique is appropriate for analysing the relation between an independent variable and a dependent variable.

In this study, a series of correlational analyses was performed, revealing the following findings:

I.   There was a significant positive relation of moderate magnitude between usability and attitude (of DI teachers toward EMIS), $r = .70$, $p < .05$.

II. There was a significant positive relation of moderate magnitude between ease of use and attitude (of DI teachers toward EMIS), $r = .76$, $p < .05$.

III. There was a significant positive relation of moderate magnitude between usability and ease of use, $r = .73$, $p < .05$.

IV. There was a significant positive relation of large magnitude between attitude and user satisfaction, r

     $= .87$, $p < .05$.

V.   There was a significant positive relation of large magnitude between usability and user satisfaction, r

     $= .80$, $p < .05$.

VI. There was a significant positive relation of large magnitude between ease of use and user satisfaction, $r = .83$, $p < .05$.

Figure 2.0 summarizes the relations and the strengths among the four variables. Clearly, the figure shows the relations are positive and highly strong, as evidenced from the calculated correlation coefficients (r), ranging from .70 to .87.
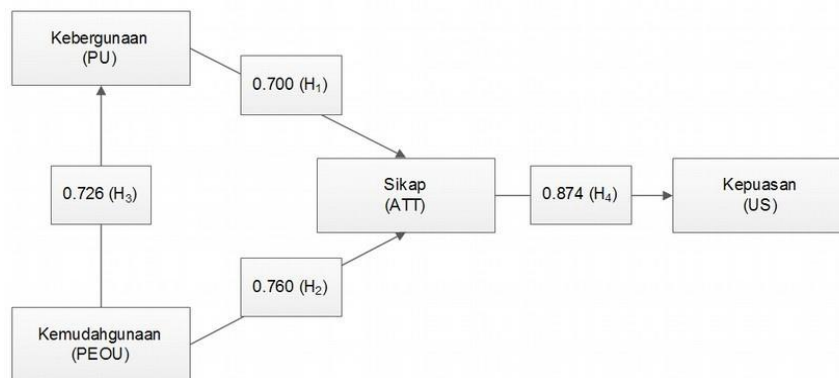

Fig.*2* The relations and strengths among usability, ease of use, attitude, and user satisfaction

4.5.2 One-way ANOVA

For this study, one-way analysis of variance (ANOVA) was carried out to examine if the differences in attitude and user satisfaction with the use of EMIS based on demographic factors were significant or otherwise. The analysis performed yielded the following findings:

1. There was a significant difference in attitude of respondents based on age.

2. There was a significant difference in user satisfaction of respondents based on the frequency of use of EMIS.

Given the significant difference in attitude based on age, a Post Hoc analysis was followed at the significance level of p = .013, which was computed from the Bonferroni Adjustment technique. The procedure divided the values of p as follows:

1. Significance level at .05 = .013   ii. No. of groups = 4

The adjustment technique is entailed to reduce the chance of making the *type-one error* when performing a pairwise test on a data set. The Post Hoc test carried out at significance level of .013 on the four age groups revealed that there was a significant difference in attitude toward EMIS between two groups of DI teachers, whose ages were within 31 to 35 years and 36 to 40 years. This finding signifies that DI teachers of these two age groups had different attitude toward the use of the online EMIS.

4.5.3 Regression Analysis

Determining which variable between usability and ease of use that contributed the most as the predictor in explaining the variance in attitude toward EMIS entailed the use of a regression analysis. Specifically, the *Double Regression Analysis* (DRA) was used to address the following research questions:

1. What is the extent to which usability and ease of use contribute to explaining the variance in attitude toward the use of EMIS among DI teachers?
2. What is the extent to which ease of use contribute to explaining the variance in usability of EMIS? iii. What is the extent to which attitude contribute to explaining the variance in user satisfaction of EMIS among DI teachers?

The analysis of DRA showed that usability and ease of use contributed to explaining the variance in user satisfaction by as much as 49% and 57.7%, respectively ($R^2 = .49$ and $R^2 = .577$). In turn, ease of use contributed to explaining the variance in usability by as much as 52.7% ($R^2 = .527$). Furthermore, there was a strong positive correlation between attitude and user satisfaction, *r* = .87. Specifically, attitude helped explained 76.4% of the variance in user satisfaction of EMIS ($R^2 = .764$). Figure 3.0 summarizes the findings of the regression analysis, clearly highlighting all the seven research hypotheses of the study at the significance level of .05.
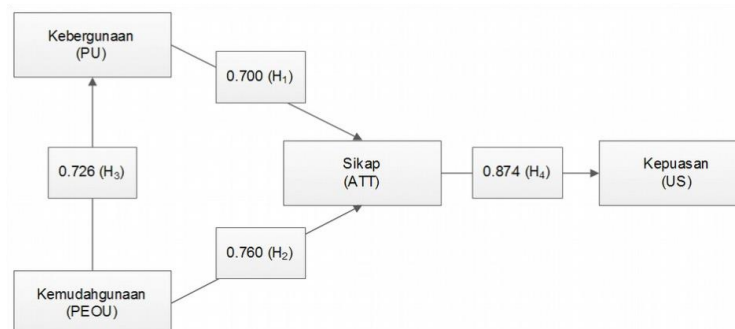

Fig.3. The findings of the regression analysis

Overall, the findings showed that the usability, ease of use, attitude, and user satisfaction of the EMIS were relatively high. Furthermore, the findings indicated that relations among the above four factors were significant and strong. Interestingly, this study also revealed that significant difference in attitude only existed between DI teachers whose ages were within 31 to 35 years and 36 to 40 years. For user satisfaction, a significant difference was observed based on the frequency of use of EMIS. Furthermore, usability and ease of use contributed significantly to explaining the variance in attitude; ease of use contributed significantly to explaining the variance in usability; and attitude contributed significantly to explaining the variance in user satisfaction of EMIS (see Figure 3).

5. Discussion

This section discusses the findings of the study by focussing on models, theories, experiences, and findings reported in earlier studies. From the usability perspective of the EMIS, the findings of this study showed that DI teachers had strong confidence in the use of EMIS. Similarly, from the standpoint of ease of use, they too were confident that the online system was relatively easy to manage. Likewise, similar promising finding was observed for the aspect of user satisfaction, indicating that the level of acceptance of EMIS was high.

All the above positive findings suggest that the DI teachers that have been selected to manage the EMIS possess positive attitude toward technology. The above findings are testimony to the appropriate selection of such teachers who, according to the circular of appointment (*Surat Pekeliling Ikhtisas Bil. 14/2007*), must have sufficient computing skills, committed in managing school data, creative and proficient in data analysis using a wide range of computer applications or tools.

The above findings are to expected as Paraskeva, Bouta and Aik (2008) and Roussos (2007) assert that positive attitude toward information and communication technology (ICT) is a strong predictor of the acceptance of a new technology. In particular, the willingness of a user to accept and use a new technology or a novel innovation in the field of management hinges on the extent to which such a technology could help users perform their task manageably and easily (Maizatul Haizan Mahbob, Wan Idros Wan Sulaiman, Wan Amizah Wan Mahmud, Normah Mustaffa & Mohd Yusof Abdullah, 2012).

For the aspect of satisfaction, the DI teachers noted that they were highly receptive to the notion that EMIS could help them undertake the data management task with a high level of satisfaction. Moreover, the analysis showed that there was a significant relation of strong strength between usability and attitude, which in turn influenced user satisfaction of EMIS among the DI teachers. This particular finding concurs with previous findings, in which usability has been found to correlate significantly with attitude toward technology (Chau & Hu, 2002; Devaraj et al., 2002; Heijden 2003; Liu et al. 2003; Oh et al. 2003; Stoel & Lee 2003).

Similarly, the analysis also indicated that there was a significant relation of strong magnitude between ease of use and attitude toward the acceptance of the online EMIS. Again, such a finding parallels previous findings, in which ease of use of a system has been demonstrated to be strongly correlated with the attitude of users toward a technology (Chau & Hu, 2002; Heijden, 2003; Liu et al., 2003; Oh et al., 2003; Stoel & Lee, 2003).

Finally, the analysis showed that there was a significant relation of strong magnitude between attitude and user satisfaction, cementing a strong acceptance of the online EMIS among the DI teachers. Not surprisingly, this particular finding further underscores the findings reported in other studies (Koh, Prybutok, Ryan & Wu, 2010; Mohamad, 2007), in which a highly strong relation of attitude and user satisfaction has been established, ultimately leading to high acceptance of an information system.

6. Conclusion

The findings of this study showed that all the four variables, namely usability, ease of use, attitude, and user acceptance of the online EMIS were highly rated by the respondents. Moreover, correlational analysis performed indicated that these constructs were strongly and significantly correlated with one another. In addition, regression analysis carried out highlighted a significant contribution of usability and ease of use in explaining the variance in attitude, which in turn helped explain the variance in user satisfaction. Taken together, the above findings suggest that DI teachers could develop positive attitude with regard to the use of EMIS in their schools, if they perceive the system to be highly usable (or beneficial) and easy to handle. With a more positive attitude, the system would be deemed highly acceptable to help these teachers carry out their duty as data and information officers in their respective schools. Thus, it becomes the imperative of policy makers of the Malaysia' MoE and senior administrators of the States' Educational Departments and schools to institute proper planning and training to further improve these teachers' knowledge and skills, especially young and inexperienced teachers. In addition, the ICT infrastructure of schools needs to be upgraded or improved as such an online system relies on fast, reliable Internet connectivity — otherwise, the poor performance of the system would, unfortunately, be squarely blamed on EMIS. Future research is entailed that employs a more representative sample or uses a different methodological approach, such as a mixed method approach, to help enrich the knowledge pertaining to EMIS usage in Malaysia.

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