Enhancing Knowledge Sharing in e-learning by Incorporating Social Network Features

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\textbf{Abstract—}E-learning that is used in the organization is found to be lack of knowledge sharing elements. Instead of using e-learning, user tends to use other alternatives site like social network to share knowledge. The barriers found are willingness to share, changing organization culture, social relationship, features is difficult to use, limited functions, limited user access, knowledge evaluation and as well as the representation of features are not interesting. However, social network is found to have a strong relationship with knowledge sharing and its features are useful in solving the technology problems. It can facilitate knowledge sharing in two ways; by increasing knowledge reuse within users and by eliminating the reliance on formal liaison structures. The features of social network are analyzed and enhancements of e-learning are proposed. The enhancements are evaluated by using questionnaire and interview. The evaluation result shows that the proposed enhancements are accepted. The results found that in order to enhance knowledge sharing in e-learning, the organization should embedded the knowledge sharing culture in student activities and promote the existing best features of e-learning to users. In order to present the enhancements, a framework is developed. The framework consists of five components which are academic information system, mobile service/webcast, learning portfolio, knowledge management engine, websites/emails/blogs and knowledge sharing tools. The social network features are embed into the knowledge sharing tools components. The features are Status Update, Message, Media Sharing, Notes, Share, Like, Quote, Mention, Hashtag and Trends. The improvements on existing features with embedded social network features will enhance knowledge sharing e-learning.

Keywords – e-learning; Knowledge Sharing; Social Network; Social Network Features; Education Organization

1. INTRODUCTION

The knowledge that resides in individuals in the university is used to enhance competitive advantage and improve university performance. However, the people in the organization do not use the system at the optimal way although they know the importance of e-learning in their organization. E-learning is found to be lack of knowledge sharing elements.

In e-learning, knowledge sharing (KS) is one of the components that have been the most commonly discussed and important as the key of organization’s success. KS can be defined as the process of exchanging knowledge (skills, experience, and understanding) among people, community, organization, or groups [1].

The barriers of KS are identified from the analysis on the past study and the problems that users face in the current e-learning. The barriers found are willingness to share, changing organization culture, social relationship, features is difficult to use, limited functions, the representation of features are not interesting, limited user access and knowledge evaluation.

Social network are found to have a strong bond with KS. Social network can facilitate KS in two ways, by increasing knowledge reuse within a staff and by eliminating the reliance on formal liaison structures (both in terms of personnel and systems) between staffs [2]. A person tends to share knowledge with his/her friends or unknowns person when they interact with others by using social network compared to when using e-learning. Thus, this study will focus on how recent arising of technology and features in social network can help in enhancing the KS in e-learning.

This paper is organized as follows. Section 2 and 3 provide the literature review of this study. Section 2 presents the overview of e-learning, the example of e-learning used is referred to the e-learning system at Universiti Teknologi Malaysia while Section 3 describes an overview of social network as the technology that can enhance KS. Next in Section 4, the data analysis for this study is explained. The result of this study is provided in Section 5. In this section, the social network features that can be used to enhance KS in e-learning are discussed and evaluated. Proposed enhancements of e-learning in terms of KS by incorporating the social network features is also presented in the Section 5. The last part is Section 6, which consists of conclusion of this paper.
2. E-LEARNING

The development of technology changes the paradigm of the university which is initially relies on the resources based into the knowledge based. E-learning can be defined as electronic learning which consists of an acquisition of knowledge by using computer and internet-based courseware. E-learning system is used to transfer knowledge and skills [3]. This enabled learning in a virtual world which is where the technology can merges with human creativity, and at the same time accelerate and leverage the rapid development and application of deep knowledge.

E-learning is the use of various technological tools that are web-based, web distributed or web-capable for the purposes of education. E-learning also is basically an online communication that supports flexible learning where users can learn anywhere, which enable transfer process on leveraging knowledge held in different parts of the organization. E-learning can bring together people without any prior common history and who are unlikely to meet face to face to produce complex work based on their learning in organizations.

2. SOCIAL NETWORK

Social network sites are technology that enables users to connect with others by having user profile, allowing friends and colleagues to have access to the profile, and compose messages to one another. Social networks are a critical resource in building teams and in transmitting and maintaining knowledge in an organization. The arising of new technology of social network with communication tools can facilitate many processes in e-learning. The KS process is actually already involves direct or indirectly in the social network nowadays [4].

Moreover, there are many researchers before who has conducted studies and found the potential of learning using social network technology. [5, 6] in their paper stated that besides technology component, social interaction also are very important as the factor of successful e-learning. Social network can be used as the tools for knowledge management for example in the creation, exchanging and transformation of the knowledge. Social network features such as personal profiles, communication among groups and expressing opinion can enhance KS in e-learning.

3. DATA ANALYSIS

The study on the previous paper is conducted to identify the KS barriers in e-learning. The keyword like “Knowledge sharing barriers in e-learning” and “Knowledge sharing problem in e-learning” are used in the searching process at online library. From the searching process, there are 30 papers selected which are related for this study and after the study on each paper, 19 barriers are found. However, only the barriers that have higher number of paper occurrence are selected. Since the total number of paper are 30, only barriers with the percentage occurrence nearest to 50% are selected for this study. As for the results, there are eight KS barriers found in e-learning (Refer to Table 1).

<table>
<thead>
<tr>
<th>TABLE 1: KS Barriers in e-learning</th>
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<tr>
<td><strong>KS Barriers in e-learning</strong></td>
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<tr>
<td>- User are not willing to share</td>
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<tr>
<td>- Changing organization culture</td>
</tr>
<tr>
<td>- Social relationship</td>
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<tr>
<td>- Features is difficult to use</td>
</tr>
<tr>
<td>- Limited functions</td>
</tr>
<tr>
<td>- The representation of features is not interesting</td>
</tr>
<tr>
<td>- Limited user access</td>
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<tr>
<td>- Knowledge evaluation</td>
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</table>

The survey is conducted to support the barriers found from the literature, which is to understand the problems from the student’s point of view and also to analyze the best social network features to incorporate into e-learning. The data collection is conducted by using purposive sampling. The purposive sampling is also known as judgement sampling. It is the deliberate choice of informant due to the qualities the respondents possess which is a non-random technique that does not need underlying theories [7]. In purposive sampling, the researchers will decides what need to be known and sets out to find people who can and are willing to provide the information by virtue of knowledge and experience. The respondents are observant, reflective members of the community of interests who know much about the topic and willing to share their knowledge [7]. For this study, the author distributes the questionnaire by using the email and social network to the group of the student of Universiti Teknologi Malaysia. The questionnaires are given to the representatives from each faculty and
it is distributed by forwarding the questionnaires to other faculty members. There are 50 students from 11 faculties took part in this survey.

From the analysis on e-learning system in Universiti Teknologi Malaysia, which is an example of e-learning in education organization, some features is identified as the main features that is used for KS which is: forum, message, course section and blog. Forum is basically used by the lecturer and student for discussion on any topic in the course section. Each course section has its own forum. The forum can only be initiated by lecturer, which also means the topic of discussion has to be decided by lecturer. Only student enrolled in that course can participate in the forum. The second feature is message, which is used by user to communicate personally. Next is course section, used as the tool of communication between lecturer and student. Lecturer can provide lecture materials to student using this feature. Student also can see news, event and recent activity at the course section page. Finally, blog, the only features that can be access by all users from all faculties to interact and share knowledge. In order to post information or knowledge in blog, user has to create a new entry. This new entry box consists of title, entry body and attachment.

The user percentage on the current e-learning features is analyzed in order to find the problem of KS in that provided features. Based on Table 2, the result shows that the only feature that has higher user percentage is Course Section which is 74%. This is because it is the main medium for lecturer to connect with their student. However more than a half of the users do not use Forum (76%), Message (66%) and Blog (80%) for KS although it is already provided in the e-learning. In order to find the reason why the users do not use the features, the KS barriers are analyzed.

<table>
<thead>
<tr>
<th>KS features</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forum</td>
<td>24%</td>
<td>76%</td>
</tr>
<tr>
<td>Message</td>
<td>34%</td>
<td>66%</td>
</tr>
<tr>
<td>Course Section</td>
<td>74%</td>
<td>26%</td>
</tr>
<tr>
<td>Blog</td>
<td>20%</td>
<td>80%</td>
</tr>
</tbody>
</table>

A. Users are not willing to share

User’s participation is the main factor of successful KS. The reason user reluctance to share knowledge is information hoarding, which means (“knowledge is power, why share it?”) [8]. Users believe they have an advantage when they keep the knowledge and not sharing with others. The analysis shows that the reason why respondents not using the ‘Blog’ features in e-learning because they are not willing to share.

B. Changing organization culture

[9] mentioned in his paper that the culture among student and lecturer can be one of the factors of KS in e-learning. For example, in e-learning, there are some users who still do not use the system in practice, such as there is still empty Course Section without any updates. Besides, for the Blog features, although it is a good medium for KS, but user still resist to use. The analysis shows that only 20% of respondent used Blog to share knowledge. The culture of sharing is still need to be improved.

C. Social relationship

The problems arise because there is lack of social relationship in e-learning. Besides the contents, social relationship between users is also very important to enrich user’s learning experience [9]. User of e-learning seems to not experience the real communication when using that site. They do not even know who is actually in their contact list. Profile appearance seems to be less effective. [4] in his paper stated that fully functional e-learning systems must provide space for real interaction.

D. Features is difficult to use

[10] suggested in his paper that an easy to use GUI design should be applied to enhance knowledge sharing in e-learning. Some of the users do not use the e-learning due to the context of understanding the knowledge and the e-learning itself. User may resist using e-learning in sharing knowledge when they face difficulty in using the features provided. This is also found in e-learning when 13.6% of the respondents state that they do not use the Course section features because it is difficult to use. The same reason also is chosen in other features; Message (9.4%), Forum (10.3%), Blog (11.3%).
E. Limited functions

One of the failure factors of e-learning is that there is lack of features that enables individual to transfer and control their knowledge. The systems do not have enough content and features to help in the process of understanding shared knowledge and creating new knowledge [10]. For example in e-learning forum section, the students are not allowed to create topic for forum and discussions. Only lecturers can initiate the forum or discussion topic. So in that way, students will not have freedom in sharing their knowledge to others. 14.7% of the respondents do not use the Forum features because of there is no freedom ways to share. This problem also appear in Course Section where students can only view updates from lecturer, download notes, and participate in forum initiated by lecturer. The function to share knowledge here are very limited. Besides, from the analysis also shows that there are 18.2% of respondents who do not use the Course Section features due the limited functions.

F. The representation is not interesting

Although the interface of e-learning is well arranged, however it is lack of humanized interaction. User will prefer to use the human-like aid compared to a formal sites. Media richness affect the user’s choice of tools, this is because the different type of media have different level of motivation [11], social presences and ability to process information, so by providing vary media to user, may be helpful to user to engage with the system. They will spend more time on the site that gives them an enjoyable experience while doing their work. Some of the opinion from user’s for the current interface of e-learning are; background design is very dull, e-learning has too many functions until the interface become so messy; not humanize enough and the interfaces is too formal.

G. Limited user access

Limited user access to specified forum/group discussion in e-learning can be a factor of why this feature is not effective. For example, in the e-learning, the forum creator is limited to only lecturer and specific to only one class or section. This prevents a free flow of knowledge within the system. For a successful of KS in e-learning, the interaction between different units within the organization is very important.

H. Knowledge evaluation

[9] found that the knowledge quality is one of the user’s reasons to use e-learning and it has a strong positive effects towards learner’s satisfaction. The process of evaluation of the knowledge can be in forms of feedback and assessment. The current approach that e-learning used now is by sharing the paper produced from research or conference. The function seems to be not enough and cannot fully facilitate in sharing the ‘valuable’ knowledge.

The features of the social network are analyzed in order to understand why users choose this site to share knowledge instead of using e-learning. These selected features will be used in solving the identified KS barriers. Social network give a big influence on student everyday activity. From the questionnaire survey, most of the respondents (94 %) choose social network to share knowledge. The respondents found that social network is more attractive in providing various features, easy to use and more participants to communicate. Below are the enhancements features that are suggested for e-learning to enhance KS:

A. Status update and tweet

76% respondents use this features because it is easy to use. The same feature is actually exist in e-learning, which is called as Blog but the representation is too formal and has too much field to be completed like title, body field and attachments field. Although both have same function, but users still do not use Blog. 43.5% respondents stated the reason why they do not use Blog is because they have another alternative site to share which is social network and 21.0% respondents stated it is because the representation of feature is not interesting. The existing feature should be modified to be more humanized and simple to use.

B. Group

The analysis shows that almost all the respondents (96.0%) use this feature to share knowledge in social network and stated that the reason they choose to use this feature is because it is easy to use. This Group feature actually performs the
same function like Forum in e-learning. However, there are only limited function provided in Forum which is student cannot create topic, comment, like, share and tag. The analysis result shows that there is only 24.0% of the respondents use this Forum feature. This Forum features should be modified by adding more function like create post, add photo or video, ask question, add file, create event.

C. Chat/Message

In e-learning, the current Message feature provide only one-to-one message. There is only 34% of respondents use Message in e-learning compared to social network which has 91.67% respondents using the Message feature provided. Thus, this feature should be upgrade to enable user to compose message to multiple recipients.

D. Notes

From the analysis found that 46.94% of the respondents use Notes in social network and choose the feature because it is easy to use. Notes allow user to share long text information or knowledge with others with the function of share button, like button, comment and tagging. In Facebook, notes have the section in profile, so it easier to find since the user does not need to scroll way down to find notes like finding a status that posted a long time ago.

E. Photo and video sharing

Photo and video can provide more eye-catching knowledge representation compared to text-based. It also is popularly used by user in social network to share knowledge. The analysis found that 87.76% respondents use this feature in social network. E-learning should upgrade this existing feature of media sharing with more function like share button, like button, comment and tagging.

F. Share button and re-tweets

The analysis result shows that there are 79.59% respondents use this feature. This feature is very powerful for faster knowledge sharing such as in seconds the knowledge can be shared all over the world by just one click. This feature is usually provided with other features such as status update, Tweet, Notes and Photo and video sharing.

G. Like button and favorite

The analysis found that 90% of the respondents have used this features and described the reason on why respondents choose the feature is because it is easy to use. This feature works in counting the number of Like click by others, which is represent that they are agreed with the knowledge shared. This feature can be very useful to help in the knowledge evaluation problem. Although it cannot be concluded that the number of the Like can contribute to the value of the knowledge, but at least, the user can see how many people are actually agreed with that knowledge and they can share their opinion by posting their comment at that specific post. This way, the discussion happens, and at the same time new knowledge can be produced.

H. Quote tweets

It is used to quote the tweet from other user and at the same time put their opinion in that tweet. It is suitable to put this feature into e-learning because user can share their quoted post along with their comment or opinion. Thus, the knowledge can be extend and discussed. The analysis also shows that there are 44% of the respondents use this feature to share knowledge.

I. Tagging and Mention

The function is to notify friend in the photo or post by tagging or mention their profile name. The tagged person will get the notification right away on the current activities. So, the involved person will not miss the important post or activities. The survey shows that this function is widely used by the user which is the percentage of respondents is 93.88%.
J. Comment

According to analysis result, there are 96% respondents have use this feature to share knowledge in social network. The same feature is actually provided in the e-learning which is at Blog section. However, it not widely used by student. This happens because the number of student using the Blog feature itself is also not satisfying. e-learning should promote the features to the user so that it can be widely used among users.

K. Hashtag

‘#’ symbol represents the Hashtag. It is highly recommended to e-learning because it is very useful to categorize the topic of the shared knowledge. Such as when the user put this Hashtag into their post, the application can finalize the current topic discussed in the timeline and put the Hashtag as the Trends. So, user can check the current Trends to share knowledge and opinion on the same topic.

L. Trends

Trend can be used by e-learning’s user to see the current topic discussed in the campus or class. As provided in the Twitter site, the setting of the trends can be change based on the location of the user. This feature will help user to stay up to date to the current topic discussed on specific topic.

5. PROPOSE ENHANCEMENTS OF E-LEARNING

The enhancements are proposed in order to improve KS in e-learning and solve the identified KS barriers. In considering the successful KS in social network nowadays, the enhancement is proposed by incorporating social network features. There are many researchers before who has conducted studies and found the potential of learning using social network technology. A person are likely more comfortable in sharing a deeper level of knowledge with his/her friends or unknowns person when they interacts with others by using social network and they derive enjoyment from sharing knowledge in social network although without getting a reward.

In order to increase the user’s willingness in sharing, the organization should embed the KS culture in student activities. For example, the organization should declare e-learning as the main communication medium for students and lecturers. The interaction process among students and lecturers are the important factor for KS. This can be achieve if all the activities for class is conducted in e-learning; such as:

- Sharing teaching material in e-learning, not in another communication sites like Facebook Group and e-mail
- Student use message feature provided by e-learning to contact the lecturer, set appointments or ask question about lecture
- Students upload assignment or project at course section page. Besides, student also should use e-learning to check marks for assignment and carry marks for final exam
- Student should use e-learning to discuss with group member for assignment or project

The group space such as Forum is the example of tools that provide the areas of KS in social network. E-learning actually already has their best features like blog, forum and course section. Thus, organization should upgrade and promote these features so that it will be acknowledge by user and widely used. This kind of features if it used widely actually can enhance the KS in e-learning.

Besides, in order to attract more users, e-learning should provide more space for user’s profile. The presence of social feature driven approach to KS [5]. This can trigger social relationship between user such as by adding features like personal album and interest area. The social features of social Web sites can help turn e-learning into social e-learning and make e-learning significantly more effective.

For technology problems like features is difficult to use can be solved by providing more simple and easy to use features, such as for e-learning case, the steps in composing new entry in blog has to be minimize. [10] suggested in his paper that an easy to use GUI design should be applied to enhance KS in e-learning. The current field for composing new entry is too many to be completed. Thus, e-learning should provide only one field box like status update with the simple icon attached to it like picture upload, video upload, tagging and Hashtag.

In order to overcome the limited functions problem, e-learning should add more features for KS like Status Update, Message, Media Sharing, Notes Share Button, Mention, Hashtag, Trends and Quote. Thus, student can choose the suitable features to share knowledge based on their preferences. This will increase the user’s satisfaction and at the same time will attract more users to use e-learning.
[11] stated that media richness aﬀect the user’s choice of tools, this is because the diﬀerent type of media have diﬀerent level of motivation, social presences and ability to process information, so by providing vary media to user, may be helpful to user to engage with the system. E-learning should provide more humanize representation for it features. Besides, [10] also mentioned that some student felt the lack of communication with other people and feel boring reading a large amount of text on the screen. In e-learning, informal word should be used to replace the current formal terms used like change the word ‘Important Notice’ to ‘Check this’, ‘Add Contacts’ to ‘Add Friends’ or ‘Friend Requests’. Besides, the more interesting icon also should be implemented in order to attract more users, the majority of e-learning users are from youths generation, so the interfaces should be developed based on their preferences.

The study review the interaction between diﬀerent units within the organization is the primary resources of unification and KS. Thus, e-learning should provide more medium for communication for student from diﬀerent faculties to increase the social relationship and KS between user in diﬀerent ﬁeld and interests. Besides, the system also should allow post to friends that visible to others, so that others friends also can see the post and share opinion on that topic.

[9] found that the knowledge quality is one of the user’s reasons to use e-learning and it has a strong positive eﬀects towards learner’s satisfaction. The current knowledge evaluation used by e-learning now are likes sharing knowledge in the forms of published paper, published lecture notes, conference paper and journal paper. Like, share and re-tweet button can be used in order to facilitate the knowledge creation and knowledge evaluation. Like button can count how many users agree with the post (status update) and share and re-tweet button also can be used to see how many times the post is been re-tweet and share. The higher the number of share and re-tweet the higher the level of people agree to that knowledge.

The enhancements are provided to solve the KS barriers found from the study and the survey that has been conducted. The summary of KS barriers in e-learning and its solution is depicted in Figure 1.

![Knowledge Sharing Barriers in e-learning and Its Solutions](image)

**Knowledge Sharing Barriers in e-learning:**
- User are not willing to share
- Changing organization culture
- Social relationship
- Features is diﬃcult to use
- Limited functions
- The representation of features is not interesting
- Limited user access
- Knowledge evaluation

**Solutions:**
- Organization should embedded KS culture in student activities (use e-learning as main communication medium for student and lecturer)
- Promote the best features to users (Forum and Blog)
- Provide more space for user’s proﬁle, because in order to create social relationship, the start point is knowing each other (personal album and interest area)
- Simple and easy to use feature (Reduce box ﬁeld)
- Add more functions for KS
  - Status Update
  - Message
  - Media Sharing
  - Notes
  - Share Button
  - Mention
  - Hashtag
  - Trends
  - Quote
  - Provide more humanize feature’s representation (informal word and icon)
  - Provide more medium of communication for student from diﬀerent faculty
  - Feature that can assist knowledge evaluation:
    - Like Button
    - Re-tweet and share

**FIGURE 1:** Summary of KS Barriers in e-learning And Its Solutions

The evaluation process has been conducted to evaluate the propose enhancements. The enhancements are evaluated by using two approaches which is the acceptance by the user and the acceptance by the organization. The data collection for
this study has been conducted and analyzed in order to support all enhancements proposed. User acceptance is evaluated by using the questionnaire while organization acceptance is evaluated by using the interview. The data collection consists of two parts which are pilot study and final survey. The data collection is done to validate and test the reliability of the proposed enhancements. The questionnaire consists of two parts. Part A contains 3 demographic questions including age range, faculty and program of study. The question was design to collect the demographic background of the respondents. While Part B consists of % points Likert scale question starting from 1 strongly disagree to 5 strongly agree. Questions in this part are represented by 17 suggested enhancements for the KS barriers identified from the study.

Pilot study is a feasibility test with the small scale version of set of questions for a preparation before releasing the final survey. There are 20 respondents have been involved in this pilot study. They are students from Faculty of Computing (FC) Universiti Teknologi Malaysia, Johor. The result was analyzed using Cronbach’s Alpha in order to validate the reliability of the items. Cronbach’s Alpha test was used to measure the reliability of the item and measure the characteristics of the same construct. Thus from the result, the reliability of each item with another can be analyzed.

<table>
<thead>
<tr>
<th>TABLE 3: Reliability statistics</th>
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<tr>
<td>Cronbach's Alpha</td>
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<td>.875</td>
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Based on the Table 3, the result shows that the Cronbach’s Alpha value is 0.875. The closer the number to 1.000 the more reliable the item is. So, the value 0.875 shows that it has the high reliability value and it is acceptable. Since the result of the pilot study is accepted, the final survey can be released and distributed to the respondents. Question in final survey is refined from the question in the pilot study. There are 3 questions in Part A and 17 questions in Part B. The sample size of the respondents is 100 students from Universiti Teknologi Malaysia. The students are from undergraduate and postgraduate. Table 4 shows the result of the descriptive statistics from the questionnaire result.

<table>
<thead>
<tr>
<th>Table 4: Descriptive Statistics</th>
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<tr>
<td>Enhancements</td>
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<tr>
<td>a.Main Communication</td>
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<tr>
<td>b.Embed KS Culture</td>
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<tr>
<td>c.Promote Blog/Forum</td>
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<tr>
<td>d.Provide User Profile</td>
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<tr>
<td>e.Provide Simple Feature</td>
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<tr>
<td>f.Provide More Humanize Feature</td>
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<tr>
<td>g.Provide Medium Communication</td>
</tr>
<tr>
<td>h.Provide Knowledge Evaluation Feature</td>
</tr>
<tr>
<td>i.Add Status Update Feature</td>
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<td>j. Add Message Feature</td>
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<tr>
<td>k.Add Media Sharing Feature</td>
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<td>l. Add Notes Feature</td>
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<tr>
<td>m.Add Share Button Feature</td>
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<tr>
<td>n.Add Mention Feature</td>
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<td>o.Add Hashtag Feature</td>
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<tr>
<td>p.Add Trends Feature</td>
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<tr>
<td>q.Add Quote Feature</td>
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<td>Valid N (listwise)</td>
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</tbody>
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Table 4 shows the result obtained from the evaluation on the proposed enhancements. Column Mean shows that the average result of 4.09 for each item starting from item (a) to (q). Mean and standard deviation can be calculated by using two formulas as stated below:

\[
\text{Mean} = \frac{\text{Total Score of Each Item}}{\text{Number of Score}}
\]

\[
\text{Standard Deviation} = \sqrt{\frac{\sum (x - \mu)^2}{N-1}}
\]
As the whole result, based on the evaluation analysis provided earlier, the result explained that the respondent are agree with all the enhancements propose. In conclusion, the enhancements propose can help in enhancing KS in e-learning.

Furthermore, an interview has been conducted with the Deputy Director of Centre of Teaching & Learning (CTL) UTM, Professor Dr. Mohamed Noor Hasan, to propose the enhancements to e-learning UTM. CTL is responsible in managing e-learning UTM and provide assistance to academic staffs and students to promote the optimal use of technology. CTL also provides assistance to teaching staffs in incorporating technology into their courses.

From the interview, the Deputy Director stated that CTL aware with the problems of KS in e-learning system and the culture of users who prefer to use other alternative sites to share knowledge instead of using e-learning provided by the university. He agreed with the propose enhancements which is to enhance KS elements in e-learning. The function (social network tool) can be added to the e-learning by installing extra module from Moodle.

The evaluation result which consists of user acceptance(questionnaire) and organization acceptance(interview) shows that the enhancements proposed are accepted. Thus, in order to present the solutions to overcome the problem of KS in e-learning, the framework of e-learning by integrating social network features are proposed. The UTM’s e-learning framework (technology) is adapted as the references. UTM’s e-learning framework (technology) consists of five components which are academic information system, mobile service/webcast, learning portfolio, knowledge management engine and websites/emails/blogs.

In order to propose the new enhancements of KS in e-learning, the author integrate the component of KS tools identified from the analysis into the UTM’s e-learning framework (technology). The modification just effect framework with the addition components of KS tools because it was the main findings for this study and the rest of framework is remained the same as initial proposed. The author embedded the social network features found into the sharing tools components. The sharing tools consists of the features identified from the study that can help in enhancing KS which is Status Update, Message, Media Sharing, Notes, Share, Like, Quote, Mention, Hashtag and trends. Figure 2 shows the Enhancement of KS in e-Learning by Incorporating Social Network Features. Figure 2 shows the enhancements framework of KS in e-learning by incorporating social network features.

![FIGURE 2: Enhancements of KS in e-learning by Incorporating Social Network Features](image)

6. CONCLUSION

As the conclusion, incorporating social network features into system can enhance KS in e-learning. By upgrading and modifying the existing features and providing more social features into e-learning gives e-learning a new image which is also align with the current trends of social sites nowadays. The users can now enjoy and experience the KS activity in e-learning and at the same time gain benefit from the sharing. Besides, the organization also can increase their competitive
advantage when all the users use the system at the optimal way. The more knowledge is shared the more is the possibility the new knowledge is created.

This research study could be extended by including the analysis on the Moodle itself to get a better understanding on how e-learning features are functioning and implemented. So, the detail enhancements implementation steps and manual can be suggested to the organization to be applied in the system.

REFERENCES


