



SUCCESS FACTORS FOR KNOWLEDGE SHARING AMONG TVET INSTRUCTORS

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ABSTRACT

Technical Vocational Education and Training (TVET) institutions are responsible for providing Human Resources particularly skilled and knowledgeable workers. In order to improve the quality of graduates in the technical field, the knowledge of TVET institution instructors should be strengthened from time-to-time. Knowledge sharing among TVET instructors can help them update their current knowledge. Information Technology enables TVET instructors to search for and share new knowledge more efficiently and quickly. They will also be able access a wider range of information. However, these knowledge-sharing activities often result in failure because most people prefer to seek knowledge rather than be its contributors. Therefore, this study is conducted to identify factors that influence knowledge-sharing activities among TVET instructors. A Qualitative method involving a semi-structured interview was conducted for this study. The Snowball Sampling method was chosen with four instructors and two experts as the respondents. Data analysis was performed using content analysis. This study identified the factors affecting knowledge-sharing activities via two main approaches: the non-technical approach, which consists of organizational, individual, content, and cooperation factors and the technical approach, which consists of just one factor i.e. technology. The factors identified are expected to help TVET institutions develop a knowledge-sharing repository that will encourage the sharing of knowledge among their instructors.

Keywords: *Vocational and Technical Education, Knowledge Management, Empirical Assessment*

1.0 INTRODUCTION

In the working and education environment, there are apparent differences in the type of skills needed. Firstly, a task with components that require high intellectual capacity such as mathematical, verbal, and analytical exercises requires students who are good with space and kinesthetic learning [1]. Secondly, a task that needs the individual to use his/her hands require practical instead of intellectual skills [2]. Technical Vocational Education and Training (TVET) aims to provide skilled workers, in line with the needs of the education industry [3]. To fulfill these needs, the level of knowledge of TVET intuition educators need to be enhanced from time-to-time to improve the quality of technical graduates. Knowledge-sharing activities among TVET educators could help improve the current knowledge level of TVET educators and arm them with updated industrial information. In these modern times, education

institutions are in great need of a comprehensive knowledge-sharing network that could fulfill the changing demands of the industry [4]. Hence, this study will focus on factors that contribute towards knowledge-sharing activities among TVET instructors by considering technical and non-technical factors. This is because the success of this activity is not dependent on technology alone but also involves the people's willingness to use the technology provided and in so doing, help develop the technology and contribute knowledge of their own.

1.1 Research Background

Educators share knowledge conservatively through courses, seminars, talks, and face-to-face interactions. However, not all updated knowledge has been fully disseminated among TVET instructors since this conservative mechanism is quite costly.



Unrecorded and unshared knowledge would result in problems to continue the teaching and learning process of related skills that institutions are bound to face when knowledgeable educators are promoted to management, transferred to other institutions, or retire from their positions. Therefore, to provide a medium for recording and sharing knowledge, a Learning Object Repository (LOR) should be used [5].

A Repository is an electronic database that stores small units of education information or activities that can be accessed. Learning Objects stored in the Repository can also be reused [5]. Learning Object components include texts, videos, audio, graphics, and various multimedia such as tutorials, scenarios, simulations, learning modules, case studies, and assignments [5],[6]. Use of Information Technology in knowledge-sharing activities would push educators to engage in self-study [7] and at the same time, avoid loss of valuable knowledge in TVET institutions.

1.2 Problem Background

The success of knowledge-sharing in an organization depends on two approaches i.e. the technical approach and non-technical approach [8]. The technical approach is related to the use of ICT applications to support knowledge-sharing activities [9]. Previous studies have shown that ICT is an extremely important mechanism in knowledge-sharing activities [10],[11]. To involve the use of a Learning Object Repository (LOR), understanding of LOR's characteristics in enhancing knowledge-sharing activities is needed. Failure to understand the process of knowledge-sharing activities could result in an overly complicated developed system. Users would leave a system if they faced problems in understanding how to use it [12],[13]. Therefore, understanding of other technical approaches is needed to ensure the knowledge-sharing process runs smoothly and to avoid users from having to use an overly complicated developed system.

The non-technical approach refers to Human Resource management. In this context, Human Resource management relates to the TVET institutions' understanding in regard to educators' attitude when using ICT for knowledge-sharing. Previous researchers have identified two factors that contribute to knowledge-sharing activities i.e. the individual factor and organizational factor. If the non-technical approach is not identified, the Government's effort in spending billions of Ringgits to provide for a suitable ICT infrastructure [14] would be wasted. This will happen if the

educators do not fully optimize the given technology especially if the ICT usage level is still at the medium level [15],[16].

In conclusion, this research is needed to identify the factors that influence knowledge-sharing activities in TVET institutions, so that knowledge among the educators can be recorded and shared for the benefit of all.

2.0 RELATED WORK

2.1 Importance of Knowledge Sharing for TVET Education

In developing an educated community, TVET institutions have to be aware of the rapidly transforming nature of information nowadays because students have to be prepared to face dynamic change, so as to achieve better knowledge comprehension parallel to the current needs of the industry [17], [18]. Through the education system, web-based learning provides better solutions compared to the past in terms of information-searching, cooperation, information transfer, information-sharing, gaining back information, etc. [17],[4].

Knowledge-sharing research in the education field is still limited [19]. However, this type of research has gained more traction with many researchers recently. Most of this research is done in universities and schools and are related to basic factors of knowledge-sharing [4], creating cooperation in the academic field via knowledge-sharing [20], internal and external motivation factors in knowledge-sharing [21], attitude towards knowledge-sharing among academicians [22], the practice and process of knowledge-sharing in higher academic institutions in the United Kingdom [23], and research into the factors that influence the intention of ICT usage for knowledge-sharing among teachers [14]. From this, it can be seen that there is a gap in knowledge-sharing research in TVET institutions. Hence, this study is justified in filling this research gap and also because knowledge-sharing activities differ from one type of education institution to another [23].

Thus, knowledge-sharing activities in TVET institutions can ensure continuance of knowledge and enhancement of industrial knowledge and in turn improve the quality of education practice and skill level in Malaysia.

2.2 Factors that Influence Knowledge Sharing

2.2.1 Non-technical approach

Results from a previous study show that the organization and individual factors influence knowledge-sharing activities [14],[24],[9]. This is



because an organization that practices a knowledge-sharing culture among employees ensures that this practice happens naturally. Besides that, the individual factor also positively affects knowledge-sharing activities. The individual factor refers to an individual's internal encouragement gained through trust, perception, expectation, attitude, and emotion [25].

The use of Information Technology in knowledge-sharing activities can result in educators engaging in self-study [7]. In order to create an efficient self-study process, the quality and value of shared information need to be considered [25]. Besides, users would more likely search for information from trusted sources. Therefore, the content factor for knowledge-sharing activities must be examined to ensure accuracy and validity of the shared content [26].

Current technology capacity allows knowledge sharing to be done not only internally but also across other institutions [27]. This allows knowledge-sharing cooperation with other institutions. The aim of cooperation between TVET institutions is to enhance individual development [28]. Cooperation in knowledge sharing allows the transfer and enhancement of knowledge among TVET educators. Therefore, to ensure the success of a knowledge-sharing activity, the cooperation factor has to be improved upon.

2.2.2 Technical approach

The technical approach refers to the use of technology as a medium in information management via software and hardware usage, so as to support knowledge-sharing activities [25]. Additionally, to simplify the knowledge-sharing process, an information system must be developed to fulfill user demand in the form of usability, accessibility, reusability, and interoperability [5]. Failure to understand these needs will result in an overly complicated developed system. Therefore, the technology factor must consider features that ease usability.

3.0 METHOD

The main objectives of the interview session is to gain further details related to factors, features, and elements that influence knowledge sharing in TVET institutions. A list of factors influencing knowledge sharing has been outlined in the early stages of this study, especially factors that influence knowledge sharing in a TVET environment. The data was analyzed using a thematic data analysis method. This method is

appropriate for data in 'text' form. The data analysis process begins with the researcher transcribing the interview record. Then, coding is done with the manuscript to identify existing terms. The code is extracted from phrases, key words, and even statements that symbolize the same meaning or those that contradict the manuscript.

3.1 Sampling

The sample interview with educators was done via the Snowball Sampling technique. Using this technique, the respondent will search for and introduce another respondent whom they know to the researcher [29]. This could help the researcher to identify the most accurate and appropriate respondents for the study. An educator with experience teaching in a TVET institution was chosen as a respondent for this interview. The participants were selected based on their experiences as educators and management staff in TVET institutions. This study was done at a TVET institution located in the Hulu Langat district of Malaysia. This district was chosen because of its location, which is near the TVET Headquarters in Kuala Lumpur and Putrajaya. It also has a suitable target population that has the required experience and reflects the current education culture.

The researcher requested the respondents to introduce to her another educator with related experience and knowledge as the next respondent. The interview continues until the researcher becomes satisfied with the answers received from the respondents. Four educators and two experts were involved in the interview session. All four educators are from the field of Information Technology and Engineering with five to nine years of experience while the other two respondents are experts in the strategic cooperation field with twelve to twenty years of experience in TVET institutions.

3.2 Data Collection

This study used interview questions, which were developed based on the list of factors influencing knowledge-sharing in a TVET environment, identified in the early stages of this study. The interview was done face-to-face between the researcher and the respondents. Before the interview was conducted, an interview protocol was planned to ensure that the interview session runs smoothly. A semi-structured interview was used as this technique is flexible and allows the respondents to explain every thought and opinion to the researcher [29]. Only the main questions were prepared while the follow-up questions were based on the respondents' answer [30]. The elements are

categorized under five factors i.e. organization, individual, content, cooperation, and technology.

4.0 RESULTS

The following section presents the results of the data analysis obtained from literature and the interview for this study. The results are presented according to the five main factors, which are organization, individual, content, cooperation, and technology factors.

4.1 “Organization” Factor

Data analysis of the organization factor influencing knowledge-sharing activities found that there are four main elements stated by the respondents, which are the organizational culture, management support, organization’s objective and vision, as well as rewards and recognition. Table 1 shows the summary of findings from literature and the study’s interview in regard to the organization factor.

Table 1: Summary of Findings for the Organization Factor

Element/Characteristic	Literature	Interview
Organizational Culture		
i. Encourage sharing of idea, information, and experience among the employees.	√	√
ii. Stimulate cooperation in knowledge sharing to solve problems.	√	√
iii. Cultivate mentor and mentee programs among the educators.		√
iv. Encourage discussions between TVET institutions to gain new knowledge.	√	√
Organization Structure		
i. Encourage the flow of communication between Departments or Units.	√	
ii. Position the confidentiality status of a document at a level that makes it not too difficult to share.	√	
iii. Practice a bureaucratic approach that is not too complicated.	√	
Top -Management Support		
i. Encourage the contribution of learning	√	√

content.		
ii. Involve the Top management in knowledge-sharing activities.	√	√
iii. Provide most of the aid and financial support needed for knowledge-sharing activities.	√	√
iv. Prepare professionalism improvement programs for educators.		√
v. Give instructions to the educators to be active in knowledge-sharing activities.		√
Rewards and Recognition		
i. Encourage the contribution of knowledge, as it is considered in the criteria for promotion.	√	√
ii. Encourage the contribution of knowledge, as it is considered in performance evaluation.	√	√
iii. Encourage the contribution of knowledge, as it is considered in the criteria for innovation development.	√	√
Emphasizing Institution’s Objective and Vision		
i. Ensure every employee is clear on the organization objective and vision.	√	√
ii. Encourage employees to help each other.		√
iii. Encourage educators to up-skill their knowledge in line with the needs of the industry.		√

4.2 “Individual” Factor

The content analysis of the individual factor influencing knowledge-sharing activities found that awareness was the main individual element needed to influence knowledge-sharing activities. Table 2 shows the summary of findings from literature and the study’s interview for the individual factor.



Table 2: Summary of Findings for the Individual Factor

Elements/ Characteristics	Literature	Interview
Awareness		
i. Understand the importance of knowledge sharing in the learning and teaching process.	√	√
ii. Instill confidence to contribute new knowledge.	√	√
iii. Prepare and help others by sharing knowledge.	√	√
iv. Encourage individual awareness to widen his/her knowledge.	√	√
Trust		
i. Warn the educators about the wrong usage of knowledge contributed by others.	√	
ii. Trust the knowledge sources, which are shared by colleagues.	√	
iii. Believe that other colleagues have not exploited the shared knowledge sources.	√	

4.3 “Content” Factor

Data analysis of the content factor influencing knowledge-sharing activities showed that the role of the field expert is needed to ensure the shared content can be trusted and is accurate. Table 3 shows the summary of findings from literature and the study’s interview in regard to the content factor.

Table 3: Summary of Findings for the ‘Content’ Factor

Elements/Characteristic	Literature	Interview
Role of Subject Matter Expert		
i. Monitor the quality of shared content.	√	√
ii. Check the knowledge content before it is shared.		√
iii. Create criteria for content factor.		√

4.4 “Cooperation” Factor

Data analysis of the cooperation factor influencing knowledge-sharing activities found that respondents agreed with three elements of cooperation, which are the cooperation process structure, communication network, and coordinating and monitoring. Table 4 shows the

summary of findings from literature and the study’s interview for the cooperation factor.

Table 4: Summary of Findings for the Cooperation Factor

Elements/Characteristics	Literature	Interview
Structure of Cooperation		
i. Prepare a Memorandum of Understanding.	√	√
ii. Develop policy guidelines and clear roles.	√	√
iii. Issue a circular.	√	√
iv. Provide office reference terms.		√
v. Designate a director for Key Performance Indicator (KPI).		√
Communication Network		
i. Strengthen the communication network, either formally or informally. It must be explained by written text to ensure the information channel occurs continuously.	√	√
ii. Conduct face-to-face communication to clarify pressing issues in person.	√	√
iii. Ensure continuous and constant communication through an official website.		√
iv. Communicate via social network.		√
v. Organize meetings via live conference.		√
Coordinating and Monitoring		√
i. Establish a monitoring committee at the Ministerial level.		√
ii. Monitor using a star rating system based on frequency of knowledge-sharing activity.		√
iii. Technical Advisory Committee (TAC) can monitor, coordinate, and carry out any action via face-to-face meetings.		√



4.5 “Technology” Factor

There are three main elements in the technology factor, which influences knowledge-sharing activities i.e. the ICT infrastructure, Learning Object Repository (LOR), and social network. Table 5 shows the summary of findings from literature and the study’s interview for the technology factor.

Table 5: Summary of Findings for the Technology Factor

Elements/Characteristics	Literature	Interview
ICT Infrastructure		√
i. Work towards a faster Internet connection.	√	√
ii. Provide computer facilities to all educators.		√
iii. Enlist aid from technicians and ICT officers.	√	√
Learning Object Repository		
a) Inter-operability		
i. Encourage documentation activity, knowledge sharing, and cooperation.	√	√
ii. Enable information to be kept and accessed quickly in the near future.	√	√
iii. Provide wider access to Learning Objects (LO).	√	√
b) Reusability		
i. Make the LO reusable to add value to learning and teaching in class.		√
ii. Ensure ease of play back without the need of additional software.		√
iii. Ensure ease of maintenance.	√	√
c) Accessibility		
Enhance access through:		
i. A visual design interface system.	√	√
ii. Ease of access to information for people with disabilities such as visual, auditory, physical, speech, cognitive, and neurological disabilities.	√	√
iii. Access to learning objects in less than three clicks.	√	√
d) Usability		
i. Must be easy to use.	√	√
ii. Must be user-friendly.	√	√

iii. Must be easily understood.	√	√
Social Network		
i. Facilitate interaction in a knowledge-sharing environment.	√	√
ii. Provide an announcement platform.		√
iii. Add interactive social media elements such as “like” and “comment” to motivate users to contribute knowledge.		√

5.0 DISCUSSION

Based on the literature and interview data analysis, to ensure the success of knowledge-sharing activities in a TVET institution environment, non-technical and technical approaches should be considered [8]. The non-technical approach includes organization [14],[11], individual [25],[11], cooperation, and content factors whereas the technical approach is one factor only i.e. technology. The organization factor refers to knowledge-sharing culture [24],[31], organization structure [14],[11], management support [23], rewards and recognition [10] as well as explanation of goals and visions [8],[32]. As for the individual factor, awareness [14],[23] and trust [33] are needed in each individual to encourage educators to develop sources of knowledge for sharing. The involvement of Subject Matter Experts in the content factor should be considered [34]. This is because Subject Matter Experts play an important part in maintaining the quality of shared materials and can increase the confidence level of educators, so that they will share their knowledge. The cooperation factor consists of structuring the cooperation process, enhancement of communication network [35] as well as monitoring and coordinating [36] to establish smart sharing among TVET educators.

For the technical approach, technology factors for ICT infrastructure should be improved by increasing Internet speed, providing computers to all educators, and enlistment of ICT technicians as support [14]. The Learning Object Repository as a knowledge-sharing platform should consider incorporating characteristics such as interoperability[13],[37], reusability [13],[38],[39], accessibility [40], [13],[38], and usability [40], the aim of which is to ensure that this knowledge-sharing platform will comply with end-user requirements. In addition, elements of social networking sites will also contribute to the success

of knowledge-sharing as a medium for dissemination and communication [19], [36].

6.0 CONCLUSION AND FUTURE WORK

This paper discussed a survey on success factors influencing knowledge-sharing activities among TVET instructors by considering technical and non-technical approaches. It is extremely important for TVET instructors to understand the factors that influence knowledge-sharing activities among them, so as to ensure they participate in activities related to knowledge sharing not only in seeking knowledge but at the same time contribute to it as well as aid others to improve their skills.

Each factor has its own constituted criteria or characteristic. The results may not be conclusive. They could be refined further by conducting a questionnaire study involving a much larger sample. Later, the findings can be used to formulate a framework that can serve as a guideline to develop an efficient and effective knowledge repository for a TVET environment.

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APPENDIX

INTERVIEW QUESTIONS:

1. Is knowledge sharing factor among TVET lecturer needed? State your opinion.
2. Is technical approach and non-technical approach needed in influencing knowledge sharing activity? State your opinion.
3. How technological factor can influence knowledge sharing activities?
 - a. ICT infrastructure
 - b. Learning object Repository
 - c. Social Media Network
4. How organization factor influence knowledge sharing activities?
5. How individual factor influence knowledge sharing activities in an organization?
6. How content factor influence knowledge sharing activities?
7. How cooperation factor influence knowledge sharing activities?
8. How important knowledge sharing activities in TVET institution?