THE EMERGENT OF “SECOND LIFE” OF KNOWLEDGE MANAGEMENT TECHNOLOGIES IN EDUCATION ORGANIZATIONS

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Abstract—Knowledge management is currently changing significantly. KM effectively uses the right information and communication technology (ICT) and social interaction. New ways that exist in the virtual world make it possible to support knowledge and the process of acquiring it because to create knowledge and the process of sharing knowledge in a virtual world environment takes into account the social aspects needed. With the use of web 2.0 technologies, the main communication media in Second Life in the form of text, voice, instant messaging (IM), email and blogs can be maximized. By conducting exploratory analysis on “second life” research that contributes to a general understanding of how technology can be used to support or activate KM in education. College Student and lecturer can participate in teaching and learning processes, while academic staff supports the University business processes. A result provides factors that effects increase and impairment on student score, framework of 4 Pillar Solution Model for Second Life Education is formed and evaluation knowledge sharing maturity using COBIT 4.1 Framework and Maturity Level Classification using CMMI Model.

Keywords—Second life, virtual world, knowledge, knowledge management

I. INTRODUCTION

Education Organization is have an important role as main instrument of society gain knowledge continously and its important to the organization to manage the knowledge. Knowledge Management (KM) can be defined as effort to maximize knowledge resources by doing what is needed by the organization. Although KM is generally applied to individuals, it also attracts the attention of organizations. KM is viewed as a very important discipline for promoting knowledge creation, sharing knowledge, and increasing knowledge in organizations[1]. KM has an important meaning that serves as a driver of the evolutionary process so it must be upgraded to its own academic discipline, with the accompanying theoretical construction, guiding principles, and professional society. KM is a knowledge asset, as a tool needed by the industry today. Therefore, priority positions must be given to KM in the education and training system by being relegated to their own academic discipline, using guiding principles based on scientific research[2]. In educational organizations, the use of the KM system and its principles can lead to an important role with a lot of flexibility in supporting decisions, encouraging the advancement of teaching and learning, access to many scientific resources, compose effective internal and external communication of organizations, synergy between faculty knowledge and students, as well as an increase in the quantity and quality of research activities in educational organizations[3]
Effective KM requires the use of appropriate information and communication technology as well as social interaction between the organizational members. Emerging virtual worlds enable new ways to support knowledge and knowing processes because these environments consider some social aspects that are necessary for knowledge creating and sharing processes. Thus, collaboration in virtual worlds resembles real-life activities. [4]

Knowledge management today is changing fundamentally. Increasingly high on social software, it is becoming less costly, like more cloud-based, ubiquitous, standardized, and mobile, but also more personalized and more effective in meeting individual needs. Social software, also known as Web 2.0 or Enterprise 2.0, is software that supports group interaction toward establishing communities, and creating and exchanging content. [5]

By using web 2.0 technologies, Second Life has the main media communication services in the form of voice, text, electronic messages (e-mail), instant messaging (IM), and blogs. Second Life is a scripting and graphics tool for designing and creating virtual products and services. Second Life uses computer mediation as a place to interact with people together. [6] Second Life is a place where people can have fun, play games, and get entertainment together. Individuals are also called Residents (Massively Multiplayer Online Role Playing Games), usually in the form of 3D graphic represented by avatars that can communicate with each other, design new services and create products together, can sell and buy products and do other social activities. Second Life becomes a multiuser virtual environment where people can participate in business activities and carry out social interactions together. [7]

A systematic search on literature databases with different combinations of the keywords “second life”, “Web 2.0 technologies” and “knowledge management” had revealed that little research has been conducted to examine the impact of Second Life on education organizational KM practices. This brings us to our research question: How can education organization use Second life for managing knowledge? And what technologies that it use? And which impact do they have on KM education organization?

By conducting explorative analysis on “second life” research that contributes to the general understanding of how technologies can be used to support or enable KM in education. The results are captured in a framework of technologies that education organizations can use Second Life for increasing up their KM practices. This paper structure as follows: Section 2 gives theoretical background as an introduction to the field of KM and use of technologies for “second life”. Section 3 presents methodology used in this research. Section 4 present the findings from analyse research and a KM spectrum. Section 5 contains conclusions and indicates areas of further research.

II. THEORETICAL BACKGROUND

This section specify on relevant aspects of KM, Virtual World technology and the implication of Second Life on educational organizations.

A. Knowledge Management System

Knowledge management system (KMS) is an ICT system based on application system or ICT platform for contextual handling of both tacit and explicit knowledge that combines and integrates functions within the organization or part of the organization targeted by KM initiatives. [8] The main focus of KMS is to support and develop organizational learning and organizational effectiveness. Every education organizations are facing the need to adapt to a rapidly changing technology within educational and social landscape. KM elements were classified under the following pillar: Leadership/Management, Organization, Technology, and Learning as also known as the four pillars. [2]
The four pillar of KM by Michael Stankosky [2] are explained below:

1) Leadership/management: Relates to the decision making process at the environmental, strategic, and corporate levels involving values, goals, knowledge requirements, knowledge sources, priority setting, and allocation of resources from organizational knowledge assets. It was based on systems thinking and approaches and emphasizes the need for integrative management principles and techniques.

2) Organization: Relates to operational aspects of knowledge assets, which include functions, processes, organizational structures, control measures and metrics, business process improvement and reengineering. Base of this pillar are principles and techniques of system engineering to confirm the flow, tracking and optimal utilization of all organizational knowledge assets.

3) Learning: Relates with aspects of social engineering and organizational behaviour. The learning pillar focuses not only on principles but also practices to confirm that individuals can collaborate and share knowledge to the fullest. State is given to identify and apply the attributes needed for “learning organizations.”

4) Technology: Relating to various information technologies that are typical to support and / or enable KM strategies and operations. One taxonomy that is used relates to technologies that support KM strategies and functions as collaboration and codification.

Implementation of knowledge management system will make it possible to realize the challenge of transforming the educational organization from a “knowledge” organizations to a “learning” organizations. Tiwana classifies KM in three different processes: knowledge acquisition, knowledge sharing and knowledge utilisation. Knowledge acquisition is a process of development in skills and relationships. Knowledge sharing is a dissemination of action and provides known knowledge, and the knowledge utilization is a place of learning which is integrated into the organization.[9] Knowledge sharing (KS) is one part of the KM process, determined by exchanging experiences, events, thoughts or understandings of anything (in general) with the hope of gaining more insight and understanding about something for temporary curiosity. [10] Using a knowledge sharing system, lecturers from private or public universities can improve their knowledge sharing practices if infrastructure is improved, major changes are needed to change their systems approach to encourage knowledge sharing. Database availability must also be improved to maintain a more relevant and diverse database. Knowledge sharing can also be enhanced by universities by encouraging their lecturers to share knowledge by organizing open discussions, forums or seminars. Level of maturity of the shared information need to be asses between knowledge in business process, application and the business strategy.

COBIT is used to measure maturity level processes of information technology based on the alignment between business and information technology goals. The maturity level of information technology processes results from the calculation of maturity. Alignment may be more relevant and useful in online education because students learn independently. This can help ensure that the course is student-centered and competency-oriented, and students are given information about the actions they need to take to achieve their goals. [11]

Control Objectives for Information and Related Technology (COBIT) is a framework created by Information Systems Audit and Control Association (ISACA) for IT management and IT governance and is now extensively used by business. [12] The measurement is complicated, because it involves many aspects which are tangible and intangible. The maturity levels are used to assess the alignment level between business processes, applications, and the business strategy. Therefore, it is important to do an audit of information system with standard COBIT 4.1. Because the calculation of COBIT can indicate the maturity level of a company knowledge.[13]

B. Virtual World Technologies

With the development of the virtual world, new ways to generate and share developing knowledge offer the possibility for direct face-to-face interaction and direct experience. [4] The virtual world can be applied to knowledge generation that is dynamic, practice-based, and rich in experience. The virtual world also offers a shared context that allows college students to have social interaction. This leads to existing action based applications as well as new knowledge generation. Changeable environments and boundary conditions allow repetitive learning and error-based learning processes. The process of group interaction is more like a dynamic workshop than the search for knowledge from traditional databases. The ability of a student avatar to directly build together and the presence makes it a deeper activity than other Web 2.0 platforms. Website 2.0 can allow users to collaborate and interact with each other in social media dialogue as content creators, created by users in virtual communities, in contrast to Web sites where people are limited to passively viewing content. [1] Table 1 provides a brief definition for this type of Web 2.0 application.
TABLE I - TYPES OF WEB 2.0 [1]

| Types                        | Short Definition                                                                                                                                 |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Blogs                        | (short for Web logs) are online journals or diaries hosted on a Web site and often distributed to other sites or readers using RSS (see below)                                                                  |
| Collective intelligence      | refers to any system that attempts to tap the expertise of a group rather than an individual to make decisions. Technologies that contribute to collective intelligence include collaborative publishing and common databases for sharing knowledge. |
| Mashups                      | are aggregations of content from different online sources to create a new service. An example would be a program that pulls apartment listings from one site and displays them on a Google map to show where the apartments are located. |
| Peer-to-peer networking      | (sometimes called P2P) is a technique for efficiently sharing files (music, videos, or text) either over the Internet or within a closed set of users. Unlike the traditional method of storing a file on one machine—which can become a bottleneck if many people try to access it at once—P2P distributes files across many machines, often those of the users themselves. Some systems retrieve files by gathering and assembling pieces of them from many machines. |
| Online games                 | include both games played on dedicated game consoles that can be networked and "massively multiplayer" games, which involve thousands of people who interact simultaneously through personal avatars in online worlds that exist independently of any single player’s activity. |
| Podcasts                     | are audio or video recordings—a multimedia form of a blog or other content. They are often distributed through an aggregator, such as iTunes.                                                                 |
| RSS (Really Simple Syndication) | allows people to subscribe to online distributions of news, blogs, podcasts, or other information.                                                                                                           |
| Social networking            | refers to systems that allow members of a specific site to learn about other members’ skills, talents, knowledge, or preferences. Commercial examples include Facebook, MySpace, and LinkedIn. Some companies use these systems internally to help identify experts. |
| Virtual worlds               | Virtual worlds, such as Second Life, are highly social, three-dimensional online environments shaped by users who interact with and receive instant feedback from other users through the use of avatars. |
| Web services                 | are software systems that make it easier for different systems to communicate with one another automatically in order to pass information or conduct transactions. For example, a retailer and supplier might use Web services to communicate over the Internet and automatically update each other’s inventory systems. |
| Widgets                      | are programs that allow access from users’ desktops to Web-based content.                                                                                                                                  |
| Wikis                        | (such as Wikipedia) are systems for collaborative publishing. They allow many authors to contribute to an online document or discussion.                                                                            |

Studies of Kane and Alavi have found that the learning mechanism made possible by IT facilitates abilities that have an effect on the dynamics of exploration and exploitation in organizational learning.[14] So virtual world technologies can be used to improve organizational learning, especially when having changing problems like today, where lecturer can’t meet face-to-face with their students.

C. The use of Second Life

Second Life, a metaverse launched by Linden Lab in 2003, gives its users called Residents the ability to interact through their personal avatars, and provides the ability to explore and meet other Residents, to socialize and have fun, to participate in individual and group activities, to create and trade virtual property and services purchased through its own currency (Linden dollars), and travel all over the world (called the Grid).[1]

Communication have important role in Second Life. In this case, people that are college students’ makes their social activities, sharing culture and information throughout the world can communicate using Second Life virtual environment. The use of instant messaging is guaranteed to have high privacy because the majority of them use local chat. The use of instant messaging is highly popular to interact with other people. Video conference of online meetings and conferences is used for virtual learning as voice communication is clear, reliable and fast. The communication system has privacy and security that makes Second Life very social and very responsible than other social networking websites like Facebook, Twitter and YouTube. Virtual identities of people help safeguard their personal information, but Second Life is found to be addictive for some people so they become careless.
In the context of education, Second Life provides space for discovery, creativity, exploration, socialization, and constructivist learning. The social nature of communicative virtual learning allows students to demonstrate their skills and strategies they have acquired through the use of social technology tools. [15] The learning environment setting using Second Life has great potential, especially in distance learning by online. College student in virtual learning environments allow visual synchronous (real time) learning using interactive components which are conducive for constructivist learning, providing college students and lecturer being physically (but virtually) in class together. In this way, learning process of students take the digital learners presence and are immersed in learning, they can create content through their avatar’s persona. [16]

III. METHODOLOGY

In this research, is determined a methodology based on descriptive qualitative research to gain profound insights into the experiences of Second Life knowledge processes from college students. This methodology is appropriate if no data is available regarding the research question. [17] More thoroughly, qualitative interviews and observations of current Second Life activities, and descriptively analyses various journals on KM and Second Life were used so that the research objectives can be acquired. Qualitative data is collected aims to cross-source triangulation and methods, which increase trust and the reliability of information collected by semi-structured qualitative interviews.

The interviewees were asked questions regarding how and why they use Second Life in education organization, which roles the avatars take, how communication and interactions work, and about their experiences compared to traditional ICT tools such as the use of email, telephone, chat, wiki or blog, and the scope for improvement. Each interview was based on Google form, transcribed as well as anonymised. College Students participated in this study were enrolled in an education degree at X University in Jakarta, Indonesia. They were undergraduate students and either studying online or face-to-face (on-campus). Result of interview, surveys, and student feedback is analyzed to answer the main research questions that arise.

IV. DISCUSSION

KM supports Management Processes (administrative subsystem) in education. Administrative and managerial responsibilities of educational organizations include: attracting prospective students, providing information about Expert System resources and programs and providing an information-rich environment for decision making. Knowledge management can be a possible activity that is capable of bringing about transformative change. [3] Despite the benefits of knowledge management system in educational organizations, KM faces challenges and limitation. Most of these challenges come from a lack of compatibility between technology and socio-cultural issues. Especially the challenges associated with technical subsystems that are lack of technological support for knowledge management and the inability of technology to manage and transfer tacit knowledge.

Through online survey from Second Life college student, it was found that Second Life technology made the majority of people experience satisfaction in its social networking behavior, communication system, and its online business environment which can establish of real business value for education organization. It was also found that online events such as lecture conferences, training and online lectures were very effective for real-world educational organizations to promote learning process.

In all over the world, this time is the hardest time regarding the cause of Corona Virus Disease outbreak which spreading fast into the world. It is affecting the education section as well as another section does. Every place on every country imposing social distance settings. Of course it make a big problem to education organization coordination because there are business processes that usually run manual and face-to-face, now cannot be established. It was a big hit to education organization such school and university. But eventually, there are some universities and schools had managing their problem with the using of KM.

In X university, they make changes to some business processes related to teaching and learning activities. The business processes include: Attendance Process, Material Submission Process, Discussion Process, Assignment Process, Task Submission Process, Task Evaluation Process, Examination Process, Test Absence Process, Filling and Validating Examination Result Process, study planning card Filling Process, study planning Approval Process, Learning result Evaluation. The twelve business processes are adopted into the virtual world so that each of these process actors has a second role, namely as an organizer in the virtual world and users in the virtual world. This condition is analogous to the Second Life form of each actor. Because in real conditions, their roles are regulator staff, lecturers and students. The highest concentration of the objectives of university teaching and learning activities is that the twelve business processes can be carried out well even though the obstacle is that it cannot be done face-to-face. Therefore, as part of a strategy for the sustainability of teaching and learning activities, X university uses a pathway that allows these activities to continue to be carried out. This solution is modeled in the form of adoption of the Stankosky 4 Pillar KM Model. Figure 1 below models how the solution framework is formed:
Based on the suggested for the social distancing matter, the university responds to the conditions of large-scale social restrictions by shifting the running business process to a virtual business process. The following table illustrates the strategy of X University in the form of 4 Pillars of Knowledge Management.

**TABLE III - FOCUS AREA IN KM PILLARS OF X UNIVERSITY**

| Pillar       | Focus Area                  | Note                                                                 |
|--------------|-----------------------------|----------------------------------------------------------------------|
| Leadership   | Strategic Planning Vision & Goal | Vision: Maintain business continuity in teaching and learning activities  
Goal: The process of teaching and learning activities can run normally  
Segmentation | Staff, lecturer, Student  
Communications | Sharing Knowledge, Meeting, Administration |
| Organization | BPR WorkFlow Communication | 12 Process  
WorkFlow Communication | 2-Ways |
| Technology   | Email Process Modelling KSS Management tools Communications | Organizational email domain  
12 Process  
3 –Ways (e-learning portal, temporary online lectures portal, Google Classroom)  
1 Way (Academic Information System)  
4-Ways (e-learning portal, temporary online lectures portal, WhatsApp, GoogleMeet/zoom)  
Exchange Forum Communication |
| Learning     | Sharing Knowledge Learning Community Shared Result Exchange Communication | Academic IS, KSS  
Organization Member  
Academic IS  
KSS |

To accommodate the functional needs of the twelve business processes, X University has several channels to share knowledge and manage knowledge in the form of information systems platforms and web-based knowledge sharing systems. The following is a path for sharing knowledge and managing that knowledge and the scope of business processes that can be accommodated by each of these platforms:

**TABLE III-KM PLATFORM**

In Figure 4, we can see that there are 4 layers of activity, where virtual life activities (channel 2) are part of activities in real life (channel 1). At layer 1 the conditions are in the actual world which is supported by the roof, foundation, pillar 1 and pillar 2 where people can easily reach and feel the condition of their devices as a means of transportation into layer 2. layer 2 is supported by the third pillar that enables people to activate their virtual bodies to be ready to run their virtual lives. When layer 2 is successful, people will begin to dive into layer 3 so they will experience life in the real world differently and without constraints of distance or time by using their virtual bodies, they will be able to carry out processes as in the real world that have been stimulated in the form of modeling of the best technology.
To illustrate how these twelve processes work using the 4 pillar KM framework, we illustrate again the model presented in fig 3 below.

Fig 3. Power of Four Pillar to Support BCP

Fig 4. Channel Architecture Model
After the process runs smoothly, knowledge is formed and buried in the deepest part to be used, shared and returned to be the last pillar to carry out business continuity, so that all stakeholders related to the business process will continue to feel the benefits and make continuous improvements in the path of virtual life. Fig 4. Describing the maturity of these processes that are running at the Knowledge Sharing System on X University, we also define 12 parallel business processes into the COBIT 4.1 enabler framework. Focusing on user experience as feedback from the process. In Figure 3 below provides model on how the enabler process assesses the maturity of these processes based on the COBIT 4.1 matrix.

In Figure 5 above highlights the Plan and Organize (PO), Acquire and Implementation (AI) and Delivery and Support (DS) domains as a representation of user experience in the Knowledge Sharing System that used by X university. Feedback results are converted using an ordinal scale which calculates the actual score. Table 4 below describes the results of user experience feedback from respondents selected based on the ability of the IT governance process based on the three domains that have been converted into CMMI maturity model.

**TABLE IV - ACTUAL MATURITY MODEL FROM BUSINESS PROCESSES**

| Sub Domain | Actual Score | Level Maturity | Definition | Note |
|------------|--------------|----------------|------------|------|
| PO1        | 4.27         | 4              | Quantitatively Managed | Process is Measured and controlled |
| PO2        | 3.79         | 3              | Defined    | Process characterized for the organization and pro-active |
| PO3        | 4.03         | 4              | Quantitatively Managed | Process is Measured and controlled |
| PO4        | 3.96         | 3              | Defined    | Process characterized for the organization and pro-active |
| PO7        | 3.69         | 3              | Defined    | Process characterized for the organization and pro-active |
| PO8        | 3.44         | 3              | Defined    | Process characterized for the organization and pro-active |
| AI1        | 3.69         | 3              | Defined    | Process characterized for the organization and pro-active |
| AI2        | 3.77         | 3              | Defined    | Process characterized for the organization and pro-active |
| AI3        | 3.19         | 3              | Defined    | Process characterized for the organization and pro-active |
| AI4        | 4.04         | 4              | Quantitatively Managed | Process is Measured and controlled |
| AI6        | 3.96         | 3              | Defined    | Process characterized for the organization and pro-active |
| DS7        | 3.42         | 3              | Defined    | Process characterized for the organization and pro-active |
| DS8        | 3.31         | 3              | Defined    | Process characterized for the organization and pro-active |
| DS10       | 3.40         | 3              | Defined    | Process characterized for the organization and pro-active |
| DS11       | 3.79         | 3              | Defined    | Process characterized for the organization and pro-active |

Through a combination of various online knowledge sharing systems which include academic systems, e-learning portals, temporary online lectures, Zoom and WhatsApps. Lecturers and students who are involved in the 12 business processes, seem to have the flexibility to do the learning process. Learning process 1 refers to actual face-to-face learning and learning process 2 refers to the online lectures learning. The results of the maturity conversion in table IV have proven that business processes can run even though only a maximum occupies the 4th maturity level. This certainly indicates that KM can provide benefits for the continuity of 12 business processes to keep running and generate positive output for its supporters while continuing to run social distancing in waiting for corona virus disease outbreak to weaken and disappeared.
But another concern that arises is whether the process can still run optimally as in learning process 1. This time, Table V will explain and compare the midterm outputs of students before and after performing online lectures in 3 courses.

**TABLE V - MIDTERM RESULT**

| Courses                  | Average result before online class | Average result after online class |
|--------------------------|------------------------------------|----------------------------------|
| Database Design          | 87.36                              | 90                               |
| IT Governance            | 94                                 | 98.2                             |
| Computer and Society     | 97.77                              | 85.4                             |

The results from the Table V above will be converted to letter grades based on the academic guidelines of the university undergraduate program as follows:

**TABLE VI - ACADEMIC LETTER GRADES GUIDELINES**

| Score   | Value | Weight Value | Category  |
|---------|-------|--------------|-----------|
| 80-100  | A     | 4            | Special   |
| 74-79.99| B+    | 3.5          | Excellent |
| 68-73.99| B     | 3            | Good      |
| 62-67.99| C+    | 2.5          | Pretty Good|
| 56-61.99| C     | 2            | Fair Enough|
| 45-55.99| D     | 1            | Lack      |
| 0-44.99 | E     | 0            | Not Pass  |

Based on these guidelines on Table VI above, the following results convert the average value into letter values we describe in the table below

**TABLE VII - CONVERSION ON MIDTERM RESULT**

| Courses                  | Average result before online class | Average result after online class |
|--------------------------|------------------------------------|----------------------------------|
| Database Design          | A                                  | A                                |
| IT Governance            | A                                  | A                                |
| Computer and Society     | A                                  | A                                |

In these three courses, the results obtained in the middle of the semester are calculated before and after the introduction of the online lecture system while the score don’t affect the academic score of the students. Based on students user experience, we also explore the reasons for the increase and decrease in scores on the students outputs. In the description below, we describe several factors that support the increase or decrease in the value of student output at the x university:

**A. Factors that cause an increase in student score**

1) Students find their learning style
   In attending lectures online, they are free to determine how they are comfortable doing their class assignments, how they can join in their classes and when is the right time for them to do their assignments.

2) Record features at the knowledge sharing system meeting such as Gmeet or Zoom
   With the meeting record feature in the final results of the video, if students feel they do not understand what the teacher has said they can repeat the recording to understand and be able to do the given task.

3) Students can carry out their activities in parallel
   For students who work, sometimes lecturing activities require that they choose to prioritize work or lecture. But with the support of online features, they can calmly run both even in the same condition. They can also carry out their activities in parallel with the "me time" time that they have been difficult to get because of the actual activity density.

4) Clarity of schedule
   One of the advantages of using knowledge sharing system for students is that they can see the range of lecture schedules and deadline for assignment collection with certainty. If they were forget the schedule, they can see it again through the application.

5) Lecturers who are more communicative and responsive
   During the online lectures they found the instructors were more supportive and tried to meet the gaps that occurred due to business reengineering of teaching and learning activities. More flexible with time, convenience in task collection. More cooperative and responsive.

6) Delay
   In the case of delays in the real world, students find conditions of punishment that can cause them to feel uncomfortable on continuing their lessons or unable to continue their participation in class.
Not to mention the conditions when they are late, they still have to walk to the university, to class, to their seats. So they lost a lot of information and knowledge they were supposed to get. But in this online lecture, they can join right away even though they are experiencing delays. Teachers also do not feel disturbed by the late arrival of students. In addition they also will not lose any knowledge or information because usually online class meetings are recorded and distributed in the form of videos.

B. Factors that cause impairment

1) Overload Assignment
   Each teacher gives more assignments than. So if they attend more than three lecture classes, they will feel pressure when they feel the work they do is endless.

2) Failed Coordination
   Under normal conditions, some courses that require third-party coordination such as community computers have decreased because coordination with third parties cannot work. They find it difficult to accommodate the participants’ needs for adequate infrastructure in carrying out community service online.

3) Not communicative and responsive lecturers
   Teachers who are not communicative and responsive also cause a decrease in learning interest in students because they feel the difficulties they experience do not get an explanation and response from the teacher so they have difficulty doing the task and the more fatal is that they do not understand when the assignment must be submitted.

4) Asynchronous Consultation Session
   Learners feel the lack of closeness and private consultation sessions with teachers. Sometimes these attentions and consultation sessions increase their enthusiasm for learning and motivate them to do their work.

5) Asynchronous Discussion Session
   In doing group work, sometimes group members cannot join due to disruption of their internet line so the discussion session will run more difficult than usual or may not be able to run.

V. CONCLUSION

KM combine with virtual worlds can be an important communication infrastructure for education organization to help its students develop to gain knowledge and new skills in their learning processes. Virtual worlds by using “Second Life” are considered to be a significant tools for collaboration, entertainment, social networking, and business development. For education organization area, these environments offer information systems that are built and managed by students. By using Virtual world technologies such as web 2.0, it can be bridge for communication and collaboration for learning development and assessment. Second Life also becoming a new channel to interact between lecturer and students using new communication technologies.

First, the findings suggest that educational organizations can use “Second Life” to manage knowledge with the support of several factors such as organization, human resources, infrastructure, technology and can be modeled using four Pillar KM. Second, this study shows that technologies that can be used to support the running of “Second Life” in educational organizations include, the web based applications, mobile applications, web 2.0, wireless communication, Knowledge Sharing System applications in the form of KSS portals, Academic Information Systems, communication and meeting applications such as whatsapp and zoom, email. They must be used interchangeably or together so that the process goes well as in channel 1.

Third, this study Shows that the impact given by KM on educational organizations in carrying out “Second Life” is the BCP (Business Continuity Plan) scheme even in the condition of force major, changes in business processes, ease of accessing and managing knowledge as well as increasing and decreasing learning outcomes of students. However, the analysis that has been carried out has several limitations. The survey is based on a convenience sample of Second Life users in this case college students, not all of them have the ability to fully adapt with virtual world. So Additional research is needed to evaluate the generalizations of the research findings. Because of the rapidly evolving nature of technology and applications in KM and the virtual world, further analysis is needed to understand not only for the communication behavior but also to build new strategies and business opportunities in educational organizations.

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