

Open Ended Questions done in A Personal Learning Environment Framework to Enhance Communication Skills

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Abstract — This article aims to design a framework on the research design and methods employed in this study. The research design, population and samples, research instruments, research procedure and the method of data analysis are also described. In addition, it discusses briefly the class organization techniques and the procedures for administering the instruments. This chapter outlines the research methodology of this study. Research methodology is a collection of theories, ideas and comparative study of different approaches.

Keywords—framework, instruments, procedures, approaches

I. INTRODUCTION

For decades, educational research has focused on understanding how the teaching–learning process is carried out with the use of information and communication technology (ICT; Ghavifekr & Rosdy, 2015). This has caused a series of debates and discourses that make clear how far we are from understanding the duo education–technology concept. To contribute to the development of efficient strategies for ICT integration into education, it is necessary to consider the diversity of educational environments that revolutionise the meaning of learning (Alexander & Bound, 2001), as well as the learning and teaching process. The education system integrates different benefits from available technologies beyond technical instrumentalism (Manyukhina & Wyse, 2019), which may include equal opportunities to education access and, therefore, discipline-specific competencies, generic skills and dispositions, without considering the level of virtualisation of the learning process, which can be paramount for transitions between modalities (Tolman et al., 2020).

Talking specifically about higher education (HE), the expectation is that all college students develop discipline-specific competencies, generic skills and dispositions (Chan, 2016). The role of HE is not only related to economics or employment benefits but also to preparing individuals with generic skills, including the life-long learning process or learning in complex environments (Palletier et al., 2021), for example, a Personal Learning Environment (PLE). Although PLEs show the benefits of ICT, and the fact that they have implications for the development of skills in formal and informal educational settings (García-Martínez et al., 2020), teaching and learning strategies must be oriented to include ICT in the learning process and avoid the detriment to student PLEs (Ordaz & Gonzalez-Martínez, 2020).

Taking into account the importance of PLEs in HE and their implications for the development of skills to face the challenges of the learning process, this study seeks to determine students' perceptions of PLEs considering the learning modality. For this purpose, a conceptualisation of PLEs is made, as well as a description of the study modalities of the context in which this research is developed.

II. ISSUES AND CHALLENGES IN PLES

Students will contribute meaningfully in the curriculum design process if they receive support from teachers and as long as their suggestions are taken seriously. For many teachers, constraints on their time will be a barrier to them trying new approaches that appear to be time consuming (Patil, P. 2013). Skrabut, S. 2018 stated that “some of the issues are due to the institutional climate, and other infrastructure issues are due to training and support needs, and yet others are due to the vast array of options available to a learner.”

PLE is based on a self-directed learning approach and the process of self-directed learning requires a degree of self-awareness (Educause, 2009). The Networked Student Model of constructing personal learning environments is reflected in many connectivist principles (Drexler, W. 2010). PLEs need on the one hand to focus on technical issues, regarding information exchange between services and user interface problems (Ullrich, C., Shen, R. &

Gillet, D. 2010).

For some teachers, there is concern that they are the people responsible for ensuring the programme is taught. Because students are acquiring more power to direct their learning, PLE were perceived as more informal learning. Both students and instructors wonder if learning should be formal only. If anything goes wrong, the perception is that it will be deemed their fault. However, teachers and students who have co-created the curriculum, they will get experiences of working together and the shared responsibility for the curriculum that emerges from the process.

Students are likely to get the most from actively participating in curricula that are their own courses this helps them gain the greatest ownership over their own learning. However, by definition this implies that for each new course or program, students need to actively participate in creating their own curriculum, raising concerns about the sustainability for this kind of collaborative approach to curriculum design.

III. ROLES OF STUDENTS IN PLE

As far as higher education is concerned, there is a growing interest in students becoming more active participants and co-creators of their learning experiences. One of the key areas where students could have greater engagement and impact on their own learning is in curriculum design. For the betterment of current structures the collaborative reforms of curriculum design are necessary.

By doing this the students will demonstrate high levels of self-directed learning and autonomy along with improved levels of confidence and motivation with an improved student performance. Students will change their views of curriculum design as a result of their active participation in curricula processes. They will understand course design to be a complex process and will have a greater understanding of the demands of academic within this process. The process of collaborating with students will demand a lot of teachers. However, all teachers will have a rich experience of learning for students through opening up more meaningful dialogue with them.

IV. PLE AND ITS FUTURE

The concept of the PLE marks a fundamental change in the role resources such as people and media play in teaching and learning. The goal for the student shifts from a need to collect information to a need to draw connections from it to acquire it, disseminate it, and collaborate in its use. Furthermore, the use of PLEs will be enabling students to actively consider and reflect upon the specific tools and resources that lead to a deeper engagement with content to facilitate their learning.

In a study conducted by (Valjataga, T., Pata, K., & Tammets, K. 2011), college students' perceptions of the pedagogical affordances of social media in supporting the development of PLEs were examined in order to evaluate a course design that was premised on social media. Findings showed that students' perceptions of the affordances of PLEs changed as they navigated the course landscape of social media tools to construct and perform learning activities aligning with the researchers' operational definition of affordances of social media. Specifically, PLEs require the development and application of self-regulated learning skills because PLEs are built bottom-up, starting with personal goals, information management and individual knowledge construction and progressing to socially mediated knowledge and networked learning (Turker, M. A., & Zingel, S. 2008).

As stated by (Schaffert, S. & Hilzensauer, W. 2008), "the concept of LMS limits the role of learners to the possibilities of the learning management system and the creativity of the teachers, the concept of PLE focuses on active, self-directed, creators of content." In this regard, Siemens, G. stated that, "PLEs aren't an entity, structural object or software program in the sense of a learning management system." According to Van Harmelen 2006, ideas about PLEs are still forming. Although PLEs are a new notion for learners and educators, when compared to LMSs, these environments are more robust and offer interactive tools absent in LMSs.

According to McLoughlin and Lee 2010, "digital-age students want an active learning experience that is social, participatory and supported by rich media." In this respect, PLE is an interesting and intriguing experience for students whom are shaped by technology (Mehmet Kesim & Hakan Altınpulluk 2013). In fact, PLE is often used in our online lives unintentionally. Consequently, PLEs can be perceived as a manifestation of a learner's informal learning process via the Web, or, as a single learner's e-learning platform allowing collaboration with other learners and instructors and coordination of such connections across a wide range of systems (Martindale, T., & Dowdy, M. 2010).

V. METHODOLOGY

This research is conducted in a university in Malacca. This research took four months. The duration for this research was enough as the sample for this study consisted of 120 students from the Faculty of Information and Communication Technology. There will be 120 students from the English for Effective Communication class. The students were divided to group 1, group 2, group 3 and group 4. Therefore the samples for this research were chosen from all the third year student from the class. All these samples were chosen using stratified sampling.

Diploma students will be chosen because they will be exposed to computer technology and how to use latest technologies for learning in their English class. Besides, they will also know how to use tools for learning such as Ulearn. Furthermore they have already been exposed to the computer technology. Besides that, they can also use the learning management system above to do presentation and create videos for learning. This strengthens the reasons for the claim that they would be one of the research samples that could give detailed feedback for this research.

The first instrument is the Questionnaire. Questionnaire is one of the most popular instruments suggested in identifying and understanding one's attitude and point of views towards certain issues. Therefore, the objective of using questionnaire in this research is to collect and gather students' perception towards Personal Learning Environment.

The purpose of the questionnaire given to the students is to find out the students' perception towards the usage of Personal Learning Environment. The questionnaire will be included in Appendix A. Firstly, four questions regarding interpersonal communication will be included. Secondly, four questions regarding reflection will be inserted. Thirdly, four questions regarding the usage of technology will also be added. Four questions regarding the benefits of technology will be incorporated in the questionnaire. Finally, four questions related to students' perception about the use of Personal Learning Environment in learning will also be included. All these questions will be included in the questionnaire for the students. The questionnaires administered for the students consisted of twenty open-ended questions.

Questionnaires are one of the most affordable ways to gather quantitative data. Especially online and mobile surveys have a very low cost and a generous reach. There's no printing cost, you don't have to hire surveyors to ask people the questions, not do you have to buy stamps to send out your paper survey. Apart from being inexpensive and flexible, questionnaires are also a practical way to gather data. They can be targeted to groups of your choosing and managed in various ways. You can pick and choose the questions asked as well as the format (open-ended or multiple choice). They offer a way to gather vast amounts of data on any subject. It's quick and easy to collect results with online and mobile tools. This means that you can gain insights in as little as 24 hours (or less!), depending on the scale and reach of your questionnaire. You don't need to wait for another company to deliver the answers you need.

VI. RESULTS AND DISCUSSION

Open ended questions analysis

This section is divided into two sections. The first section is divided into two parts. The first part consists of the students' perception towards learning English which is gathered from the questionnaire data through open ended questions. The open ended questions consisted of ten questions related to interpersonal communication.

The questions included in the first section are as follows:

1. What is interpersonal communication?
2. Do you think having a good interpersonal communication skill is very important for you? Please explain.
3. How the comment and feedback given by your friends in your Ulearn entries help you to improve your learning? Please explain.
4. In what way will browsing your peers' Ulearn help you to improve on your own learning? Please explain.
5. How can writing the entries enhance your written communication skills? Please explain.
6. Do you think three entries are sufficient to enhance your written communication skill? Please explain.
7. Do you think the discussion activity in the class help you to improve your oral communication skills? Please explain.

8. Do you think the discussion activity in the class help you to improve your written communication skills? Please explain.

9. Do you think reflection is very important to you in your learning process? Please explain.

10. Will the feedback given by your peers' in Ulearn motivate you to learn? Please explain.

The second part consists of the students' perception about the use of Ulearn in learning gathered from the questionnaire data through open-ended questions. The data gathered from the open-ended questions consisted of eleven questions.

The questions included in the second section are as follows:

1. Do you think Ulearn is user-friendly? Do you encounter any problems when you use Ulearn? Please explain.

2. Do you think Ulearn can be used in all courses? Please explain.

3. Is there anything that you want to add or reduce in your own Ulearn? Please explain.

4. What are the materials that you have included in Ulearn? Please explain.

5. How can the Ulearn help you to improve your oral and written communication? Please explain.

6. How do Ulearn help you to improve on your own learning? Please explain.

7. What are the advantages of Ulearn?

8. What are the disadvantages of Ulearn?

9. How can you improve your oral communication skills by using Ulearn?

10. How can you improve your written communication skills by using Ulearn?

11. Any comments or suggestions?

- Data gathered from the open ended questions

The students were divided into three main groups. The first group consisted of students from Manufacturing Faculty. There are 40 students in this group labelled from A 1 to A 40. These 40 students were selected as the samples of the research as they fulfil the requirements of the research. Out of these 40 students only 10 students are selected randomly for the purpose of interview.

The second group consisted of students from Manufacturing Faculty. There are 45 students in this group labelled from B 1 to B 45. These 45 students were selected as the samples of the research as they fulfil the requirements of the research. Out of these 45 students only 10 students are selected randomly for the purpose of interview.

The third group consisted of students from Mechanical Engineering Faculty. There are 55 students in this group labelled from C 1 to C 55. These 55 students were selected as the samples of the research as they fulfil the requirements of the research. Out of these 55 students only 10 students are selected randomly for the purpose of interview.

4.2.1 Interpersonal Communication definition:

B1, B2, B6, B7, B10, B11, B14, B15, B17, B19, B23, B26, B27, B30, B32, B34, B35, B36, B37, B38, B39, B42, B44, B45 define interpersonal communication as the process by which people exchange information, feelings, and meaning through verbal and non-verbal messages. It is face to face communication.

B3, B4, B5, B13, B16, B21, B22, B25, B31, B43 define interpersonal communication as an exchange of information between two or more people. It is also the area of study and research that seeks to understand how humans use verbal and non-verbal clues to accomplish a number of personal and relational goals.

C1, C3, C7, C9, C21, C25 and C31 define interpersonal communication as a process which people exchange information, feelings, and meaning through verbal and nonverbal messages.

C10, C14, C18, C22, C26, C29, C32, C33, C35, C39, C40, C50 define interpersonal communication as conversation between two person and the way he or she share their feelings and emotions.

Most of the students agreed that interpersonal communication is an exchange of information between two people or more.

4.2.2 Importance of a good interpersonal communication skills

B1, B2, B3, B4, B5 and B6 all agreed that it is important to have good interpersonal skills. They said that students' can exchange and gather information from others if they have good communication skills.

B13, B14, B14 and B45 also said that having a good interpersonal skill is essential to solve problem that inevitably occur in both the students' private and professional life.

C1, C3, C5, C8, C14, C18, C26 also said that having a good interpersonal skill is important for anyone as they could leave a good impression about them towards the others and it will make the interaction more pleasing as both parties understood each other better in what the other one trying to say.

C28, C30, C33, C37, C43, C51, C55 felt that having a good interpersonal communication is very important for them because it can help them to know each other. It is easy to think about communication involving sender and a receiver.

Majority of the students agreed that having a good interpersonal skills as it can help them out when they search for better job opportunities in the future.

4.2.3 Comment and feedback given by friends

B1, B4, B7, B9, B12 and B19 agreed that the comment and feedback given by their friends help them to spot their weaknesses in communication which will help them to pay more attention on it to improve their communication skills. This will indirectly help them to be a better person and check on their own weaknesses from time to time.

B5, B 20, B34, B44 and B 45 stated that the comment and feedback given by friends help them to improve their speech because they stated out the weaknesses and strengths so they can avoid from repeating the same mistakes in the future.

C11, C15, C20, C28 and C30 agreed that the comment and feedback given by their friends help them to spot their weaknesses in communication and it helps them to notice what they are lacking for their studies as they might not realised their own weaknesses. Through this they can get to know what they are lacking and have a vision of improving what they lack in the future.

C33, C34, C37, C41, C42, C45, C48, C50 and C55 stated that the comment and feedback given by their friends can help them to improve their skills. This is because they will know which part in of their social skills which they are not good in and improve on it.

Majority of the students felt that the comments and feedback given by their friends is very important as they learn new things from their friends comment.

4.2.4 Browsing your peers' Ulearn will help students to improve their own learning

B1, B7, B9, B14 and B19 agreed that browsing their peers' Ulearn will help them to improve their own learning because they can improve their English by getting some knowledge on how to improve their English communication from their friends comment through Ulearn which is new.

B21, B25, B27, B38 and B45 stated agreed that browsing their peers' Ulearn will help them to improve their own learning because it improves their own learning by understanding opinion from a different point of view, thus they are able to generate ideas for improvement.

Many students felt that browsing through their peers' Ulearn will help them to learn new words, new vocabularies and new knowledge that can in turn help them to improve their own learning.

4.2.5 Writing the entries do help students to enhance their written communication skills

B1, B7, B8, B16, B21, B30, B31, B34, B35, B37, B40 and B41 stated by writing the entries, it helps them to improve their skills in building sentences. Not only that, it will also help them to improve their grammar skill.

B4, B9, B13, B15, B17, B23, B24, B25, B27, B28, B32 and B33 mentioned that writing the entries do help students to enhance their written communication skills because it helps them to improve their writing skills. As long as they keep on writing entries, it could help them to me know more words that they have never learn before.

Most of the students said that they don't really have good writing skills so as they write the reflection entries it will help them to improve their language and also written communication skills.

4.2.6 Three entries are sufficient to enhance the students' written communication skill

B1, B11, B19, B22, B25, B26, B28, B30, B31, B37 mentioned that three entries was not enough to improve their writing skills. They need to do more practice.

B2, B3, B4 said that writing three entries is sufficient, because they can learn from other friends to identify each of their problems and weaknesses.

Majority of the students felt that writing three entries is more than enough to help them improve their written communication skills due to the time constraint of one semester. (19 students said no and another 25 students said yes)

4.2.7 Discussion activity in the class help students' to improve their oral communication skills

B1, B2, B6, B7, B8, B9, B10, B14, B18, B21, B22, B30, B36, B40 agreed that discussion activity in the class help students' to improve their oral communication skills as the discussion activity in the class uses English language, so student have a must to communicate in English too.

B13, B16, B25, B26, B27, B28, B29 said that discussion activity in the class can help students to improve their oral communication skills because by doing discussion they can talk to other people and give some opinion and advice. By doing that, they will improve their oral skills.

Most of the students felt that the discussion activity in the class help them to improve their communication skills with their peers and friends.

4.2.8 Discussion activity in the class help students' to improve their written communication skills

B1, B9, B10, B17, B 19 and B21 mentioned that discussion activity in the class may not necessarily help students' to improve their written communication skills. According to them writing and speaking is totally different. In writing, all of the sentence is much more formal and always must be in proper grammar. In speaking, it is more freedom, formal or casual is up to them but grammar is not that strict compared with writing.

B2, B3, B4, B6, B7, B8, B11, B12 and B13 agreed that discussion activity in the class help students' to improve their written communication skills because they can write a good essay by using new words discussed in their class. They mentioned that discussion in class were helped by their lecturer who has a wide knowledge in English.

Majority of the students felt that the discussion activity held in the class can help them to improve their written communication skills because as they discuss they learn new things from their friends so they can use it when they write.

4.2.9 The importance of reflection in the students' learning process

B2, B4, B5, B7, B9, B13 B17, B18, B19, B22, B23, B25, B26, B27, B29, B33, B39, B42, B43, B44 and B45 stated that the reflection is very important in their learning process. This is because they can identify their mistakes and can correct it.

B16, B21, B28 and B34 agreed that reflection is important in the students' learning process because it is a process of examining and interpreting experience to gain new understanding.

Many students felt that writing reflection is very important in their learning process. Students felt that as they write the reflections they get to learn new things and new knowledge.

4.2.10 Feedback given by peers' in Ulearn will motivate students' to learn

B1, B6, B11, B14, B16, B18, B19, B28, B29, B30, B31, B32, B34, B35, B36 mentioned that the comments given by their friends motivate them to improve their skills. When they saw other students can communicate fluently, it will motivate them to be confident like others.

B4, B5, B7, B9, B10, B15, B21, B26, B33, B39, B40, B43 and B45 agreed that the feedback given by peers' in Ulearn let them understand their weaknesses and the suggestion given by them can be used to improve themselves.

A lot of students felt that the feedback given by their peers' will surely motivate them to learn better because those feedbacks given are all very useful for them.

4.2.11 Problems faced by the students when using Ulearn

B1, B2, B10, B15, B18 and B19 stated that Ulearn is user friendly. However, they do face some problems such as poor internet communication.

B21, B25, B33, B38 and B45 elaborated that Ulearn itself is a problematic system. It contains a lot of glitches and bugs which may cause assignment and lab reports fail to submit. The worse things is there is no one to improve and fix these annoying problems.

Most of the students said they don't face much problems while using Ulearn. They added that Ulearn is very user-friendly and it is very easy to access and use too.

4.2.12 Usage of Ulearn for all the different courses (Recommendation by the students)

B1, B4, B7, B9, B13, B16 and B22 mentioned that Ulearn is suitable to be used for all the different courses. This is because it is a useful interface which provide internal communication between lecturer and student.

B24, B28, B30, B33, B35 and B39 supported the points by saying that Ulearn is suitable for all the different courses because most of the notes have been uploaded in Ulearn based to their courses. This will make the lecturer easier to communicate with students.

Most of the students said that Ulearn it very useful and can be used for learning purposes for all the different courses.

4.2.13 Materials needed to be reduced in Ulearn

B1, B4, B8, B9, B13, B15, B19 and B23 stated that they felt there is no materials needed to be reduced in Ulearn. They said that Ulearn itself is good enough.

B29, B31 and B33 mentioned that they would like to add more interesting features to make Ulearn more interesting.

Most of the students said they have nothing to add or reduce in their own Ulearn.

4.2.14 Materials included in Ulearn

B2, B5, B7, B9, B12, B14, B16 and B18 mentioned they have included their group reflection for their role play, self-reflection and assignments into their Ulearn.

B15, B 21, B24, B27 and B 33 stated that the material that they have included in Ulearn is lab report, assignment, and many more.

Many of the students said they have uploaded their reflection entries and peer feedback to Ulearn.

4.2.15 Students' perceptions on how Ulearn can help students' to improve their oral and written communication

B2, B5, B6, B9, B11, B15 and B19 mentioned that Ulearn helped them to improve their oral and written communication via the notes and google videos that have been uploaded by the lecturer and peers.

B 21, B24, B26, B29, B31, B33 and B41 agreed that Ulearn helped them to improve their oral and written communication when they upload the assignment and do the discussion with lecturer using Ulearn when they did not understand some topic. From that they can improve their oral and written communication.

Most of the students stated that they get to download useful notes uploaded to Ulearn that can help them in their learning process. Thus these notes help them to improve their oral and communication skills.

4.2.16 How Ulearn can help students' to improve their own learning

B1, B4, B5, B9, B10, B12, B14, B17 and B20 mentioned that the notes given by lecturer in the Ulearn is useful. They use the notes that is given by their lecturer to study their subjects.

B21, B23, B26, B29, B31, B34, B37 and B41 added that all of their main courses lectures notes are attached on Ulearn. So, Ulearn is really important to improve their own learning.

Most of the students said that Ulearn can be accessed at anywhere at any time as long as there is internet connection. Therefore they can use it at any time for study and revision purposes so it will help them to improve their own learning.

4.2.17 The advantages of Ulearn

B3, B6, B7, B9, B11, B13, B16 and B17 stated that there are so many advantages of using Ulearn such as improve their oral, written communication and their learning process. Ulearn also can be used to give feedback and comment in order to improve themselves.

B19, B21, B25, B27, B29, B31, B36, B38, B40 and B45 stated that the advantages of using Ulearn is student managed to know the information given by the lecturer easily and students are also able to study and do preparation before they enter the class since the notes were uploaded earlier.

Many students stated that Ulearn can help them to learn new things and new knowledge.

4.2.18 The disadvantages of Ulearn

B1, B3, B7, B8, B11, B15, B20 said that there is no disadvantage about Ulearn as all the function in Ulearn is very helpful.

B9, B 13, B22, B24, B28, B31, B38 and B44 mentioned that the disadvantages of Ulearn is, it is online. If they do not have an internet access they cannot use it.

Most of the students agreed that they cannot get access to Ulearn when there is no internet connection. Thus this can be a great setback for them.

4.2.19 Students' perception on how they can improve their oral communication skills by using Ulearn

B3, B7, B10, B12, B13, B18 and B39 stated that Ulearn can help them to improve their oral communication by looking at the notes given and try to speak fluently and try to discussion with other friends. They added that through chatting they can improve their oral communication skills with their friends and the lecturers.

B21, B25, B29 and B33 Ulearn cannot help them to improve their oral communication skills. They said that Ulearn is just a webpage and not a physical character and a tool that can communicate with them as well as human being.

Most of the students felt that the notes and things uploaded to Ulearn can be used as a good reference to help them improve in their oral communication skills.

4.2.20 Students' perception on how they can improve their written communication skills by using Ulearn

B1, B3, B5, B9, B11, B21, B25 and B29 agreed that the group discussion and group chat need students' written communication skills. So it will help students to improve their written communication skills. They added that Ulearn can them to improve their written skills when there is an assignment that need to be written and submitted online.

B28, B30, B31, B33, B36, B37, B41 and B45 mentioned that they are able to improve their written communication skills by answering questions which lecturers have added in Ulearn. They added that feedbacks given by peers are also very helpful to them.

Most of the students felt that writing the reflection entries and also peers' feedback in Ulearn can help them to improve their written communication skills.

4.2.21 Comments and suggestions given by students

B2, B3, B5, B6, B7, B8, B11, B12, B16, B18, B22, B23, B24, B25, B27, B29, B31, B32, B33, B40, B43, B44 said that they do not have any comments or suggestions to add on.

B10, B12, B18, B32, B34 and B44 hoped they can get to use Ulearn without any internet connection.

Most students suggested that writing more reflection entries will be able to help them improve their written communication skills.

VII. CONCLUSION

According to Higgins, & Moseley, 2011 inability of teachers to understand why they should use ICTs and how exactly they should use them is a barrier to the implementation of ICT in schools. The effective implementation of ICT in schools is a multifaceted, complex process that just not involves providing the technology to schools, but also involves teachers' competencies, school readiness, long term financing and curriculum restructuring, among others (Zaman, M. Shahim R., & Clement K. 2011). Traditional learning theories have become unpopular compared with modern learning theories such as connectivism (Mehmet Kesim & Hakan Altınpulluk 2013). Nowadays, new theories environments and notions will change the future of education.

The adoption and use of ICTs in education have a positive impact on teaching, learning, and research (S Noor Ul Amin, 2013). Moreover, PLEs can provide a more holistic learning environments, bringing together sources and contexts for learning hitherto separate. Students learn how to take responsibility for their own learning. Critically, PLEs can bridge the walled gardens of the educational institutions with the worlds outside. In so doing learners can develop the judgments and skills or literacy necessary for using new technologies in a rapidly changing society.

As a conclusion, education should respond to societal needs, advances in technology and globalization. Teaching and learning should help learners develop their abilities, motivation and desire to play an active role in finding solutions to problems and issues in the society [21]. Teachers should have learning area or subject matter knowledge, pedagogical knowledge and knowledge of content. However, studies suggest the benefits of adopting and use of ICT in schools all over the world has not been automatic.

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