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Students Experiences of Using Wiki Spaces to Support Collaborative Learning in a Blended Classroom: A Case of Kenyatta and KCA Universities in Kenya

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Abstract: Wiki spaces are simply web pages that allow users to create, edit and share each other's work. This paper shares experiences from a group of students who were using the Wiki spaces in their course work. It attempts to use collaborative knowledge building theory to evaluate the existing Wiki spaces practices in order to inform stakeholders on the power of Wiki spaces in setting students on a knowledge building trajectory. The respondents were 150 university students from Kenyatta and KCA universities in Kenya whose lecturers had created Wiki spaces for collaborative group tasks as part of their coursework during the September to December 2013 semester. More than 50% of the students found the Wiki spaces promoting the various aspects of knowledge building such as reflective learning and propagating idea diversity to be useful. This paper underscores the importance of Wiki spaces as environments for positioning today's students on a knowledge building track which is a skill set requirement for the 21st century graduate.

Keywords: Wiki spaces, Collaborative knowledge building, Collaborative learning, Students experiences.

1. Introduction

With the increased demand for education, distance learning has gained popularity and therefore teaching online is no longer a new environment. Use of online technologies to supplement face-to-face instruction has facilitated blended learning, hence changing traditional learning which is based in a classroom environment. With the introduction of internet technologies and collaborative tools in Learner Activity Management Systems (LAMS) such as Learning Management Systems, students are offered new opportunities to collaborate online.

A course unit should give students and lecturers an experience where both parties can improve their learning and teaching respectively through collaborate learning. With such an understanding, the class can document their collective knowledge through lecture notes, contributing in project work as teams or individuals through typing, editing and sharing in groups. With the use of technology such as a Wiki space, class collaboration is easier through online media where the class and group members are able to create, edit, share and construct knowledge either synchronously or asynchronously. Wikis are simply web pages that allow users to create, edit each other's work, share knowledge and hence construct knowledge [1]. Wiki spaces not only allow the administrator to be in charge of the Wiki but also the users to be in control and hence create a powerful communal resource. Wiki spaces enable collaborative writing by students. A student can post their idea on the Wiki space

and return later to see how the idea grew from other group member's contributions. This is what [2] described as a seed of an idea in a Wiki space which the pioneer user plants and watches it grow. Wiki spaces enable the instructor to personalize students learning [3]. Although wiki spaces have been proven to be beneficial to students learning process, much has not been done to explore how the Wiki spaces are being used in setting students on a knowledge building pathway in collaborative knowledge building.

The purpose of this study was to explore the students' experiences using Wiki spaces to support collaborative learning. Additionally, the knowledge building principles as developed by [4] have been used as a basis for evaluation of the existing practices in the use of Wiki spaces for collaborative learning. [4] came up with twelve (12) principles of knowledge building. In knowledge building, all ideas can be made better. Students can improve on their ideas through combination, comparison and alignment with other ideas. This can enrich the ideas through recombination's and distinctions which lead to new synthesis. Students can also give their ideas and negotiate a fit between personal ideas and ideas from others. As a result, they are able to bring knowledge of value to others. All the students continue to be rightful contributors to the shared goals of their groups. They can learn from each other's experiences and ideas though participation in joint effort. There is continuous knowledge building and constructive use of authoritative sources, with a critical stance towards them.

Wiki spaces have been known as one among many powerful social platforms that support collaborative learning activities. This study is based on knowledge building network theory which focuses on the engagement of groups to build new knowledge [5]. In this theory, knowledge building is a collaborative activity where learners identify problems and gaps in the learning process and come up with solutions to these problems. Learners also receive critic on their ideas, other alternatives or their ideas are developed further when they share their developed ideas and explanations with the others publicly [1].

The culture of knowledge building is not spontaneous as supportive environment and teacher effort are required in creating and maintaining a community devoted to ideas and the improvement of these ideas [4]. Knowledge building has evolved from merely knowledge telling to intentional learning and cognition. According to [4] knowledge telling strategy consists of the learner telling what she or he knows as it comes in their minds. Beyond knowledge telling is knowledge transformation where the learners knowledge and beliefs are developed as they undergo the composition process. With the development of technologies such as Wiki spaces, which are frequently heralded as environments supporting knowledge building, it is important to evaluate their use in today's university environment in either promoting knowledge telling or knowledge transforming in the process of knowledge building. In this study, the knowledge building principles as developed by [4] have been used as a basis for evaluation of the existing practices in the use of Wiki spaces for collaborative learning. These principles link together into a system and are not necessarily used as a checklist. Together, they provide a picture of knowledge building using a Wiki space. As students share their experiences, existing practices are evaluated against the knowledge building principles in order to explore the various ways Wiki spaces can be used to set students on a knowledge building trajectory in collaborative learning.

Writers such as [1, 2, and 3], have discussed wiki spaces use in the classroom for assessment, as learning tools in schools and for enabling growth of ideas amongst learners but the element of establishing collaborative knowledge building using the wiki space activities based on knowledge building principles has not been studied from the authors' views. This paper aim to shed some light on this.

2. Objectives

The aim of this study was to explore the experiences of students using the Wiki spaces to support collaborative learning in a blended learning environment. The study sought to:

1. Identify the students' experiences in using the Wiki spaces in collaborative learning
2. Establish whether there are elements of collaborative knowledge building from the Wiki spaces' activities

3. Research methodology

3.1. Research Design

A case study design using two universities was employed. Through purposive sampling, a class of 100 students at Kenyatta University and four classes comprising of 45, 46, 31 and 8 students, totaling 130 students at KCA University were engaged in the study. Kenyatta University is one of the public universities in Kenya which has operationalised the use of eLearning pedagogy while KCA University is one of the privately owned universities in Kenya which has also adopted e-learning pedagogy. The participants were students involved in a course where the instructors had designed Wiki spaces to be used for course work.

3.2. Data Collection Instruments and Administration

A web-based self constructed questionnaire and blog were used to collect both qualitative and quantitative data. The data collection tool applied for qualitative data was a web questionnaire which had both open and closed ended questions. It was created with the help of software provided by https://docs.google.com/forms/.

Five different classes that were taught Computer Applications for September to December Semester of 2013 were selected to participate in this survey. This is because they were engaged in the use of Wiki spaces during this period for collaborative learning. Students at Kenyatta University were taking a course on computer applications in recreation and sports management while students at KCA University were taking a course on computer applications in business. The students were given different tasks in groups. The tasks were in a similar area where the instructors wanted the students to discuss computer applications in different aspects of sports and recreation management as well as application of computers in business. The instructors' expectations were that students would work creatively with knowledge, through information gathering on anything novel that appeared in their environment and bring it to the wiki either by typing, editing, creating, sharing, critiquing each other's work and learning from each other. The role of the instructor was to guide, encourage and track student's use of the wiki space to ensure that they concentrated on class work.

The questionnaire consisting of two sections was designed using Google forms and made available online to 230 students to fill in data. The web link to the questionnaire was sent to the students through their respective Wiki spaces accounts. The first section had three questions about general students' demographic information. The second section consisted of thirteen questions that inquired about the student's knowledge of Wiki spaces and their experiences in using Wiki spaces for learning. 80 students from KCA University and 70 students from Kenyatta University responded totaling to 150 respondents, providing a response rate of 65 percent. This response rate was favorable according to [6] in which they assert that a 50% response rate is adequate, 60% good and above 70% rated very well. [7] suggests that an average response rate of 30% to 40% is reasonable for deliver and collect survey method. [8] recommends 50% while [9] recommends 30% as an adequate response rate for descriptive surveys. Based on these assertions, this implied that the

response rate for this study was adequate. For the quantitative data, a blog was created where students documented their learning experiences on the use of the Wiki spaces in the classroom. The data from the blog were analyzed using thematic analysis where the responses were written down and grouped into similar arguments to draw a conclusion.

3.3. Wiki Space Design

Five different Wiki spaces accounts were created to cater for the five different classes that were involved in this study. The Wiki space was designed with two levels in mind, the Wiki home page and the Wiki spaces group projects' page as shown in Figure 1.

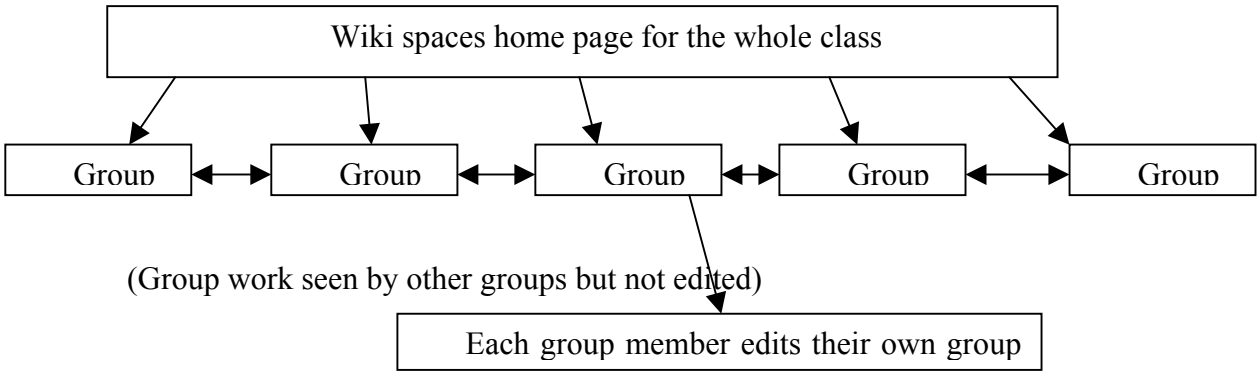

Figure 1: Wiki Space Design

The Wiki spaces home page was used by students in the different classes to socialize amongst themselves before joining the group projects. Here, the students posted any links or videos they felt were related to the course content. On projects, students were grouped between 5 to 10 members depending on their class sizes. They were then given an assignment or a topic to be covered in the classroom and were required to engage each other in their respective groups as part of course work. Wiki spaces privacy settings allowed members of the same group to edit each other's work but other members of the Wiki spaces who did not belong to the group were not allowed to edit or change the other group's work. They were only allowed to see what the other groups were doing.

3.4. Tasks given to the students in the wiki spaces

In the Wiki spaces students had been grouped by the lecturers and in all groups; they were given different tasks to do in class each month for the three month. Each group's Wiki space had three different tasks. For example in Kenyatta University, one group was asked to discuss and share their findings on how the developments such as the Internet and World Wide Web helped in specific management functions such as training and marketing of sports. The figure below shows the group discussion movement in the wiki space.

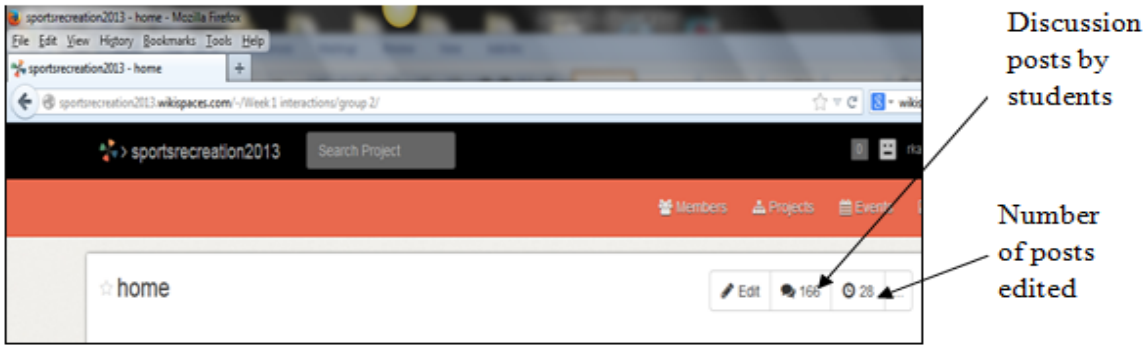

Figure 2: Group discussion moves in the wiki space at Kenyatta University

The discussion posts were collectively from the students' discussions and lecturer's guidelines. The edited posts were entirely by the students in the group. There were 166 discussion posts and 28 edited posts in that group. Figure 3 shows a sample of group discussion moves for a wiki space at KCA University for week 1. The group had been given a task to discuss how the retail sector was taking advantage of computer databases to provide a business organization of their choice with a competitive edge. There were 39 discussion posts and 12 edited posts.

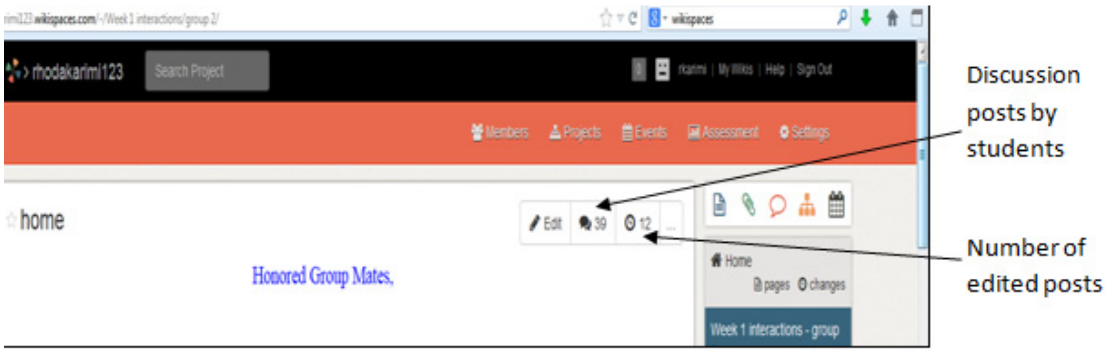

Figure 3: Group discussion moves in the wiki space at Kenyatta University

4. Results

4.1. Students experiences in using the Wiki spaces in collaborative learning

The first objective sought to establish the student's experiences in using the wiki spaces for collaborative learning. The results were as follows: About 95% (142) of the students did not know about Wiki spaces before they started using it this semester while only 5% (8) knew about the Wiki spaces before. Most of the few who knew about the Wiki space said that they learnt from another lecturer who used it with them in the classroom. One student said;

"I learnt about the Wiki space from a friend who used it to do her assignments".

Two of the students learnt about it from the internet while one more student commented;

"I learnt about the Wiki from my uncle who is a lecturer in another Kenyan university and who uses it with his students".

On the blog, students felt that initially the use of the Wiki space was difficult but with consistency in its use, they found it interesting and difficult to stop using. One student commented on the blog;

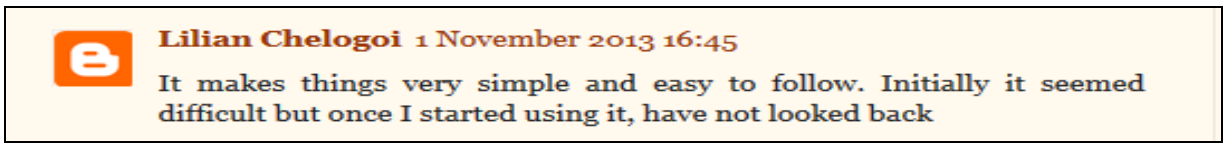

Figure 4: Ease of use of the Wiki space

This experience of students finding difficulty in using the Wiki space was similar to the experience reported by [10], where students initially had difficulties using the Wiki spaces even to carry out simple tasks. Students were asked whether they would like to use the Wiki spaces with other lecturers in other subjects. The majority of the students 95% (142) were willing to use the Wiki with other lecturers in other subjects while 5% (8) were not keen on the idea. One student on the blog commented as shown in figure 5;

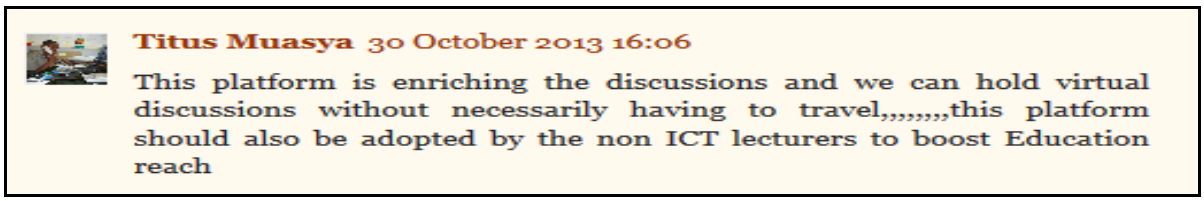

*Figure **5**: Student's comment on the blog on use of the Wiki with other lecturers*

Those who felt that Wiki spaces should not be used with lecturers from other departments were asked to give reasons why they thought so. One student said;

"Students don't interact much in it, it's like they are forced".

Another student commented;

"*In case you are left behind in some point, you are more likely to lose a lot, not only that, it requires a lot of dedication of which I know many individuals don't manage*"

Yet another student reported;

"I think its best suited for Computer applications unit only. It would be difficult for me to use it in Mathematics and laboratory-based courses..."

One more student said;

"The other classes are practical classes. We would not fully get the concepts. It would really complicate things despite the team work encouraged. For mathematical units it would not be easy."

However, there were two students who felt that lack of infrastructure would be a hindrance to using the Wiki spaces with other lecturers and they commented;

"It's not really convenient since people are online at different times".

"But please there should be increased availability of computers".

In relation to students' experiences in using the Wiki spaces, 97% (144) of the students felt that the Wiki spaces enabled them to understand difficult concepts when elaborated to them by fellow group members while 3% (6) of the students felt otherwise. Also 97% (144) of the students found the Wiki spaces an effective way to communicate and interact with their fellow students and the lecturer. When the students were asked whether the Wiki spaces gave them an opportunity to reflect on what they learnt in class, 88% (130) of the students agreed that they were able to reflect on what they learnt in the classroom while 22% (20) felt that this was not the case. This is evident from a student who commented as shown in figure 6 on the blog;

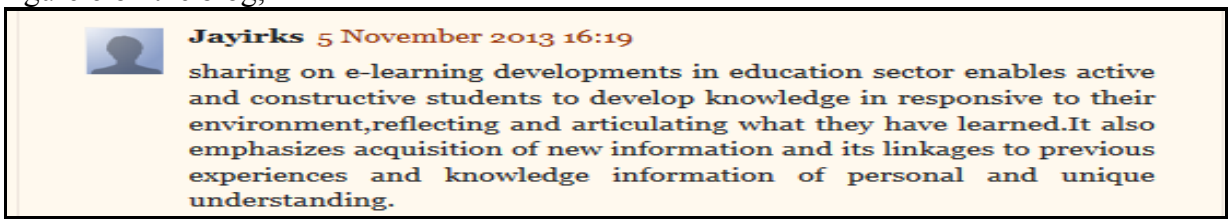

*Figure **6**: Student comment on the on reflective learning blog and acquisition of new knowledge*

Ninety one percent (91%) (135) of the students felt that Wiki spaces gave them an opportunity to brief others about their classroom experiences while 9% (15) felt otherwise. On the other hand, 86% (128) of the students found that a Wiki space was giving them an opportunity to respond to others about their experiences while 14% (22) found otherwise. On the blog, students felt that the Wiki was a good place to interact and share classroom experiences as shown on figure 7.

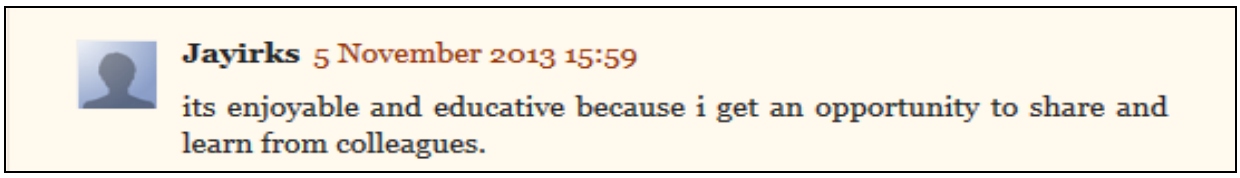

Figure 7: Student's comment on the blog about use of Wikis to share their experiences

Ninety two percent (92%) (137) of the students agreed that Wiki spaces gave them an opportunity to dialogue about challenging concepts in class while 91% (136) of the students felt that Wiki spaces gave them an opportunity to facilitate group work. On the other had 82% (121) of the students felt that resources created by their peers in the Wiki spaces were easier to understand than text books. On the blog a student said;

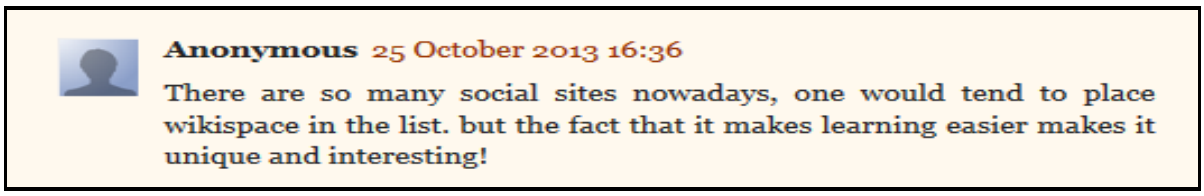

Figure 8: Student's comment on capability of Wiki spaces ease to understand concepts

4.2. Elements of collaborative knowledge building from the Wiki spaces' activities

When using the knowledge building principles for evaluating existing practices on the Wiki spaces, the group members were found commenting on what others said as part of knowledge building as shown on figure 9.

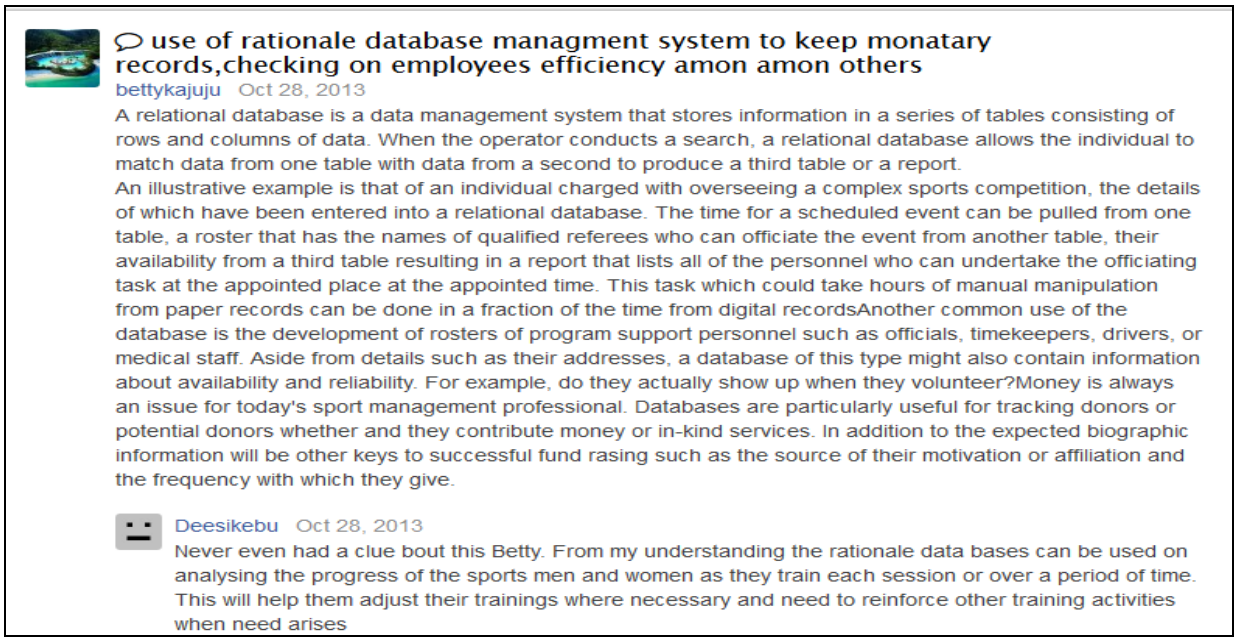

Figure 9: Building knowledge through commenting on others ideas

It was interesting to find other students on the Wiki spaces, referring to situations in real life in order to build knowledge as shown in Figure 10. [4] describes this principle as a situation where knowledge problems arise from the efforts to understand the world.

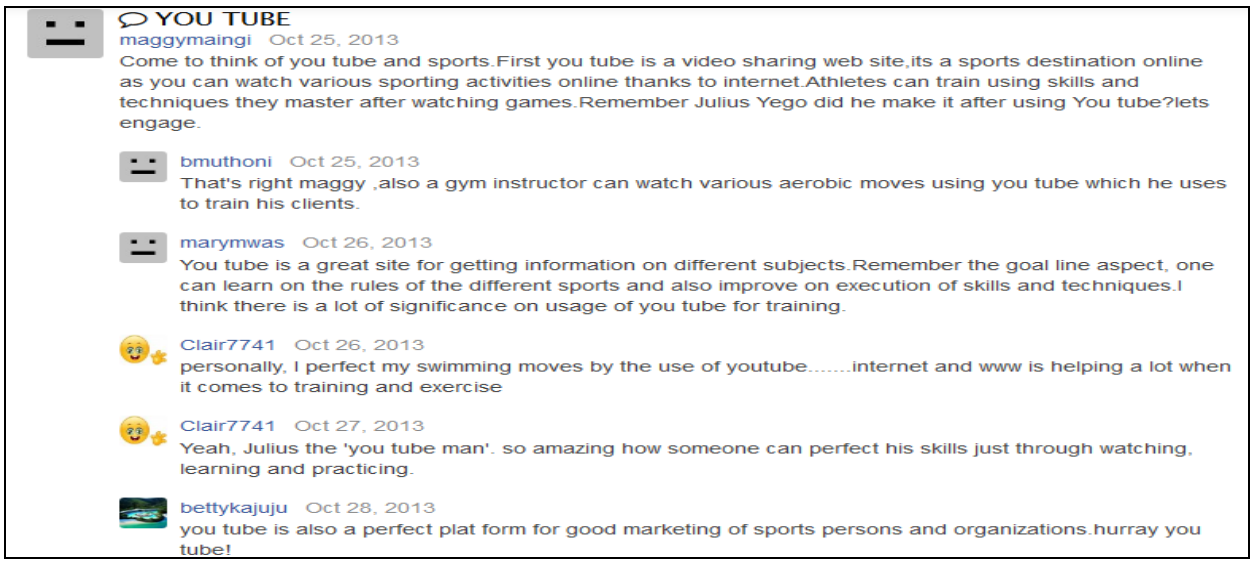

Figure 10: Building knowledge using authentic problems

Other students built knowledge via propagating idea diversity. It was interesting to see students building knowledge through use of blogs and You Tube videos in the Wiki spaces to enable fellow class mates to reflect and understand difficult concepts that had been discussed in class as shown in figure 11 and Figure 12. Students viewed you tube videos and blogs as an alternative way of representing knowledge.

Figure 11: Use of Internet link on the Wiki spaces to propagate idea diversity

Figure 12: Use of you-tube on the Wiki spaces to propagate idea diversity

When students learn to work with diversity, they move to higher planes of understanding. This enables them to achieve new synthesis and in turn promotes and builds knowledge. On the other hand, students went further to set forth their ideas with the aim to produce knowledge of value to others as seen in Figure 13.

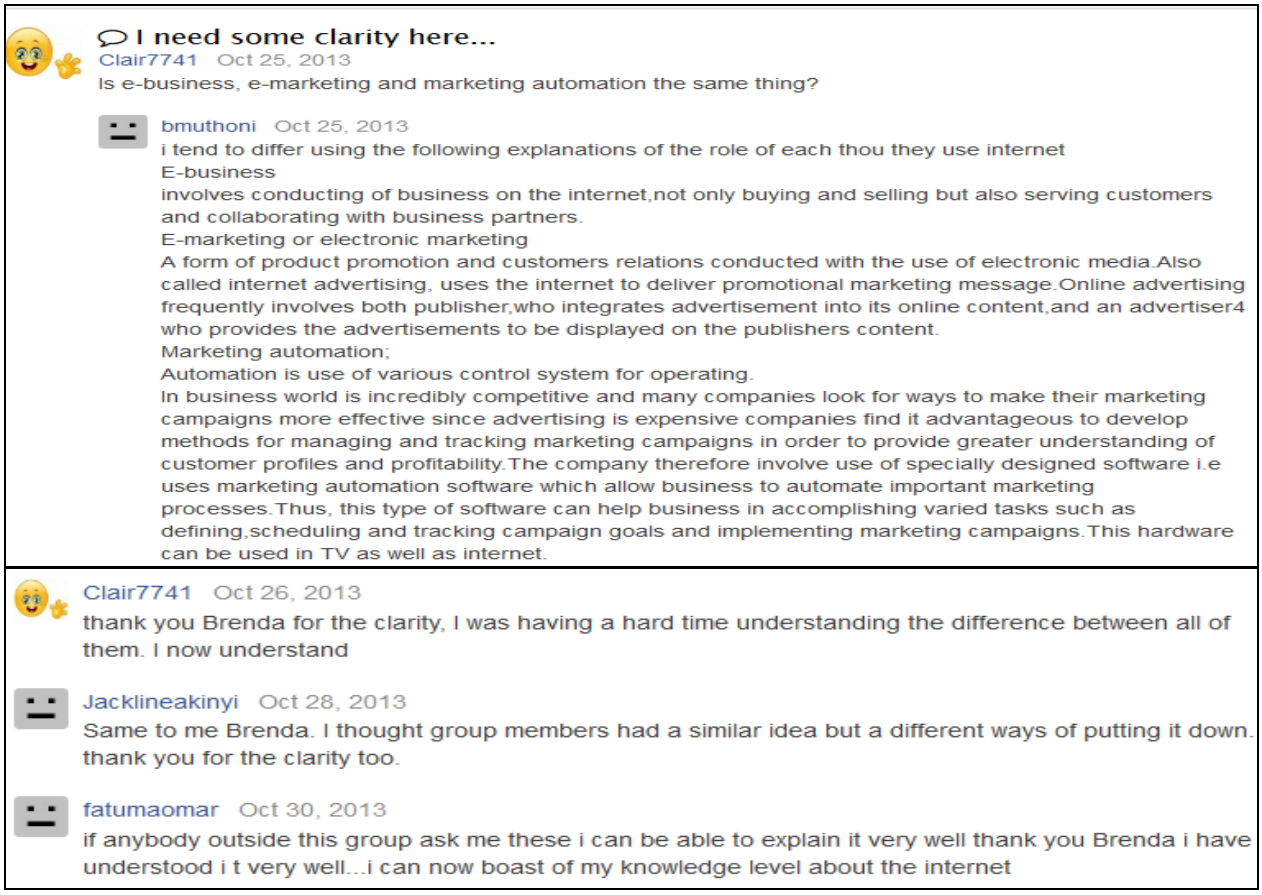

Figure 13: Student's use of the Wiki space to produce knowledge of value to others

5. Discussion

Knowledge building is a skill set that is necessary for individuals to acquire in the 21st Century. From the students' responses, it is clear that the students who knew about the use of the Wiki in the classroom learnt about it from a lecturer; either their own lecturers or lecturers they knew outside their universities. In technology acceptance model that explains the use, intention to use and acceptance of new technology, the two predictors of information technology usage are perceived usefulness and ease of use [11]. Users such as lecturers were more likely to use and adopt computer technology in the class room if they thought that it was useful in improving their productivity and performance and if it required less effort to learn how to use it. If the instructors perceive that Wiki spaces to be useful in knowledge building, which is a skills set necessary in the 21st century, they will not only use it in class to increase their productivity but also create an environment where their students acquire these skills set. [12] further argues that effective use of technology is dependent on academics' familiarity and interaction with technology tools, the opportunities they have for exposure and their level of skills. [13] argue that the more ready the faculty members feel they are, the more likely they will utilize Web 2.0 technologies such as Wiki spaces for instruction. In a study to investigate the use of Web 2.0 tools by Greek students, [14] suggested that introducing Web 2.0 such as Wiki spaces into the curriculum would be the most effective way to teach students the use of a variety of Web 2.0 tools such as blogs and Wiki spaces. From the above results, it can clearly be seen that Wiki spaces were initially difficult to use but when students got the concept on how to use them, they have not looked back. If the lecturers are able to tap the power of Wiki spaces to enable their students build knowledge, then, they will be setting students on a knowledge building pathway which is a promising foundation for education in the knowledge economy.

Based on the instructors' expectations, students were able to work creatively with knowledge, through information gathering on anything novel that appeared in their environment and bring it to the wiki either by typing, editing, creating, sharing and criticizing each other's work as well as learning from each other. Students even went beyond instructors' expectation to propagate idea diversity as shown on Figures 10, 11, and 12. When students propagate idea diversity, they move to higher planes of understanding. The results are giving evidence of the pedagogical value of Wikis as a useful teaching, studying and learning technique, which is very significant for the enhancement of productivity in higher education.

6. Conclusions

This paper underscores the importance of using Wiki spaces in collaborative learning to promote knowledge building. Many students (95%) were willing to use the Wiki with other lecturers. The lecturers can take advantage of this knowledge in the hands of the students to set them on the knowledge building pathway. The universities have a role to play in helping lecturers and students to use ICT facilities such as Wiki spaces by facilitating institution based ICT professional development through ICT seminars or conferences. Both students and faculty can get past the initially difficult use of the Wikis through training. For example flexible timetables can be created in the institutions, which accommodate training on use of e-learning management system tools and their application in teaching and learning. Budget allocations can be consciously done to facilitate eLearning training. On the other hand, instructors may spend a few of their lesson minutes directing students on how to use the wiki spaces and other eLearning system tools for learning, as well as giving the students their expectations within the course.

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