

EMPLOYING WIKIS AS EDUCATIONAL TOOLS TO DEVELOP A COMMUNITY OF INQUIRY

Nikleia Eteokleous, Frederick University
Despo Ktoridou, University of Nicosia
Maria Orphanou, Frederick University

Cyprus

Abstract

The current study attempts to evaluate the integration of wikis as an educational tool within the teaching and learning process in order to achieve specific educational objectives. The wiki was developed and integrated into the Linguistics and Literature course in order to deliver the fairy tale entitled "The Prince of Venice." The study also aimed to define in detail the teacher and student roles when a wiki is integrated as an educational tool. Thus, it examined teacher and student participation (quality and quantity), contribution, interest, reactions, etc., throughout the teaching and learning process. Additionally, the study aimed to identify the role of technology, and in this case the wiki, through the teaching and learning process in successfully achieving the learning objectives of the lesson. Finally, the study examined the development of a Community of Inquiry (CoI) through the integration of a wiki to deliver the fairy tale.

A mixed method approach was employed in order to achieve the scope of the study. Data collection methods employed included questionnaires, reflective journals, observations and interviews. The CoI survey instrument, and specifically the 34 parameters of the survey served as the basic criteria to quantitatively examine the development of a CoI within a wiki environment. Reflective journals completed by the teachers, classroom observations completed by an observer and finally interviews with the students collected mainly qualitative data. The population of the study was 5th graders. For the study a wiki was developed (<http://fairytale2012.wikispaces.com/>). The data collection process took place in October-November 2012, and the authors are in the process of analyzing the data collected.

Introduction and Theoretical Background

Web 2.0: Definitions and Tools

The technological advancement in information technology and telecommunications resulted in the development of the Web 2.0 and created the appropriate framework for user participation. The traditional one-way communication is transformed to a two-way communication, and process of information. In Web 2.0 users are *contributing, collaborating, creating* - the 3C's (Ala-Mutka, Punie, & Ferrari, 2009). Millions of people use various social and professional networks, such as Facebook, MySpace, Twitter, Delicious, Flickr, LinkedIn, Live Journal. Discussion forums, blogs, wikis, chat-rooms, electronic calendars, electronic documents (i.e., Google documents), etc., are some of the Web 2.0 tools used within the networks.

The Web 2.0 tools can be applied for teaching and learning purposes towards achieving educational objectives, thus transforming social to educational networking.

Wikis: Definitions and Characteristics

Wikis are one of the most widely used tools of Web 2.0 technology, which can create favourable conditions for the development of collaborative learning conditions. The original meaning of the English word, “What I know is not enough,” is derived from the words wiki-wiki, meaning “quick, fast” (Bauer, 2011). Originally the term was used for systems for issuing and managing websites. However, the fundamental objective of this tool is to enable a user to create without much difficulty and expertise in a website that can create and edit the pages (Bauer, 2011; West & West, 2009; Godwin -Jones, 2003). More specifically, the users can post text, images, simultaneous recording of conversions (addition or change) made very quickly and easily, without making a compulsory registration. In a wiki, different people can write together (not simultaneously). As mentioned above, one of the main wiki characteristics is that it facilitates collaboration of many people for working on a project. If a wiki member makes a mistake, another member can correct it. You can also add something new to the page, which allows continuous improvement and updating. Wikis also allow discussion via chat rooms and comments. The most famous and successful wiki is known as Wikipedia.

In early 2000, companies used wikis as a tool for promoting collaboration. Nowadays, they are still used by companies, but also by schools and universities, thereby promoting co-operation between users, individual work (since anyone can develop content pages) and communication via discussion forums and chat rooms (Karasavvidis, 2010). According to Ferris and Wilder (2006), wikis are flexible collaborative content management systems enabling each user to create and edit web pages easily in a very short time (Bauer, 2011; Mejias, 2006). A wiki is a website that is constructed in such a way allowing users to change content whenever they wish. Additionally all users can process wikis, which is why they are very often labeled as “open editing” websites (Ferris & Wilder, 2006; Bauer, 2011). A wiki can be successfully used to provide a flexible and efficient form of collaborative learning in education when it is properly designed and used.

Wikis have countless features. First of all wikis can contribute to the collective contribution for the creation of any content. Also, users can keep their anonymity and no chronological structure is needed. Another important wiki feature is that it does not belong to anyone. In other words, everyone can add, remove and edit the content of a particular website. Another wiki feature is that the content is constantly updated with new information (Eteokleous, 2012).

Wikis in Education

Integrating wikis in education provides opportunities to enhance communication among students and educators as well as lay the foundation for developing constructive learning environments (Notari, 2006). It is also suggested that that wikis are valuable tools that promote mainly exchange and

sharing of information, communication, and collaboration among students as well as opportunities for knowledge construction. Combining their ease of use and the possibility they offer for recording, monitoring and processing of the users added material, wikis are considered one of the most powerful educational tools. Eteokleous and Pavlou (2010) suggest that students have editorial control over content development, processing, reviewing, and publishing when these kinds of tools are employed. The aforementioned promote the development of student-centered environments where students have active roles in the teaching and learning process. Using wikis, students can develop their collaborative learning skills as well as practice mutual learning, gaining knowledge from one another (Eteokleous, 2012).

However, the real potential of wikis for education lies not in the technical characteristics but in its potential of practical communication and collaboration. Guzdial and Kehoe (2001) cite three main ways to use wikis in education: (a) distribution of information, (b) collaborative text production, and (c) discussion. Overall, a wiki allows for learning, collaboration, communication, interaction, sharing, meaning construction and reflection. A wiki can include individual work (i.e., creating a page), collaboration (i.e., joint page creation), communication (i.e., discussion for a particular topic), and evaluation (i.e., evaluation and feedback to other members of the group) in given material.

A wiki is a tool that promotes collaborative writing on the Internet (West & West, 2009) and hence the creation of collaborative online learning environments (Karasavvidis, 2010) making learning much more interesting and fun. Hanegger (2005) argues that a wiki can be integrated in schools due to its simplicity, the open environment of freedom and its flexible structure. It is also argued that wikis encourage increased personal participation in group work. Additionally, Wheeler and Wheeler (2009) found that students using wikis have improved their writing skills and showed more interest in reporting sources, and specifically in searching for possible reliable sources. According to other researchers, the benefits of wikis, which were examined based on students' opinions, can be summarized as follows. The wiki's environment provides ease of access and a relatively relaxed atmosphere where each member can express his/ her opinion. It is even easy to see the changes that have been made by other members as well as pretty easy to upload and download any kind of information (text, picture, audio, graph, etc). Finally, as stated by Davrazo, Count and Tselio (2011), the application of wiki technology is not limited to specific educational levels. It can be used from primary to higher education as well as in numerous subject matters (Cole, 2009; Wheeler & Wheeler, 2009).

Additionally, research shows that effective wiki integration in the teaching and learning process requires a radical redesign of the lesson (Rick & Cuzdial, 2006; Raman, Ryan, & Olfman, 2005). However, the specific details of wiki integration in education are relatively unknown. Despite the attractiveness of wikis, there is a gap in the literature regarding wikis' integration in educational settings. As of now, the research shows that the use of wikis by students in the course is minimal. Students either refuse to use wikis (Rick &

Cuzdial, 2006), or tend to use very little of it (Choy & Ng, 2007; Cole, 2008). At the same time, researchers have known that collaboration between students in the case of wikis is limited. For example, students tend to read only their own contributions and ignore the texts of their fellow students (Wheeler & Wheeler, 2009), as well as review a small number of pages. Indeed, even in the case of revision pages, the majority of students use the wiki for a small amount of revision. Finally, student views on the learning value of wikis are not always positive, as in many cases they prefer to work independently rather than collaborating with other students (Ma & Yuen, 2008).

Community of Inquiry

The theoretical framework of the current study focuses on the Community of Inquiry (CoI) model suggested by Shea and Bidjerano (2010) where social, cognitive, teaching and learner presence are related. The model is based on the work of Garrison, Anderson, and Archer (2000), which introduced the original model of CoI. The CoI model assumes that effective online learning requires the development of a community that supports meaningful inquiry and learning (Shea, 2006). Garrison, Anderson, and Archer (2000) developed this model, which assumes that deep and meaningful learning results when there are sufficient levels of three components: teaching, social and cognitive presence. The model outlines theoretical elements essential to successful knowledge construction in collaborative online environments.

Social presence relates to the establishment of a supportive environment such that students feel socially and emotionally connected to each other and to the instructor in a computer-mediated environment. The elements of Social Presence are demonstrated through emotional expression, open communication and group cohesion. **Teaching presence** involves the design, facilitation and direction of cognitive and social processes leading to personally meaningful and educationally worthwhile learning outcomes. Elements of teaching presence include setting curriculum and activities, shaping constructive discourse, and focusing and resolving issues. The **cognitive presence** such that serious learning can take place in an environment that supports the development and growth of critical thinking skills is the extent to which learners are able to construct and confirm meaning through continuous suggestion and discussion in a critical community of inquiry. The elements of cognitive presence include triggering event (sense of puzzlement), exploration (sharing information and ideas), integration (connecting ideas), and resolution (synthesizing and applying new ideas) (Garrison & Arbaugh, 2007; Swan et al, 2008).

Shea and Bidjerano (2010) introduce the **learner presence** element in the CoI model, which can be explained by self-efficacy and self-regulation. They suggest that learning presence is strongly related to the social and teaching presence, and that the learner presence in addition to the CoI model can help us gain a more thorough understanding of the development of a CoI in online and blended learning environments. They highlight the importance to examine motivational and individual characteristics of the learners in order to further investigate and expand the model. Consequently, the current study examines learner presence through motivational (commitment and interest on

the subject) and individual characteristics (gender, age, ethnicity, religion, computer literacy and Web 2.0 experience). Finally, it examines teachers' motivational and individual characteristics (gender, age, ethnicity, religion, educational background, computer literacy and Web 2.0 experience).

Main Aim

The current study attempts to evaluate the integration of the wiki as an educational tool within the teaching and learning process in order to achieve specific educational objectives. The wiki developed was integrated within the Linguistics and Literature course in order to deliver the fairy tale entitled "The prince of Venice." The study also aims to define in detail the teacher and student roles when a wiki is integrated as an educational tool. Thus it examines the teachers' and students' participation (quality and quantity), contribution, interest, reactions, etc throughout the teaching and learning process. Additionally, the study aims to identify the role of technology, and in this case wikis, through the teaching and learning process in successfully achieving the learning objectives of the lesson. Finally, the study examined the development of a Community of Inquiry (CoI) through the integration of a wiki to deliver the fairy tale.

Research Methodology

To address the above, a case study approach was employed (Creswell, 2003) collecting qualitative and quantitative data. The current study used four different data collection methods: the CoI survey questionnaire, reflective journals, in-classroom and wiki observations and interviews with the students. The study's population consisted of 20 5th grade elementary students. The research took place during October – December 2012 within the Language and Linguistics course in order to deliver the fairy tale entitled "The Prince of Venice." For the purposes of this research the educator developed a wiki (using the wikispaces platform) and all students became members of it (<http://fairytale2012.wikispaces.com/>). The wiki was integrated as an educational tool through the teaching and learning process and specifically within 5 lessons, 40 minutes each.

The CoI questionnaire was used for collecting quantitative data, and it was given to students for completion by the end of the five lessons in the presence of the teacher. The CoI questionnaire was used as the basis to collect the information needed in order to examine the social, cognitive and teaching presence at the wiki developed (Swan et al., 2008). The 34 parameters were adjusted accordingly in order to fit the context and the purposes of the current study. The questionnaire consisted of two parts: (a) Demographic Data (e.g., gender, country of origin, use and frequency of computer use, use and frequency of Internet use) and (b) Communities of Inquiry, which consists of 3 components: teaching, social and cognitive presence. Each parameter consists of several sub-parameters that characterize them; as a result the whole questionnaire includes a total of 34 statements. Students were asked to rank the 34 statements on a 1-5 Likert scale, where 1 = Strongly Disagree and 5 = Strongly Agree. Data analysis was performed with the SPSS statistical

package and includes descriptive statistics, namely frequencies, percentages, averages and standard deviations for all variables of the questionnaire.

For the purposes of this study, the results of the CoI questionnaire are analyzed and presented. The authors are in the process of finalizing the analysis of the data collected from the in-classroom and wiki observation, the reflective journals and students' interviews.

Analysis

Demographic Characteristics

Regarding the gender of the students, 60% were boys and 40% were girls. While students' country of origin varied, the majority (80%) were Cypriots. The majority of the students (85%) owned a computer, of which 30% used it 2-3 times per week and 50% used it daily. Along the same lines, 90% of students replied that they used the Internet, of which 35% of the students used it 2-3 times per week and 55% used it on a daily basis (the Likert scale used was from 1-5, where 1 = no and 5 = daily).

Community of Inquiry Teaching parameter.

Teaching presence is described by the following three sub-parameters: (a) *Design and Organization*, (b) *Facilitation*, and (c) *Direct Instruction*. Four indicators explain the Design and Organization sub-parameter. Regarding the 1st indicator (The instructor clearly communicated important course topics), 45% of the students strongly agreed, while 40% of them agreed. In addition 3% of the students (three students) reported being neutral (Mean= 4.3, Std = 0.73). The 2nd indicator (The instructor clearly communicated important course goals) showed that the educator did not manage to clearly communicate important course goals since the majority of students answered "Totally Disagree" with a percentage of 75%. However, 10% of the students answered that they agreed and 10% that they disagreed (Mean = 1.55, Std =1,09). On the other hand, regarding the 3rd indicator (The instructor provided clear instructions on how to participate in course learning activities), the results revealed that the instructor provided clear instructions on how to participate in course learning activities, since 70% of the students reported that they agreed. Additionally, 25% of the students responded that they disagreed and 5% reported being neutral (Mean = 4.65; Std = 0.58). The last indicator (The instructor clearly communicated important due dates/time frames for learning activities), seemed to have a strong appearance since 80% of the students strongly agreed with the aforementioned statement. Additionally, 15% of the students stated that they agreed, and 5% reported being neutral (Mean = 4.75; Std = 0.55). Finally, it seems that the parameter Design and Organization had a satisfactory presence; however, it was not very strong (Mean = 3.81; Std = 0.74). It is suggested there is room for improvement regarding the design and organization of the lesson.

Six indicators explain the Facilitation sub-parameter. Regarding the 1st one (The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn), the majority of students (50%) strongly agreed that the educator was helpful in identifying points of

agreement and disagreement on the course that helped them in their learning process. Additionally, 30% of the students reported being neutral, 10% agreed and finally 5% strongly disagreed (Mean = 4.10; Std = 1.17). For the 2nd indicator (The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking), the majority of the students answered that they strongly agreed and agreed, with 40% respectively, while 20% of the students reported being neutral (Mean = 4.20; Std = 0.77). Given the above, it seems that the educator was helpful in guiding the class in understanding the course material. The indicator (The instructor helped to keep course participants engaged and participating in productive dialogue) seemed to have a strong presence since 35% of the students answered that they strongly agreed, with the same percentage (35%) reporting that they agreed, and 25% of the students reported being neutral (Mean = 4.00; Std = 0.92). Referring to the next indicator (The instructor helped keep the course participants on task in a way that helped me to learn) 45% of the students strongly agreed, 40% agreed, and 15% reported being neutral (Mean = 4.30; Std = 0.73). The aforementioned results, showed its strong presence. Regarding the indicator (The instructor encouraged course participants to explore new concepts in this course), the students seemed to strongly agree by 40% and agree by 30%. Additionally, 20% reported being neutral and 5% disagreed (Mean = 4.10; Std = 0.91). Finally, regarding the indicator (Instructor actions reinforced the development of a sense of community among course participants), 75% of the students strongly agreed, 20% agreed and 5% reported being neutral (Mean = 4.70; Std = 0.57). In comparison to the previous sub-parameter, the Facilitation sub-parameter seemed to have a strong presence (Mean = 4.23; Std = 0.84), revealing the educator played an important role in facilitating and guiding the students through the teaching and learning process.

Direct Instruction, is the third sub-parameter that describes teaching presence, explained by three indicators. Regarding the 1st indicator (The instructor helped to focus discussion on relevant issues in a way that helped me to learn), the results showed that 5% and 25% of the students reported being kept neutral and agreed accordingly that the educator helped to focus discussion on relevant issues in a way that helped them to learn, while 70% of them strongly agreed (Mean = 4.65; Std = 0.59). Regarding the next indicator for Direct Instruction, (The instructor provided feedback that helped me understand my strengths and weaknesses), the majority of students, 65% agreed that the educator provided feedback that helped them realize their strengths and weaknesses. Additionally, 20% of the students strongly agreed and 15% reported being neutral (Mean = 4.05; Std = 0.60). For the final indicator of this sub-parameter (The instructor provided feedback in a timely fashion), it is revealed that the minority of students (10%) agreed and 15% reported being neutral regarding the “on time” feedback from the educator while the majority (75%) strongly agreed (Mean = 4.60; Std = 0.75). Direct Instruction seems to have a relatively strong presence throughout the lessons delivered through the wiki (Mean = 4.43; Std = 0.64). It reveals that the educator provided guidance and helped the students throughout the lesson’s delivery by providing them clear and direct instructions. Overall, teaching presence seems to also have a relatively strong appearance (Mean = 4.15; Std = 0.74). The teacher’s role and

presence appeared to be important and influencing, guiding, facilitating and helping students to a great degree.

Social Presence.

Social presence is explained by three sub-parameters: (a) *Affective Expression*, (b) *Open Communication*, and (c) *Group Cohesion*. Three indicators explain the first sub-parameter of social presence, Affective Expression. When students were requested to address the 1st indicator (Getting to know other course participants gave them a sense of belonging in the course), the majority of students, 45% and 35% agreed and strongly agreed, accordingly. Only 10% of the students strongly disagreed and reported being neutral (Mean = 4.05; Std = 1.23). Regarding the 2nd indicator (I was able to form distinct impressions of some course participants), the majority of the students reported that they agreed and being neutral to the fact that they were able to form distinct impressions of some of the other students, while 25% and 15% stated that they disagreed and strongly disagreed accordingly (Mean= 3.55; Std = 1.36). When the students were requested to address the last indicator (Online or web-based communication is an excellent medium for social interaction), 50% of them reported that they strongly agreed that online communication was an excellent medium of interaction, while 20% of them agreed and kept neutral equally. Finally, 10% of the students disagreed with the aforementioned indicator (Mean = 3.70; Std = 1.13). For the sub-parameter Affective Expression the students gave responses focusing on neutrality and mild agreement, revealing a not that strong appearance. The results showed that the students did not have the chance to interact and discuss online. The students were not requested to interact with each other online either for personal and/ or educational purposes. However they were required to collaborate on addressing their exercises, developing content pages and experiencing collective and connective writing.

Three indicators explain Open Communication, the second sub-parameter of social presence. Regarding the first indicator (I felt comfortable conversing through the online medium), none of the students reported feeling comfortable talking over the Internet since it was not an activity that took place through the current project. Students were not requested to have online discussion. As far as it concerns the 2nd indicator that explains Open Communication (I felt comfortable participating in the course discussions), the majority of the students (60%) responded that they strongly agreed, 30% that they agreed and 10% reported being neutral (Mean = 4.50; Std = 0.69). When students were requested to respond if they felt comfortable interacting with other course participants (the 3rd indicator of Open Communication), 35% of the students reported being neutral, 30% agreed, 25% strongly agreed and only 5% stated that they disagreed and strongly disagreed (Mean = 4.50; Std = 1.08). The sub-parameter Open Communication seems to have one of the lowest scores (Mean = 2.71; Std = 0.59), showing a relatively weak appearance. It is revealed that the students did not experience any online discussions and chatting. They were not requested to have such activities; however, they were required to collaborate in order to develop content, address the exercises that appeared at the wiki, and perform collective and connective writing.

The sub-parameter Group Cohesion is described by three indicators as explained below. Regarding the 1st indicator (I felt comfortable disagreeing with other course participants while still maintaining a sense of trust) the majority of students (60%) answered that they strongly agreed and agreed, while only 5% disagreed and reported being neutral (Mean = 4.45; Std = 0.69). When students were requested to address if they felt that their point of view was acknowledged by other course participants, 30% of the students kept neutral, 25% of the students strongly agreed, while 10% answered that they disagreed and strongly disagreed (Mean = 3.45; Std = 1.27). The last indicator of the sub-parameter Group Cohesion, examined if online discussions helped them to develop a sense of collaboration. As aforementioned, since students were not required to conduct any online discussions and chatting, students did not answer this indicator.

The sub-parameter Group Cohesion revealed to have a very low score in comparison to other sub-parameters, thus a weak presence (Mean = 2.63; Std = 0.70). These results are a little bit disappointing since it revealed that mainly the students worked individually even though the exercises that needed to be addressed required group work. Additionally, the fact that the students were not requested to have any online discussions seemed to negatively influence group cohesion. Nevertheless, the students discussed off line in order to address the various activities and exercises needed.

Social presence appeared to have a relatively weak presence (Mean = 3.03; Std = 0.84) revealing that the students were not given enough opportunities for social interaction and communication. It can be supported that to some degree this was a decision made by the educator who directed students accordingly. The students had the chance to discuss off line, meaning not through the wikis online platform.

Cognitive Presence.

Cognitive presence is explained by the following sub-parameters: (a) *Triggering Event*, (b) *Exploration*, (c) *Integration*, and (d) *Resolution*. Three indicators explain the sub-parameter Triggering Event. Regarding the 1st indicator (Problems posed increased my interest in course issues), half of the students (50%) responded that they strongly agreed (25%) and agreed (25%), and 25% reported being neutral (Mean = 3.35; Std = 1.38). When the students were asked to address the 2nd indicator (Course activities piqued my curiosity), 30% of the students agreed, 25% reported being neutral, 20% strongly agreed, 15% disagreed and 10% strongly disagreed (Mean = 3.35; Std = 1.26). As far as concerns the 3rd indicator (I felt motivated to explore content related questions), 25% stated that they strongly agreed, 35% stated that they agreed, and 25% reported being neutral (Mean = 3.50; Std = 1.46). The results revealed that the sub-parameter Triggering Event had quite a satisfactory appearance (Mean = 3.4; Std = 1.37). It seems that there were some students that felt to be motivated and interested about the subjects under investigation. However, there is room for improvement in order for more incentives to be given to students.

Three indicators explain the sub-parameter Exploration. When the students were asked to rate the 1st indicator (I utilized a variety of information sources to explore problems posed in this course), 40% strongly agreed, 25% agreed, and 30% reported being neutral (Mean = 4.00; Std = 0.97). Regarding the 2nd indicator (Brainstorming and finding relevant information helped me resolve content related questions), 25% of the students appeared to strongly agree and disagree, accordingly, and 30% of the students reported being neutral (Mean = 3.40; Std = 01.39). As far as it concerns the 3rd indicator (Online discussions were valuable in helping me appreciate different perspectives), none of the students reported since they were not asked to discuss through an online environment through the lessons delivered but to coordinate and collaborate.

The sub-parameter Exploration appeared to have a relatively lower score in comparison to other sub parameters (Mean = 2.46; Std = 0.78); thus a very weak appearance. It seems that the students were not provided the appropriate opportunities to explore and expand their skills and knowledge. Additionally, it is important to have in mind that the students did not rate the 3rd indicator since they were not requested to have online discussions.

The sub-parameter Integration is explained by three indicators. Regarding the 1st indicator (Combining new information helped me answer questions raised in course activities), half of the students (50%) stated that they agreed, and 35% reported that they strongly agreed (Mean = 4.10; Std = 0.91). Regarding the 2nd indicator (Learning activities helped me construct explanations/solutions), half of the students stated that they agreed and 40% that they strongly agreed (Mean = 4.25; Std = 0.78). As far as it concerns the 3rd indicator (Reflection on course content and discussions helped me understand fundamental concepts in this class), 40% of the students strongly agreed, 35% agreed and 20% reported being neutral (Mean = 4.10; Std = 0.91). Based on the aforementioned analysis it is revealed that the sub-parameter Integration has a strong presence (Mean = 4.15; Std = 0.87). The results showed that the students understood the concepts under investigation, managed to expand and integrate the new knowledge with the old, and related it to existing knowledge.

The sub-parameter Resolution is also explained by three indicators. Regarding the 1st indicator (I can describe ways to test and apply the knowledge created in this course), 55% of the students strongly agreed, 35% agreed and 10% reported being neutral (Mean = 4.15; Std = 0.93). As far as it concerns the 2nd indicator (I have developed solutions to course problems that can be applied in practice), 25% of the students strongly agreed, 45% of the students agreed and 15% reported being neutral (Mean = 3.60, Std = 1.42). The very last indicator (I can apply the knowledge created in this course to my work or other non-class related activities) was rated by the students as follows: 45% of the students strongly agreed, 30% agreed and 20% reported being neutral (Mean 4.15; Std = 0.93).

It is revealed that the sub-parameter Resolution has a relatively strong appearance (Mean = 4.06; Std = 1.01). It is revealed that the students were

able to apply the knowledge gained in different contexts. They seemed to also report that the knowledge gained could be applied not only in school subject matters' context but also in extracurricular activities. Regarding cognitive presence the results revealed that the students considered that it had a quite satisfactory presence (Mean = 3.52; Std = 1.01), showing that overall the students gained new knowledge and skills, and that there is a room for improvement. Overall, it is supported that a community of inquiry was developed to a satisfactory level (Mean = 3.57; Std = 0.86). However, there are various elements that need to be taken into more serious consideration.

Discussion

Based on the analysis, it can be supported that a community of inquiry was developed through the delivery of the fairy tale "The Prince of Venice," where a wiki was integrated as an educational tool to achieve specific learning objectives. Generally, it has become clear that the teaching presence has a vital impact. This highlights the important role played by the teacher. The results suggest that the teacher was properly organized, gave immediate instructions and provided facilities to the students so that they feel comfortable to engage in productive discussions mainly in off line discussion (not through the wiki platform). Regarding social presence, the data support that it was significantly noticeable. Students felt to some extent that they belonged to a group in which they could work individually but within a group. The interaction developed among students in class and within the wiki seems to have strengthened the sense of cooperation. However the results revealed that social presence was not very strong, and there is room for improvement. It is important to mention that the students were not requested to have online discussion and not asked to use the "chat room" and "discussion forum" tools integrated within the wiki platform. Finally, concerning cognitive presence, it seems that was also important but did not have a very strong presence. Specifically, it emerged that the topic of the lesson stimulated in large degree students' interest, and online interactions and activities through the wiki enabled students to understand basic concepts of the lesson. The above results indicate that a community of inquiry was developed but not to a satisfactory degree.

Conclusion

The results of the study reveal that the Web 2.0 and the use of wikis are used to bring teenagers together for educational and social purposes. More importantly, it can be concluded that communities of inquiry are developed within a formal educational setting using wikis as a tool for educational and social purposes. Given the aforementioned results, a community of inquiry was developed and sustained through a blended learning environment and specifically when wikis are used as tools for educational and social purposes. The online environment developed promoted virtual communication and collaboration for the students and the educator. The innovative use of wikis, asynchronous communication, and collaboration and authoring opportunities, offered students and educator the appropriate environment to enhance their experiences, construct knowledge, and extend learning within the developed CoI. More specifically, the use of wikis within a blended-learning environment promoted the development of the following skills for both students and instructors: problem-solving, critical thinking, self-directed

learning, communication, collaboration and knowledge construction; and specifically for students the essential abilities they will need to succeed in their professional lives. Besides the above, the activities designed and performed gave the participants the opportunity to search, gather, analyze, evaluate and apply information on topics related to the subjects under investigation. The learners also had the chance to develop responsibility for their own learning and becoming active participants within the teaching and learning process. The current study puts in practice the development and expansion of wikis (Web 2.0 tools). In addition, it takes advantage of students' ease of use and high Web 2.0 literacy in performing Internet-based educational activities. The activities performed through the wiki is aligned with the requirements of the Information Era, preparing students accordingly, by altering education, and transforming the teaching and learning process. Finally, the way new technologies were integrated changed the way that students approached learning, the way of interaction and communication among students and teachers and the way in which they learned from each other. Technology was used to support constructive learning, and meaning making by students who they were actively engaged in the learning process and developed meaningful intellectual partnerships with technology

References

- Ala-Mutka, K., Punie, Y., & Ferrari, A. (2009). Review of learning in online networks and communities. In U. Cress, V. Dimitrova, & M. Specht (Eds.), *Learning in the synergy of multiple disciplines, EC-TEL 2009, Lecture Notes of Computer Science 5794* (pp. 350-364). Brussels: European Commission.
- Akyol, Z., & Garrison, D. R. (2010). Understanding cognitive presence in an online and blended community of inquiry: Assessing outcomes and processes for deep approaches to learning. *British Journal of Educational Technology, 42* (2), 233-250.
- Bauer, P. (2011). Weblogs and wikis: Potentials for seminars at university. In T. Bastiaens, & M. Ebner (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2011* (pp. 2360-2365). Chesapeake, VA: AACE.
- Cole, M. (2009). Using Wiki technology to support student engagement: Lessons from the trenches. *Computers & Education, 52*, 141–146.
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage.
- Eteokleous, N. (2012). Informal online learning through the Mediterranean Youth Technology Club: Think global, act local, bring change into a world to rearrange. In H. H. Yang, & S. Wang (Eds.), *Cases on formal, non-formal, and informal online learning: opportunities and practices* (pp. 101-125). Hershey, PA: IGI Global Publishers.
- Eteokleous, N., & Pavlou, V. (2010). Technology “wise” and digital students: Do students follow? In Ch. Angeli & N. Valanides (Eds.), *Conference Proceedings of the Cyprus Scientific Organization for Information and Communication Technology Integration in Education* (pp. 113-124) Nicosia: Cyprus.

- Ferris, S., & Wilder, H. (2006). Uses and potentials of Wikis in the classroom. *Innovate*, 2 (5). Retrieved from:
<http://www.innovateonline.info/index.php?view=article&id=258>
- Garrison, R., Anderson, T., & Archer, W. (2000). Critical thinking in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2(2-3), 87-105.
- Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence and computer conferencing in distance education. *American Journal of Distance Education*, 5(1), 7-23.
- Garrison, D. R., & Arbaugh, J. B. (2007). Researching the community of inquiry framework: Review, issues, and future directions. *The Internet and Higher Education*, 10, 157-172.
- Garrison, D. R., & Vaughan, D. N. (2005). *Blended learning in higher education: Framework, principles, and guidelines*. San Francisco, CA: Jossey-Bass.
- Hargadon, S. (2009). White paper on educational networking: The important role Web 2.0 will play in education. Retrieved from www.illuminate.com
- Herring, S. C. (2004). Computer-mediated discourse analysis: An approach to research online behavior. In S. A. Barab, R. Kling, & J. H. Gray (Eds.), *Designing for virtual communities in the service of learning* (pp. 338-376). New York: Cambridge University Press.
- Mejias, U. (2006), Teaching social software with social software: Innovate. *Journal of Online Education*, 2 (5). Retrieved from:
http://www.innovateonline.info/pdf/vol2_issue5/Teaching_Social_Software_with_Social_Software.pdf
- Notari, M. (2006). How to use a wiki in education: Wiki based effective constructive learning. In *Proceedings of the 2006 International Symposium on Wikis*, Odense, Denmark.
- Reich, J., & Daccord, T. (2008). *Best ideas for teaching with technology: A practical guide for teachers, by teachers*. Armonk, NY: M.E. Sharpe.
- Richardson, W. (2009). Becoming Internet wise: Schools can do a far better job of preparing students for their connected futures online. *Educational Leadership*, 66 (6), 26-31.
- Swan, K. P., Richardson, J. C., Ice, P., Garrison, D. R., Cleveland-Innes, M., & Arbaugh, J. B. (2008). Validating a measurement tool of presence in online Communities of Inquiry. *e-mentor*, 2 (24), 1-12, Retrieved: from http://www.e-mentor.edu.pl/artykul_v2.php?numer=24&id=543
- Wheeler, S., & Wheeler, D. (2009). Using wikis to promote quality learning in teacher training. *Learning, Media and Technology*, 34, 1-10. Retrieved from:
www.jisc.ac.uk/media/documents/programmes/digital_repositories/web2-content-learning-and-teaching.pdf/

Author Details

Dr. Nikleia Eteokleous
nikleia@cytanet.com.cy

Dr. Despo Ktoridou
ktoridou.d@unic.ac.cy

Maria Orphanou
mariaorphanu@hotmail.com