

# Impact of Wikis on Informal Learning

## Impact of Wikis on Informal Learning

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### Abstract

*Wiki use for/in collaborative learning is no easy task. It requires the unlearning of old models socialized in a mindset of individual learning to the learning of new norms, processes and mindsets of collaborative learning. Besides, given the complexity and variety of digital tools the landscape for learning becomes quite complicated for the even the most digitally literate. This study will examine how wikis can be used to create informal learning opportunities. The primary artifact analyzed in this research study was a “course wiki,” for the elective Management Information Systems (MIS) Course “Organizational Learning 2.0”. As educators in higher education, it is imperative that we explore, study and adopt new and differing methods for digital mediated learning in our curricular, designing the learning experience with digital media as part of it, not separate to it or an add on, to ensure our students have the necessary knowledge and skills to participate effectively in a world of dynamic ubiquitous digital mediation. Findings revealed that although not all of the responses were positive, the majority of student’s attitudes and perceptions towards contributing to a collective intelligence were positive. Students discovered that collaborative writing on a wiki differed from previous classroom writing projects, be they individual or group work.*

**Keywords:** Wikis, informal learning, Web 2.0, collaboration

### Introduction

The study explores the design, use and effect of Wiki technology for collaborative learning in undergraduate management information systems (MIS) education. Wikis have provided another rich layer to collaborative learning as the need to learn how to collaborate now coexists with the need to learn how to use these digital technologies.

Wiki use in collaborative learning is no easy task. It requires the unlearning of old models socialized in a mindset of individual learning to the learning of new norms, processes and mindsets of collaborative learning. Besides, given the complexity and variety of digital tools the landscape for learning becomes quite complicated for even the most digitally literate.

## **Impact of Wikis on Informal Learning**

Limited past research exists on the use of wikis in the context of MIS education. In this study, we therefore reviewed the literature of the relevant situated context for the use of Wiki's to our research study, the use of Wiki's in higher education.

With regard to the use of wikis for learning, the focus is on their social affordances. In this, the evolving paradigm around wikis is focused on 'learning to write or collaborate', on text and interaction and the promotion of deep learning experiences. So, first, a brief overview of related studies will be provided, next contextual information and the related methodology will be mentioned before proceeding with the details of this research.

In this study, the use of the wiki has been tried in two cohorts of MIS students who were in their third or final year while taking the elective course of "Organizational Learning 2.0".

### **The Affordances of the Wikis**

Wiki technology emerged in higher education teaching and learning experiences as early as 1999 (Konieczny, 2007) and is integrated into many courses for its ability to provide a collaborative workspace for students, thus supporting both face-to-face and distance learning courses (Parker & Chao, 2007). Instructors integrated wikis into their classroom with hopes of increasing test scores, improving writing and collaborative skills, and providing more effective and efficient methods for distance learning (Al-Khalifa, 2008; Forte & Bruckman, 2006; Minocha & Thomas, 2007; Parker & Chao, 2007). It appears that universities and colleges in the developing world are slow to adopt this technology, questioning its value and impact on critical thinking skills (Parker & Chao, 2007). Therefore, it is imperative that wiki technology be investigated in the higher education classroom in order to determine how it can best be utilized to maximize the teaching and learning experience. It is equally important to identify and share best practice applications that provide insights into the affordances of wikis to enhance the enterprise of teaching and learning.

To explain the concept of affordances, Billett (2001) suggests that the idea of a door handle can be used. For a right handed person, the door handle has an affordance for twisting clockwise and pushing (or pulling) - to open the door. The design features of the handle help the user to perceive what action can be made with the object (Billett, 2001). So, affordances refer to the perceived attributes or features of the technology which determine the actions that can be performed by the user with that technology (Norman, 1988, p.9):

"The term affordance refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could be possibly used. A chair affords ('is for') support and therefore affords sitting. A chair can also be carried".

## Impact of Wikis on Informal Learning

Hartson (2003) tried to categorise between affordances in the context of interaction, identifying four types: Cognitive (thinking), physical, sensory and functional (Hartson, 2003). One of the overarching affordances of wikis, tends to cut across all of Hartson's categories - the social affordance of the tools. So, we prefer to use the term 'affordances' to refer to the social affordances of the tools used throughout this article.

Underlying one of the key affordances of wikis are the properties of these tools that allow the individuals to learn from each others' experiences. It is important to acknowledge that not all of the wikis used are designed for the purpose of learning. Although there was no special 'learning-ness' designed into wikis, most educational professionals have perceived its potential to support learning. They have done this by perceiving the affordance, and then creating learning resources that can be accessed through these tools. These affordances go beyond its original design, tapping into the open potential of the tool.

The social affordances of wikis provide not only support for conversational interaction (Boyd, 2007); but also support for online communities and relationships between people. This dialogue between the learners is extremely important because it allows them to negotiate their learning tasks based on their evolving understanding. Most of the learners' enthusiasm for these tools also contributes to the development of their skills such as collaboration, articulation, critiquing. For instance, approaches such as putting their presentation materials online to share their ideas, and prompting and questioning by other learners also help in establishing a culture of questioning and negotiation that can serve as a powerful tool for personal development.

Some individuals extensively utilize the social affordances of wikis for extending their understanding of a particular topic. Wikis are not only useful for promoting dialogue and interactions, but for demonstrating relevant aspects of the task or strategies and making covert processes visible. In addition to this, the scaffolding provided by these tools typically assist learners with the procedural aspects of an activity, or help them reflect and articulate.

While acknowledging the salience of online collaboration afforded by wikis, it is also necessary to account for how individuals elect to engage with learning tasks also shapes the quality of their learning. Learning new knowledge (i.e. concepts about particular subjects, procedures to undertake tasks or attitudes towards their work) is effortful and refining the knowledge previously learnt are mediated by individuals' existing knowledge, including their values about to which activities they should direct their energies. It would be mistaken, therefore to ignore the role of human agency. Participation in online activities does not lead to the unquestioned learning of what is afforded by the tools. Individuals are active agents in what and how they learn from these encounters (Engestrom & Middleton, 1996). Wertsch

## Impact of Wikis on Informal Learning

(1998) distinguishes between mastery and appropriation. The former is the superficial acceptance of knowledge coupled with the ability to satisfy the requirements for public performance. On the other hand, appropriation is the acceptance by the individual of what they are learning and their desire and effortful engagement to make it part of their own repertoire of understandings, procedures and beliefs (Luria, 1976). However, regardless of whether appropriation and mastery results from these encounters, they are both the product of individuals' values, beliefs and understandings, which are a product of their life histories, engaging with activities, goals and interactions that are constituted situationally in the workplace (Valsiner, 1994). In this case, the degree of similarity or relatedness (Valsiner, 1994) between the individuals' values and what their work affords may determine whether individuals' encounters with online experiences result in appropriation or mastery. That is committed or superficial learning. Although the use of the wikis differs among learners, those who use them on an ongoing basis are appropriating rather than mastering the tools given their high level engagement with these tools.

The identification of these types of web-based learning for online collaboration has three important conceptual implications. Firstly, a current area of deliberation within constructivist theory is to understand the relations between individuals and social practice. Here, it is shown that rather than being a mere element of social practice (e.g. Hutchins, 1991) individual agency operates both interdependently and independently in social practices as Engestrom and Middleton (1996) propose. However, this agency manifests itself in a different ways. While there is evidence of interdependence (using the tools for the purpose of collaboration), there are also examples of individuals acting independently (e.g: using tools independently for other purposes than collaboration) in ways inconsistent with the norms and practices of the learning practice. So, individual backgrounds such as values and ways of knowing mediate how they collaborate and learn in social practice, such as online collaboration environments. Relations between these individual characteristics and online practice shape individuals engagement in the social practice of learning. The kinds of collaboration commence the process of understanding the likely diversity of relations between the individual and social practice that shape individuals' collaboration and learning with these tools (Ryber et al., 2010).

Secondly, learners' participation in Web 2.0 tools is not unquestioning (Dohn, 2010). Even when support is forthcoming, --- that is tools are highly invitational -- individuals may elect not to participate in the online activities effortfully or support available or appropriate the knowledge that is made accessible. Individuals need to find meaning in their activities and value in what is afforded for them to participate in online conversations and learn. This suggests different kinds of invitational qualities are required, such as those able to engage reluctant participants through conversation and assist them finding meaning through

## Impact of Wikis on Informal Learning

participation in ways that permit them to transform and/or contest existing values and practices (Downes, 2010).

Thirdly, in so far as the tools can offer individuals access to crucial components of knowledge, it is important that these tools are highly invitational. For online learning to proceed effectively, how learners are provided with opportunities to participate in online conversations and be supported in this endeavor will shape the prospect of rich learning outcomes.



**Figure 1.0** An overview of the course wiki

## Impact of Wikis on Informal Learning

+ New Post  Search Posts

Subject	Author	Replies	Views	Last Message ^
<a href="#">mis49d grades</a>			9	Jun 18, 2011 3:33 am
<a href="#">Final Project</a>			20	Jun 8, 2011 2:12 am
<a href="#">The Wise Leader</a>			2	Jun 8, 2011 12:35 am
<a href="#">Understanding Complexity</a>			2	Jun 6, 2011 9:22 am
<a href="#">How social media can make history?</a>			6	Jun 5, 2011 3:44 pm
<a href="#">Data Change Everything</a>			14	Jun 5, 2011 3:24 pm
<a href="#">The Social Intranet</a>			1	Jun 5, 2011 11:10 am
<a href="#">How to Manage Social Technology?</a>			1	Jun 3, 2011 8:34 am
<a href="#">20 Things I learned about the Web</a>			3	Jun 2, 2011 11:57 pm
<a href="#">How to work smarter with social media</a>			44	Jun 2, 2011 8:58 am
<a href="#">Does the Internet Change Everything?</a>			7	Jun 2, 2011 8:42 am
<a href="#">Long Live the Conversation</a>			6	Jun 2, 2011 8:29 am
<a href="#">Essential Ingredients of Great...</a>			2	Jun 1, 2011 6:37 am
<a href="#">Acceptable Use Policies</a>			1	Jun 1, 2011 5:23 am
<a href="#">The Social Enterprise</a>			5	May 31, 2011 2:45 pm
<a href="#">How to Make Collaboration Work?</a>			1	May 31, 2011 5:54 am
<a href="#">How to Create Information?</a>			1	May 31, 2011 12:59 am

**Figure 2.0** An overview of the discussion forum section of the course wiki

### Purpose of Study

The purpose of this qualitative study was to explore the implementation of a semi-public wiki in higher education and ascertain the value of wikis as a pedagogical tool for teachers.

### Research Questions

The research questions empirically explored in this paper include:

- (1) What were students' initial attitudes and perceptions of wiki participation?
- (2) What was the nature of student participation on course wiki throughout the course?

## **Impact of Wikis on Informal Learning**

By asking these questions, our focus also includes the interplay of student digital literacy, knowledge and Wiki use on domain learning and the quality of the student learning experience.

### **Methodology**

The primary artifact analyzed in this research study was a “course wiki,” for the elective MIS Course “Organizational Learning 2.0” (See Figures 1 & 2). The purpose of this course was to expose students to critical Web 2.0 technologies that could be used to promote positive and powerful learning experiences in organizational settings. The Horizon Report (Johnson, Levine, & Smith, 2008) predicted that collective intelligence, knowledge gathered and recorded by many people, was an emerging technology trend that would have an enormous impact on education in the next four to five years. Therefore, the wiki as a form of collective intelligence applications that would allow students to contribute to a larger community, outside of the classroom.

Students were assigned the task to create or modify pages on either semi-public course wiki that were relevant to technology in organizational settings. At the end of the course, each student was required to respond to eight reflection questions and submit the reflection via e-mail. The purpose of this reflection was twofold: one to encourage students' reflective practice, allowing them to reflect in action and on action (Schön, 1983); and two, to inform and improve the instructor's pedagogical practice. This study focused mainly on student responses to those reflections.

### **Background Information**

Between the academic years 2009 and 2011, wikis have been introduced into a 12-week elective course class of 15 students per each term to trial their use as the students worked on projects in groups of 2-3. The name of the elective course is “Organizational Learning 2.0” which is a spring- term course; their age ranged between 20-24. 30 students took this course.

The entire learning experience has been designed to work with the wikis, from the class room activities, the group project, the involvement of the lecturer as module coordinator and the wiki's functional design in coexistence. Rather than just creating the wiki for a group project and telling the students to go off and use it, the project has been designed around weekly wiki tasks, whereas student progress has been monitored each week, and weekly feedback has been provided and incentives have been offered. The wiki was not just part of the group project, it was part of every class lecture and discussion.

## **Impact of Wikis on Informal Learning**

The MIS students who took the elective course “Organizational Learning 2.0” had to contribute to a semi-public wiki throughout the semester. The semi-public wiki was created by the lecturer.

Anyone on the Web was able to read the wiki, but only students were permitted to edit it. Apart from course material including presentation materials, syllabus and reading list, a blog and discussion forum were also made available on the wiki.

### **Data Collection & Analysis**

This study includes data collected from email correspondence, student reflections at the middle and final point of the wiki assignment, and group rubric and rationales submitted at the end of the wiki assignment. All data were collected and stored with Microsoft Word, or email in the spring semesters of 2009 and 2010. Additional follow-up emails were sent to students following the course if further clarification was needed for research.

Data were analyzed using ethnographic research methods (Glaser & Strauss, 1967) to identify common themes among student data and assignment reflections. Evidence from course data was used to develop preliminary conclusions for each of the research questions. Next, open coding was utilized to categorize the qualitative data and develop common themes. Analysis centered on the wiki assignment reflections in order to examine wiki potential for future courses and its applicability to the Higher Education (HE) classroom.

### **Findings**

The findings show students’ approaches to performance on the wiki were different and mixed. In the following sections, a detailed review of the responses will be provided.

### **Initial Attitudes & Perceptions**

Initial reactions to the wiki project were mostly apprehensive, yet positive learning outcomes prevailed. Findings suggested that the initial feelings of reluctance and anxiety, related to the thought of contributing to a public online environment. Students were told that they needed to create and edit pages on the wiki, but given no formal direction on how to proceed. This lack of instruction was intentional, as we wanted students to teach themselves how to navigate through, and use, the public wiki. After all, these were students of Management Information System and given their educational background, it should be no problem for them to use a wiki. Yet, surprisingly, some initial apprehension existed and this may have been due to this lack of instruction as evidenced in the comments of one student. This student stated:

443

## **Impact of Wikis on Informal Learning**

“I, at first, was intimidated by the process. I was concerned that perhaps I would do something wrong on the course wiki or would remove all course materials. Of course, that all proved to be worrying for no reason.”

Another student experienced similar feelings of anxiety due to lack of prior knowledge, “At first, the whole idea of adding to/creating a wiki was very overwhelming (mainly because I had no idea what a wiki was!), and seemed like such a huge task.”

Many of the students had minimal knowledge of wikis, neither public nor private. They may have heard of Wikipedia, or used it as a resource, but did not know how to create and/or edit pages. Some students did not know that they could personally contribute other public wikis than Wikipedia.

The students were afraid of putting their work out on the Internet for all to see. It was commonly accepted that thousands, if not hundreds of thousands of people could potentially view the content that they added to Wikipedia. This created a lot of perceived pressure on the quality of content posted, as some students stated. In the words of one student:

“I can only speak for myself in that I was a bit anxious about adding content to the Internet.” The idea of contributing to a collective intelligence can sometimes be intimidating and apprehensive for students. In class, the lecturer tried to alleviate initial fears by explaining that the assignment was a chance for experimentation, and if content posted online was subsequently deleted, the instructor would still be able to see their contributions by viewing the pages’ history. Overall, student fears and anxiety seemed to dissipate as the assignment progressed, with one student’s comments summing up the collective feeling of the class at the end of the project when she stated, “My reaction to the entire wiki process is that it was a lot easier than I had anticipated.” So, what once seemed like an ‘overwhelming’ and ‘huge’ task turned into an easy and positive learning experience.

### **Characterizing Participation**

Findings suggested that student reactions to participation on the public wikis were mixed, with the majority of participation issues arising from the wiki interface. Some of the students had difficulty formatting content and understanding the wiki’s markup language whereas others had no difficulty with it. As one student stated:

“It surprised me how user-friendly and simple it (the assignment) was to do.”

## **Impact of Wikis on Informal Learning**

On the other hand, the technical limitations of the wiki created feelings of frustration and annoyance among the students. In fact, frustration levels were so high as to decrease overall levels of enjoyment for the course. One student expressed his formatting struggles in the following statements:

“...The part that I found annoying was inputting the information on the wiki. Formatting the information was terrible. Once we had it perfect on the draft, we would view the document and all of the spaces were all messed up. We just had to keep trying things and going into the ‘help’ area to find the correct way to do things. It took a long time to get the final product.”

It was expected that students would need time to understand how to use the wiki’s markup language and would experience initial difficulty. The majority of student frustration was the result of a lack of prior experience on using the wiki interface, as some groups did not first consult the help pages before attempting to edit the pages.

### **Limited Public Collaboration**

At first, the groups had little to no interaction with other groups through edits made to posted content. Only one group experienced minor edits, which consisted of a grammatical change to format a heading. One student, also reflected on the edits made to the page:

“I thought I would be offended if someone edited my work. One guy made minor corrections, but I was not upset about that. Although I shouldn’t be offended if someone changed my work. I think a natural reaction is to be a little upset because I feel that I put quality work on the page.”

Students in the class were initially hesitant to post information on the Internet, as they were afraid that others would modify or delete their content, but in the end, few changes were made. This may have been due to the fact that some of the group assignment took place at the end of the semester, with the newly posted content online for only a few days before reflections were due.

The remaining groups did not experience any interactions with wiki users outside of the classroom, which limited the potential global collaborative nature of this project and the power of collective intelligence. The students expressed discontent with this lack of collaboration. One student stated:

“...I am disappointed that no one has edited our work and am interested to see the thoughts of others. Therefore, our group has plans in the future to modify our information in order to add

445

## **Impact of Wikis on Informal Learning**

it to Wikipedia. Considering this online resource is bigger, our page is more likely to be viewed and edited there.”

Other students in different groups reported that they would continue to check pages to see if future edits were made by the general public. Students were naturally curious to see if their pages were changed, and would continue to monitor their pages after the course ended. In addition to the minimal participation related to content, only a few of the participants contributed to conversations on the discussion pages after we made it clear to them that their online contribution would also be part of their assessment.

### **Overall Attitudes and Perceptions**

Findings suggested that the majority of student’s attitudes and perceptions towards contributing to a collective intelligence were positive. Students discovered that collaborative writing on a wiki differed from previous classroom writing projects, be they individual or group work. One student elaborated on this fact when she said:

“In most individual projects, the research, writing, and presentation is completed by one person. This often results in a large time investment and a single interpretation of the subject. While developing this wiki project, we were able to incorporate each of the group members’ perspectives by building on each persons’ strengths...This group work results in a better final product.”

Other positive reactions related to the act of contributing to the public wiki and overall project experience. One student stated: “The final group project of creating or editing a wiki page was fun and interesting”.

Not all student reactions to this course wiki were positive, with one student indicating that he could do without the wiki all together. He failed to derive practical experience from the project, stating,

I was somewhat familiar with Wikipedia, but I didn’t know how data was posted to this site and I had no knowledge of other wiki sites. I now have a better understanding of these sites and will use them in the future as additional sources of information, but I got very little practical experience from completing this project. Student perception of the wiki’s practical nature for both personal and professional benefit had the potential to influence overall level of enjoyment of the course.

# Impact of Wikis on Informal Learning

## Applicability to the HE Classroom

Findings suggested that some students recognized multiple features and benefits to wiki instruction, as one of them stated: “I do plan on using wikis in my future projects.”

Other students only saw the wiki as an information resource, which would only be viewed, not edited. One student acknowledged the educational value of wikis but found it hard to incorporate into his future projects:

“Well, I wouldn’t really incorporate a wiki in my work projects once I start to work, but I definitely see the educational value of incorporating wikis into education. I think it would be really neat to do with undergraduate. I like the interactivity of it, and the fact that it belongs to those that create it.”

A few of the students had negative reactions to the course wiki, with one in particular who failed to recognize the wiki’s applicability to his professional development: “I’m not sure how posting information on a wiki will help me to use technology better.”

This negative response could be related to the lecturer’s lack of formal instruction on wiki use in the classroom, or simply due to the student’s dislike of wiki’s in general. Overall, the majority of students’ reactions indicated that wikis could be used either as a resource or collaborative tool.

## Discussion

The aim of this paper was to explore how campus students perceive that they use the wiki to support their studies and the perceived benefits and limitations. These findings showed those students’ approaches to and performances on the wiki were different and mixed.

First and foremost, there is the issue of ownership. In the semi-public wiki, it was the students themselves who ‘built’ the wiki pages and so they saw the pages as theirs; this made collective editing of the pages a challenge for them.

A second issue clearly relates to the nature of the audience. When students contribute to wiki pages that have been created outside the context of their own personal learning experience, they take matters such as being authoritative, researching their contributions or citing their sources much more seriously. From a social point of view, there is also the issue of community. In the case of a semi-public wiki, this community is limited, yet students still feel

## **Impact of Wikis on Informal Learning**

a responsibility, as well as gratification, when they are part of a global community of people constructing knowledge.

Moreover, students generally expressed a preference for the more protected environment of the semi-public wiki. They, also, came to understand the benefits of a large user-base and writing for a worldwide community of users.

When we asked students which social media they use to support studies, most of them mentioned e-mail. The students that need to get in touch with their teacher primarily use e-mail. In line with the findings of Margaryan et al. (2011), we found that e-mail is still the main tool for communication between teachers and students. E-mail is also commonly used to exchange files among students. Many students mention the wiki as the means to support group work but the medium is used for quick questions and answers, group work coordination and exchanging files, rather than collaborative learning.

Surprisingly, not many of the students mention wiki, when discussing social media for educational purposes. Instead, many name media such as e-mail and instant messaging. They regard the wiki as information retrieval media as they do not use it very much to create content in collaboration with others. Instead, students focused on exchanging practical and academic information and experiences and social support. Some students provide examples of the wiki for sharing files and collaborative work and learning.

Wiki is seen useful for, especially spontaneous interaction and collaborative learning in group work. It is apparent that the students under investigation the use of wiki as providing distinctly different benefits. Although many of the postulated benefits of the wiki have not been realized, it is already important in supporting the exchange of brief questions and answers, coordination of work and retrieval of information from external sources. The wiki is perceived as useful for retrieving teaching material, such as guidelines, lecture notes and other information regarding courses.

### **Recommendations**

Based on the findings from this study, three recommendations are suggested for the use of public wikis in a HE course.

- Collaborative practice: First, there must be a shift of focus from individual to community. Students should be introduced to activities that convince them of the utility of collaborative, not cooperative work. A course wiki can be used both cooperatively and collaboratively in teacher training programs. Ideally, the wiki would

448

## Impact of Wikis on Informal Learning

be used collaboratively, with multiple users editing one or more documents, provide intertwining content, and modifying each other's work until a desired result was achieved. That is the power of collective intelligence (Johnson et al., 2008). A cooperative wiki, on the other hand, would be one in which the users individually created their own piece of the content, and then added it to the document as a separate, but cohesive, component. In a cooperative wiki, users do not modify another's content. For the wiki assignment in this class, it has been publicly announced many times that collaboration, not cooperation was preferred. However, this form of collaboration does not always come easy to students (Guth, 2007). It is likely that students will be afraid of editing another person's work and have limited experience with creating a document in a collaborative manner. The instructor must monitor, prompt, and foster contributions, working towards reducing fears and negative perceptions related to adding and editing work on a public document (Guth, 2007; Ioannou & Artino, 2007).

- Technical instruction: Student fear and anxiety can naturally arise at the beginning of unknown and new course assignments. If students have little or no experience contributing to wikis, it may be appropriate to provide wiki instruction prior to its implementation in order to decrease the potential for initial fear and anxiety (Liu et al., 2008; Robertson, 2008). The instructor should provide adequate time for students to master the wiki language, and recognize that additional time will be needed in order to experience the power of collective intelligence, as the public may not identify modifications made to the wiki.
- Instructor role: It is recommended that instructors do not select a wiki for the sake of using technology, but should first determine if it aligns appropriately with course goals and objectives. Is group work required or recommended in the course? How will the use of a collective intelligence impact student learning outcomes? The instructor must take student's prior knowledge and experience with wikis into account, and anticipate initial fear, anxiety, and negative perceptions. The instructor may need to provide time for students to learn how to use the wiki tool and incorporate strategies related to group dynamics (e.g. how to work successfully with others). Groups must be created in meaningful ways as the success of the group often determines the success of the wiki (Robertson, 2008). In essence, the instructor is responsible for the success of the wiki (Robertson, 2008), with success being measured by effective collaboration, improved writing skills, and increased knowledge. As wiki use proliferates in HE courses, instructors must utilize wiki practices that are appropriate for their unique classroom environment and the goals of their course, in order to promote positive learning experiences and improved performance.

# **Impact of Wikis on Informal Learning**

## **Limitations**

One of the main limitations of this study is that due to its small scale, a generalization cannot be made. Yet, as the study is qualitative, the aim is to provide insights into the possible uses of the wiki technology within the context of HE. We argue that the knowledge generated from the research study would raise a critical awareness amongst HE stakeholders which will enable them to take action; to respond in specific and direct ways to what the students have said and done.

The survey did not provide a variety of very rich and insightful information on the ways in which students were using the wiki. Yet, the interviews provided both detailed qualitative responses to students' uses and perceptions of technologies while the wiki entries provide innovative snapshots of practice – capturing students' experiences of the use of technologies in situ, illustrating the contextual aspects.

## **Conclusion**

This study undertaken in collaboration with students provided many insights about how to integrate technology into learning contexts. It is important to inspire not just the learning of a domain or module content, but the learning of and about digital technology through the situated practice of 'doing', as opposed to telling.

Digital literacy, knowledge and learning is increasingly critical for undergraduate students and professionals of today and tomorrow. As educators in higher education, it is imperative that we explore, study and adopt new and differing methods for digital mediated learning in our curricular, designing the learning experience with digital media as part of it, not separate to it or an add on, to ensure our students have the necessary knowledge and skills to participate effectively in a world of dynamic ubiquitous digital mediation.

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450

## Impact of Wikis on Informal Learning

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## Impact of Wikis on Informal Learning

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