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Editorial

A Paradigm Shift

Donald G. Perrin

The educational process used in schools and universities is insulated against change. Attempts to introduce innovations have failed through lack of sustained funding or because the educational community was not ready or trained to use them. James D Finn (1962) made this statement in his studies of the growth of instructional technology:

...Education, as a sector of national life, has, for the most part, been cut off from the technological advances enjoyed by industry, business, the military establishment, etc. The American educational enterprise exists out of technological balance with great sectors of the society. As such, it can be viewed as a relatively primitive or underdeveloped culture existing between and among highly sophisticated technological cultures. As Dr. George Gerbner says, "the public school system is the last stronghold of folk culture in America."

Finn's vision was to affect a technological revolution in instruction. Yet 50 years later, even with adoption of significant new technologies such as television, computers, and the internet, over 90% of instruction takes place using traditional one-to-many face-to-face instruction. A plethora of research in communication and learning have not brought about expected improvements in efficiency and effectiveness of learning.

In the public schools, progress is complicated by the need to update the curriculum and pedagogy of millions of teachers and administrators and the need to upgrade teacher training institutions to equip new teachers with state of the art tools, methods and practices. Retraining is not a feasible option. And the curriculum is archaic in its ability to meet lifelong needs of students. The task is beyond reorganization or putting band-aids on the present system. It requires a fundamental change based on a re-definition of the purpose of education to fit the world of 2015 and beyond. It requires a new paradigm.

By definition, a paradigm shift is a change so radical that it replaces established assumptions, knowledge, skills and practices with a new way of doing things and a new set of rules.

Innovation is a primary trigger of paradigm shifts. Consider the positive impact of the railroad, steamship, automobile, airplane, and spaceship on transportation; pasteurization, vaccination, and antibiotics on medicine; and the printing press, photography, telephone, gramophone, radio, motion pictures, television, computers, internet and smart phones on communication. A change that does the same thing better or faster may or may not fit the definition of paradigm shift if it complements but does not replace the existing way of doing things.

Two decades ago, I attended a meeting between educational leaders and executives from the Silicon Valley, the hotbed of innovation in computers and communications. These executives challenged us to develop students that were curious, energetic, able think outside-of-the-box. Their industries required higher levels of learning: problem solvers, innovators, risk-takers, and entrepreneurs to build a culture of innovation. The educators were fascinated, but it did not fit their paradigm. They walked away and little was done. And technology companies have continued to this day to recruit from wherever in the world they can find persons with the skillsets they need.

For centuries past, schools developed workers with basic skills and the ability to follow instructions. Automation and off-shore labor has now replaced most of those jobs. Innovative technologies are driving our economy, yet education in the United States, a leader in innovation, is not preparing enough engineers, scientists, and computer programmers. We have known for half a century that we need to recruit and stimulate students to be scientists, mathematicians, engineers, medical doctors and nurses. Yet American companies have had to search the world to recruit for these professions.

The problem identified by Finn, that "the American educational enterprise exists out of technological balance with great sectors of the society", is now so extreme that only a paradigm shift can bring relevance and responsiveness to U.S. educational needs for the present and the future.

Barker, Joel A. (1993) *Paradigms: The business of discovering the future*. Harper.

Finn, James D., Perrin, Donald G., and Campion, Lee E. (1962) *Studies in the growth of Instructional Technology: Audiovisual Instrumentation for Instruction in the Public Schools, 1930-1960. A basis for take-off*.

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Editor's Note: In business, we advise students to "go where the money is". In Education, we are advised to adopt the environment they use most frequently - the social media. The question with all mediated communications which to use for a specific purpose. Here are some findings to add to your data bank and maybe stimulate some further research.

Analyzing Twitter's impact on student engagement in college instruction

Armand Buzzelli, James Bissell and E. Gregory Holdan
USA

Abstract

Social media networks such as Twitter provide an opportunity for instructors to incorporate mobile technology already being used by the majority of students to create discussions beyond the classroom. Two separate mixed methods research studies analyzed the process of posting daily tweets on Twitter in an attempt to increase student achievement on core concepts through spaced practice methods. Tweets were posted daily within separate higher education courses and disciplines to help increase student engagement as well as their achievement. The quantitative aspect of the research analyzed scores from student exams as well as Likert scale survey questions. Following the exams, the researchers conducted a qualitative review of student survey questions as well as interviews. An analysis of student exam scores did not show a significant difference in either study, however these scores indicate that Twitter may function as an effective review tool for helping students with concept learning. Additionally through the surveys and interviews, categories were developed that helped to show interest in integrating Twitter into the learning process. Some of the key findings from this assessment indicated that students are followers on Twitter looking for information on topics of interest. They mentioned that they engage through reading and viewing visuals like graphs or images, but would like a more personalized experience that included integration of Twitter into course discussion as well as more real-world examples. Suggestions for future research should include utilizing massed and distributed practice capabilities of Twitter, integration of Twitter into the classroom, and examining effective methods that help engage students through social media.

Keywords: Twitter, student engagement, higher education, concept learning, spaced practice, distributed practice, social media, microblogging, Connectivism.

Introduction

Is social media the key to unlocking the age old problem of engaging students in the classroom and beyond? This question looks at a relatively new solution to the problem of student engagement. Krause and Coates define student engagement as "the extent to which students are engaging in activities that higher education research has shown to be linked with high-quality learning outcomes" (2008, p.493), while Hu and Kuh defined it as "the quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes" (2001, p. 3). Ultimately, engagement is a process of interacting online or in the classroom by reviewing content through reading, listening, sensing, viewing, sharing or clicking on links for additional information.

Regardless of the definition used for student engagement, research has demonstrated that students are often not engaged in a traditional lecture-style classroom setting (Fassinger, 1995; Nunn, 1996; Weimer, 2013, et. al). Moreover, research from the Duke University social relationships project recounted that college students cited class as the place where they feel most lonely (Asher

& Weeks, 2012). These findings indicate that educators need to find a solution to better engage students.

Researchers have started to turn to social media as a potential answer to the student engagement problem. Studies have indicated that social media may provide a platform to engage students and increase student discussion beyond the classroom (Junco, Heiberger & Loken, 2011; Ivala, & Gachago, 2012; Clarke & Nelson, 2012). Students that participated in learning communities have shown higher achievement, increased involvement in activities, and had greater satisfaction in their education (Zhao & Kuh, 2004). Social networks are essentially learning communities that can help students connect with relevant and pertinent information and building connections to the source of knowledge (Siemens, 2005).

Purpose

The primary purpose of this article is to present data from two studies conducted by (Author 1, 2014) and (Author 2, 2014) in different postsecondary settings that utilized Twitter as a student engagement platform. Both studies focused on distributing information to students through a spaced practiced method. Neither study provided an ongoing dialogue or answered questions through Twitter, but by using Twitter as a means of distributing concept information, the researchers wanted to determine if student engagement would still be enhanced.

The research questions that were posed in these studies were as follows:

Does utilizing Twitter as an information distribution tool for concept learning provide any enhancement in student engagement?

Is Twitter user-friendly for all stakeholders, students as well as the professor, when incorporated into instructional technology?

Methodology

Both studies took place at private, regionally accredited higher education institutions in Pennsylvania. Each study implemented a mixed-methods approach featuring quasi-experimental research for the quantitative portion in addition to survey research and interviews for the qualitative portion. T-test analyses in both studies indicated that Twitter did not impact the exam scores relative to concept learning, but the surveys and interviews showed an impact on student engagement as well as implications for future research.

Study A

The first study conducted by (Author 1, 2014) utilized 20 participants from an introductory United States history course, which was part of the required curriculum for undergraduate students at the host institution. For the quantitative methodology, subjects were randomly placed into two groups, one treatment group that received tweets with characteristics, examples, and non-examples of 15 primary concepts from their course material, and another that received the same information in a review worksheet. Immediately following the treatment, each group was tested for concept learning and scores from each group were compared. The concept test consisted of 15 multiple choice questions developed by the host professor that covered the concepts reviewed in the study.

Exam scores from the previous unit exam served as a measurement to show that there were no significant differences between the two groups at the start. Once the experiment started, a tweet with characteristics, an example, and a non-example was created for each concept. Pre-scheduled tweets went out three times per day per concept. Tweets for two class concepts were tweeted in a typical day, and those tweets would typically be staggered by an hour in the morning, afternoon,

and night. The same tweets for each concept were tweeted out again later in the experiment to create a spacing effect. Each tweet was followed by a hashtag that was developed for the class.

Throughout the duration of the study, the instructor did not discuss the tweets with students, and tweets were not directed to any of the students in the study. Students were given a survey, which was used to determine their level of engagement in the class and their comfort level with Twitter, in addition to other demographic questions. The survey included open-ended questions where students were asked to comment about their experience during the study.

Survey instrument

The survey was adapted from a survey constructed by a social media committee at the host institution, which included various university constituents including faculty, staff, and one student that had interest in determining how social media was being used across campus educationally, professionally, and personally. All questions were adapted for the purposes of this study and were reviewed by the host instructor, a faculty committee, and institutional review board prior to distribution. The survey included five items that were related to student engagement and user friendliness as well as seven open-ended questions.

Cronbach's alpha (α) was used to determine the internal consistency within sections of the survey. Two major sections of questions were analyzed for internal reliability and were found to have good reliability based on Cronbach's alpha ($\alpha = 0.78$) and ($\alpha = 0.79$).

Survey analysis

Summary of survey findings

Eighty percent (80%) of the students who participated in the study submitted their surveys. All but two survey respondents had a Twitter account prior to this study, and the instructor stated in his interview that the one student that expressed that they didn't have an account said that they chose not to and knew easily how to set one up for this unit. Twitter (93.8%) and Facebook (93.8%) were the social media platforms that were most widely used by respondents, while blogs (6.25%), Flickr (6.25%), and LinkedIn (12.5%) were the least used.

Student engagement

There were five survey items related to student engagement that asked respondents to agree or disagree with on a Likert Scale with the following values (strongly agree = 4, agree = 3, neutral = 2, disagree = 1, and strongly disagree = 0). The item with the highest score of the three student engagement questions was for the item that asked students to compare Twitter's use as a collaborative tool with Blackboard. This was an interesting takeaway as Twitter provides an open, free, and less formal platform for communication than a typical learning management system such as Blackboard. The first three items were related to student engagement in the unit and the results are displayed in Table 1.

Table 1
Mean +/- SD scores for student engagement responses

Category	Mean	SD
More Engaged than in Other Classes	2.56	.81
Interacted with Peers More Frequently	1.34	.72
Better Collaborative Tool than Blackboard	2.81	.98

Like to See Twitter Used Similarly in Other Courses	2.81	1.05
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Note. The mean score reflects answers to student engagement items on the student survey scored on a Likert Scale with a scale of (strongly agree = 4, agree = 3, neutral = 2, disagree = 1, and strongly disagree = 0).

Frequency of usage

The lowest scored item in the student engagement section asked students to assess whether they interacted more with peers during the study than they did in another course. This response corresponded with a related question on the survey, which asked students to assess how frequently they tweeted during the study. Using a point scale ranging from (7 = more than once per hour, 6 = hourly, 5 = more than once daily, 4 = daily, 3 = 1-5 times per week, 2 = a few times per month, 1 = monthly or less, 0 = never) response scores were very low ($M = 0.75$, $SD = 1.13$).

Ease of use

Based on the survey results and the interview with the instructor, Twitter was user-friendly and did not require any additional class time to train new users. Additionally three students cited the easy to use interface of social media in their open-ended suggestions for educators, while one individual explained that Twitter had an “easier interface, more reliable than blackboard.” Using a scale of (strongly agree = 4, agree = 3, neutral = 2, disagree = 1, and strongly disagree = 0), respondents provided a high rating for Twitter’s ease of use ($M = 3.375$, $SD = 0.719$).

Analysis of open-ended responses

There were a total of seven open-ended questions within the survey. Creswell (2012) stated that data should be organized into themes in qualitative studies. In order to determine themes from the open-ended survey responses, the data was collected and coded in a manner that Saldana (2012) calls “generic coding,” which includes a first cycle and second cycle phase of coding.

Utilizing the suggestion of Liamputpong and Ezzy (2005), data was formatted into three columns rather than two. In this case the first and widest column is the survey answers. The second column contains the space for the first cycle or preliminary codes, and the third column lists the final codes or categories that developed. Saldana (2012) explains that “the second column’s ruminations or first impressions may help provide a transition between the raw data and codes.”

The open-ended questions that generated the most feedback referenced student recommendations for educators with respect to using social media. While the question called for students to provide recommendations for social media use, the responses could be summarized in a few words. Respondents found social media to be easy to use and understand, helpful in terms of their memory, popular among students, and useful. One respondent recommended that the quality of information shared is most important for educators, and three others suggested using social media more often. Several respondents’ answers could be classified in more than one category, with “usefulness” being the most commonly categorized response.

Study B

The second study conducted by (Author 2, 2014) took place in two sections of a college marketing course with 21 students in one section that were randomly selected as the control group and 20 students in another section that functioned as the treatment or Twitter group. Both classes had the same instructor, used the same books, resource materials and facilities. Students took multiple exams throughout the course that reviewed 6-8 marketing concepts. Four of these concepts were selected for each of the exams and aspects of these principles were tweeted twice per day in a spaced practice format during the four week period before the test. The researcher, who was not involved in the course beyond an initial training session, tweeted these messages that helped highlight aspects of concepts and linked to more information. Students were only

asked to follow the researcher on Twitter and were provided with details on what type of content would be posted. They were not required to access Twitter each day, comment, or share information. Additionally, the professor did not mention Twitter during his course or involve any of the tweeted content in his lectures.

A mixed methods approach was used to gather the data in this research study. The quantitative aspect involved gathering test results and running independent samples t tests in SPSS. Analysis of the data did not indicate any significant differences in the achievement of the groups. Following the exam, each student was asked to complete a questionnaire which was reviewed by the host instructor prior to distribution. The researcher also conducted semi-scripted interviews that were recorded, transcribed and coded to identify patterns within the details. A method of focus coding was used by the researcher by reading through the interview notes and categorizing common phrases and keywords in order to identify themes (Berg, 2007).

Student engagement

One of the primary research questions in Study B was how the tweets would affect student engagement. Student survey questions and interviews as well as an interview with the marketing professor were used in a qualitative analysis to further understand engagement. An important aspect of the research study was posting links to external articles, videos, graphics and additional content to help students better understand these concepts. Additionally, it was also significant to evaluate Twitter as a platform for disseminating this content and its effects on student engagement.

Survey analysis – student engagement

Once the tweets were posted on Twitter, it was important to identify if and how students were engaging with the information. One question on the survey directly asked students to select how they engaged with the tweets. Students were able to select more than one option that applied to their level of engagement. The percentages of the total responses from the students are

detailed in Figure 1.

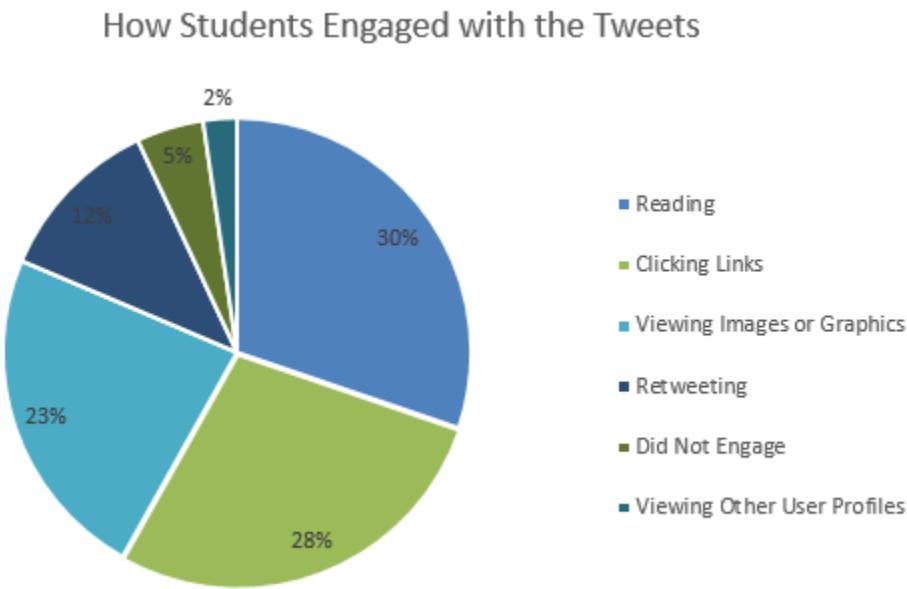


Figure 1. Student response to Question #6 in the survey, which asked respondents how they engaged with the Tweets.

Forty-three responses were given from the 20 students in the Twitter group and 30% citing reading the information posted on the tweets as their primary method of engagement. Clicking on the links within the tweets was second at 28% followed by viewing images or graphics at 23%. Only 12% of students selected that they retweeted the information or shared the content with their followers on Twitter. In reviewing the data, students were more apt to just read the content posted in the Tweets. They did suggest that clicking on the links and viewing the images and graphics was also important. Since Twitter limits the content to 140 characters, it is important to move beyond the posted information to graphics, articles and additional details that further explain the concepts.

Additionally, it was interesting to note that the lowest level of engagement (2%) of student responses was viewing the profile of other users highlighted in the tweets. An important aspect of the study was providing quality content from trusted sources for the students, and in 53% of the tweets, the username of a company, professor or organization was used within the message to highlight their profile. Through the survey, the students did not review these profiles to gain more information, and only 15% of students liked the experts highlighted in the tweets.

Student Interview Analysis – Student Engagement

The five students (Students A – E) selected for the interviews were asked to clarify their responses from the student survey and provide more detail on how they engaged with the tweets posted by the researcher. One of the interview questions asked these students about how they engaged with the information. As interview responses were transcribed and coded, a category on engagement was developed. This category is illustrated and broken out individually in Table 2.

Table 2
Category developed from student interviews focusing on Twitter engagement

Category: Engagement

Reading	4
Clicking Links	4
Images/Pictures	2
Examples	2

Four of the five students mentioned that they engaged by clicking on links embedded in the tweets and reading the information. As stated previously, one of the students did not access the platform or use Twitter through the duration of the study. Engagement seemed to come through reading the information and then clicking on links to view additional content related to the post. Student B even added that, "It's very rarely that I just read your tweet and let it go. If there was a link, I pursued it." Additionally, Student D explained, "I read the tweets and I'd say about fifty percent of the time I'd click on the link or I'd re-tweet it."

Since Twitter limits the content to 140 characters it is sometimes necessary to add links to additional information. While the students did mention that they clicked on the links, this process was not evident on the amount of clicks tracked through the ow.ly software. Only 111 unique clicks were tracked over an 8 week period, which is less than one click per tweet. Displaying content relevant to information the students on the marketing concept might be best displaying in the actual tweet since the primary source of engagement was reading and each Twitter user described themselves as passive users of the network.

In reference to visuals, pictures, concepts and examples, these engagement fields were mentioned, but with less frequency. Students were asked about what stood out to them in the tweets and what aspects of the message helped engage them in the process. Only two students mentioned specific concepts mentioned in the tweets; product life cycle and market segmentation. Additional references were made to images and pictures. Student A explained that, "I'm definitely more of a visual person and I know there was one with pictures, but I can't remember what it was about." Considering only two of the 114 tweets contained images that show up directly on the Twitter newsfeed, this option might be something to use in a future research study.

Professor interview analysis – student engagement

An interview with the marketing professor was conducted after the exams, student survey and interviews. The interview was transcribed and coded in the same process as the student interviews. The focus of this discussion was to review his thoughts on using Twitter in the classroom and if he viewed any differences between the two classes. The marketing professor was active in supporting the study, reviewing the tweets and coordinating the details, but there were no additional course requirements beyond following the researcher's Twitter profile.

His perspective on student engagement between the Twitter group and the traditional group was a main focus of the interview. When asked directly if he noticed a difference between the groups, his response was:

"I have to say, no and the problem is the two classes are different with or without the study. There are differences between two classes. It's hard for me to sort what their difference is and I have to say one of the difference with the [traditional] group that wasn't following me on Twitter was that they weren't as engaged but I don't know if that was the afternoon class syndrome. It's hard for me to say. They clearly were not as engaged. They clearly were not as proactively conversing, but I have no idea if that was based on the Twitter."

Within this response, there is a wealth of information related to teaching as well as this research study. His statement emphasizes the importance of understanding that there are always differences between sections of a course. Because of the dynamic created by difference people interacting, it could cause one group to respond differently than another. The professor did mention that the traditional group was “clearly not as engaged” from his perspective. He was not able to directly suggest it was because of the treatment, but he did recognize a difference. The professor did say that the afternoon class’s lack of engagement might be contributed to the course following lunch. Previous afternoon courses that he taught seemed to lack the same amount of enthusiasm as morning courses. Clearly, engagement was lacking in the afternoon class and based on the results of all three exams, the traditional group displayed lower achievement.

The question was also proposed to the instructor about students mentioning anything of the tweets that were posted on Twitter. He stated that he did not have any students mention Twitter directly or ask questions about the tweets. As previously mentioned in the student surveys and interviews, they explained that they would benefit from the professor reviewing the Twitter information or incorporating into the course. This aspect would be important for future research and a better opportunity to increase student engagement.

Finally, the marketing professor was asked about his thoughts on this research study and different ways to increase student engagement by using Twitter. He supported the study and said it was a really good idea to look at options that incorporate social media in the learning environment. Emphasis was placed on social media as the place where students converge and this medium is where they go to communicate and get their news. In summary, the professor clarified that, “[Twitter] is an amazing tool and yet we don’t really use as much in the classroom.” Although his initial mindset was that he disliked the platform, he has come to understand the power that this network has for accessing and posting information. Through this research project, this professor was able to see this network become an asset for the learning process. His perception on Twitter was never positive, but once he was shown a different perspective on using this network and the possibilities for enhancing the educational environment, he was able to understand the potential.

Discussion

Research Questions

Does Twitter create student engagement in the overall class discussion?

Twitter has been shown in other studies to create richer dialogue outside of the classroom (Grosseck & Holotescu, 2008), more interaction with faculty (Junco, Heiberger, & Loken, 2011), and provided an opportunity for more introverted students to participate in class discussion (Paul & Ianitti, 2012). One could reason that the findings of these two studies were contrary to prior research due to the lack of faculty and student Twitter interaction.

These two studies demonstrated that using social media solely a means for distributing information to students may not increase their overall engagement. In both studies, the researchers Twitter account did not engage with students and the instructors never mentioned the Twitter content or discussed it with the class. Twitter was only used as a method of sharing information in a “one-sided conversation” of sorts. Both students and host instructors in both studies maintained that classroom engagement was low and students had similar levels of engagement in both the Twitter group and traditional group.

Is Twitter user-friendly for all stakeholders, students as well as the professor, when incorporated into instructional technology?

In both studies, both students and instructors found Twitter easy to use and incorporate into instruction. Only one student in each study did not have an account prior to their respective studies and neither student required extensive training to set up an account. After discussing the studies with each host instructor, they did not feel that Twitter or other social media networks would be difficult to incorporate into other courses. Nevertheless, each instructor still maintained some concerns on the types of interactions that they might have with students moving forward if they chose to use social media in a more interactive manner.

These findings imply that Twitter is a mainstream social media tool among college students and it is an easy tool to implement into the classroom. Both host instructors cited that they have experienced students become less formal over time in their communication. Twitter's 140-character limit and free flowing dialogue provide an efficient, less formal, and easily accessible means of communication between instructors and students.

Delimitations and limitations of the study

Both studies utilized convenience samples and took place over the course of one semester. Larger sample sizes and studies with greater durations may have provided more generalizability of the results. Furthermore, each researcher also made the decision not to follow interactions between the students in the studies on Twitter which may have yielded some additional data on student engagement. Additionally, the students that participated in these studies were all in introductory college courses which may limit the ability to generalize student engagement for all college students.

Conclusions and recommendations for future research

The two studies presented utilized Twitter as a tool for reviewing concepts in college courses. In both cases, Twitter wasn't discussed with the class and there was no interaction on Twitter between student and faculty. Consequently, both students and the instructors indicated that there was no additional engagement as a result of incorporating Twitter into the classroom.

This analysis demonstrates the importance of an instructor engaging students and maintaining an interactive environment when incorporating social media into the classroom. A study that includes the current instructor tweeting the information while featuring tweets and examples from class might help increase student achievement and engagement. Limited quantitative data is available on Twitter and a study that incorporates some type of assessment using Twitter may help fill the gaps in the literature.

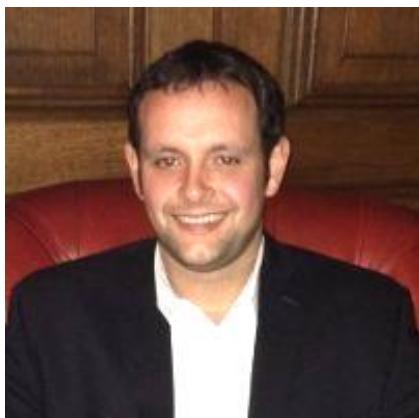
While qualitative research may be the best method for determining classroom engagement, tracking tweets, mentions, and favorites may be useful tools in determining student engagement on Twitter. Additionally, Twitter launched a new feature 2014 that enables users to share multiple photos within a single tweet. This aspect provides more engagement because the images stand out from regular content. Throughout the research, students mentioned that including more visuals would enhance the process and provide better engagement.

Finally, these studies were meant for expanding knowledge on concepts by highlighting aspects of these principles through a spaced practiced method. Since the students were very passive in using Twitter, this platform might work better in helping students in the earlier stages of learning through reviewing course material. While they scan their Twitter feed, drawing attention through more visual tweets could help supplement information presented through a course lecture. Additionally, through an integration of messages and class interaction, Twitter could create a good balance for both active and passive learners.

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Editor's Note: As described by its authors, "This manuscript is the culmination of research conducted in an online graduate program in higher education administration. The manuscript reflects on the importance of connecting students to each other as a means of deepening learning and improving student experiences. This paper provides insights into structuring online learning and how faculty foster collaborative relationships in online learning."

The importance of peer connections in Distance Education

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Abstract

Studies on online students indicate that building a sense of community among students enhances student learning, retention and student satisfaction with their online experience. The authors present their findings of survey research involving 60 online graduate students in a master's program in higher education administration. The survey results indicate four distinct themes surrounding the creation of community in the online classroom. Those findings are explored with several conclusions and recommendations for creating online courses that build communities of learners rather than emphasizing the delivery of content to numerous individuals.

Keywords: Peer connection in online learning; online instruction; graduate student learning; peers; peer interactions; connections; online learning; constructivism; distance learning; higher education.

Introduction

Human beings have a basic need for belonging and for relating to other human beings (Ormrod, 2008). Faculty who teach online courses seek to create environments with a sense of belonging so that all students feel connected to each other (Rovai, 2007). Educational research has shown that more effective learning takes place if learners are actively involved in the learning activities, rather than being passive listeners (Nurmela, Palonen, Lehtinen, & Hakkarainen, 2003). The pedagogical assertion that students learn and construct knowledge through group interaction (Puntambekar, 2006) is a basic foundation for creating the sense of community desired in online classes. When more focus is placed on developing needed skills and attitudes rather than transmitting information, active learning occurs. Students engage in critical thinking when analyzing, synthesizing, and evaluating. While students are involved in activities like reading, writing and then discussing with others what they have read and experienced and learned, emphasis is placed on students exploring their own attitudes and values as well as the attitudes and values of their peers. Such pedagogical practices are guided by a constructivist epistemology that regards knowledge as negotiated and developed in an interpersonal, social context (Noddings, 2006).

According to Mayes (2001), this constructivist learning environment results in students who are more interested in learning. They become better critical thinkers who appreciate inquiry. Working together to accomplish a task is a characteristic of a positive learning environment which facilitates active construction of knowledge (Van Merriënboer & Paas, 2003). It also presents an opportunity for students in online classes to develop a connection with each other and establish a sense of community as they work toward common goals. In online learning communities, students can create and share information, engage in critical reflection, contemplate meaning, test synthesis, and form consensus. Through online, collaborative written assignments, group discussions, debates and critiques of arguments, students can enhance knowledge construction (Zhu, 2012).

Providing opportunities for students to learn with and from each other is crucial for effective teaching and learning and is particularly imperative for the online faculty member to create those occasions that are not naturally occurring in a nonsynchronous classroom (Perkins, 2009). We also recognize the importance of the faculty member who must manage the opportunities for peer connections in the learning community while simultaneously contributing as a member of that community.

Literature review

Researchers have emphasized the importance of creating community within distance education environments in order to promote personal connections with peers and instructors, thereby providing support for learning (Ingram, 2005; Robley, Farnsworth, Flynn, & Horne, 2004; Tucker, 2012). Pascarella and Terenzini (2005), in their review of twenty years of higher education research, concluded that peer relationships based in academic topics, had a positive relationship to student learning and development. Ideally, distance education students, just like face-to-face students, should benefit from similar peer relationships through the sharing of resources and ideas (Almala, 2006).

However, creating a supportive online environment can be challenging from the start. One study illustrates the belief that online courses inhibit social connections with peers (Harris & Martin, 2012), thereby creating an immediate barrier for instructors to overcome. Another barrier is that students may not perceive peer relationships as important (Roby, Ashe, Singh, & Clark, 2012). Instructors must intentionally provide course structures and learning exercises to help build relationships that may not occur naturally. Online courses are specifically structured to overcome barriers. For instance, students who make connections with peers have less stress and more motivation for their academic pursuits (Robley, Farnsworth, Flynn, & Horne, 2004). Peer-to-peer interactions in online learning environments have also been found to positively influence student satisfaction with university experiences and student perceptions of ability to persist to graduation (Cho & Kim, 2013; Xie & Ke, 2013).

Waltonen-Moore, Stuart, Newton, Oswald, and Varonis (2006) described a five-stage model for creating an online learning community. The first stage, *Introduction*, helps a new group become acquainted with one another by sharing personal information. The second stage, *Identification*, builds upon the introduction by helping group members find connections between their backgrounds and experiences. Once group members begin relating to one another on a personal level, the third stage, *Interaction*, begins. This stage shifts the focus from personal information to the subject of the learning community. The fourth stage, *Involvement*, moves one step further by having students work collaboratively to express their understanding of the given subject. Finally, the fifth stage, *Inquiry*, moves students into the application of their new understanding of the subject matter.

By inserting specific pedagogical techniques to address each stage of community development, instructors can create the necessary environment and encourage essential peer connections that enhance learning. For instance, asking students to create autobiographies at the beginning of a course can help establish an emerging sense of community (Lowenthal & Dunlap, 2010). In another example, utilizing technologies such as online conferencing (audio or video), can help engage students with one another by removing some of the physical distance between them (Kuyath, 2008).

The purpose of this study is to illustrate the formal and informal activities within an online graduate program that helped form connections between peers. Understanding what students perceive as essential activities for building peer relationships can assist instructors with developing teaching strategies to enhance student learning.

Methods

The authors crafted an instrument to gather information on the activities that assisted in the creation of connections between student peers. This instrument was designed to explore the varying levels of community in an online learning environment offered by Waltonen-Moore et al. (2006). The instrument primarily consisted of quantitative Likert-type questions focusing, in part, on online learning community development and peer connections. However, the instrument also included several open-ended questions asking students for their perspectives on connections with peers and other aspects vital to online learning.

Eighty-six students enrolled in a fully online Master of Arts program in higher education administration were invited to participate in the study. The students were enrolled at an institution located in the southern United States. However, they lived in 9 different states, and two students from countries other than the United States participated in the study. The average age of participants was 36 years of age and ages ranged from 19 to 61 years of age. Fifty-three percent of invited participants were White, 24% were African American, 15% were Hispanic, 6 % were Asian, 1% of participants were Native American, and 1% were multi-racial. Female students accounted for the majority of the invited participants (69%) while male students accounted for 31% of invited participants. Most students (87%) were employed in an educational setting at the point they enrolled in the online program. Thus, the discipline-specific nature of this program and the fact that some of the participants already have professional relationships influence their ability to connect with each other in class. The authors recognize this as a limitation of the currently available population and encourage further research in a variety of disciplines or settings.

Participants were invited to contribute to the electronic survey in the fall 2012 semester. Following the invitation, two reminder emails were sent at two-week intervals, allowing 5 weeks for data collection. Survey responses were anonymously recorded to secure the participants' most honest reactions. Therefore, the researchers are unable to explore response bias or examine group differences for age, race, or gender demographics. However, some basic demographic questions, such as the number of classes the participants had completed and gender, were asked in the survey and results were analyzed using these demographic data. Sixty of the 86 invited participants responded, representing a 70% response rate.

The present study focuses on results from an open-ended question related to formal or informal experiences students believed help connect them to other students. Qualitative analysis techniques were utilized to develop themes from participant responses.

Results

A question on the survey asked participants "Describe any experience (formal or informal) that helped you feel connected to your fellow class members." Four major themes emerged from the analysis including: (a) course assignments, (b) using technology, (c) personal communication between students, and (d) structure of the course or academic program.

Course assignments

A total of 150 comments explained that participants felt most connected to their peers through a variety of course assignments. The most referenced assignment (82 comments) was class discussions. Through the direct dialogue provided in discussion assignments, participants could engage in meaningful conversations with fellow students and gain insight into others' opinions on important issues. Highlighting the positive benefits of discussion forums, one participant shared, "I think this is a great way to learn how we each think of a topic in discussion and how we may differ." It should be noted that four comments addressed how important it was to have instructors engaged in the discussion forums. One of the more experienced participants explained, "I would

have to say, the more involved the instructor was in the discussions, the more involved the students became, so it made it a better overall experience.”

Another 44 comments addressed how group assignments helped participants connect to one another and become acquainted with the individuals in the course. It was best described by one participant who said, “Group work in which we had to put a face or a voice to a name always helped me feel more comfortable with class interactions.”

Similarly, participants expressed a preference for course activities that allowed some kind of introductions between students at the beginning of the course. One participant explained, “In one of my classes we had to answer general/personal questions about ourselves and post the answers. Then we had to read others posts and reply something that we learned about other people in the class. That helped me to feel connected to some of my fellow class members.” It is interesting to note that all but one of the 22 comments on this question originated from participants who were relatively new to distance education with two or less courses completed. It may be that students who are new to the online environment place more importance on activities that help them become acquainted with their peers.

One final course assignment that helped two participants connect to their peers was preparing presentations for class. Being able to create presentations and view others’ presentations established a link between students separated by physical distance. As one participant described, “Presentations...helped me relate more to my fellow classmates.”

Using technology

As the previous theme suggests, many participants focused on how course assignments can help them connect to their peers. Some participants, however, specifically mentioned technological tools that contributed to the strength of the connection. Twenty comments, mostly from participants with more than four completed online courses, explained that online meeting software used for synchronous class sessions helped them interact with fellow students. One participant shared, “We had a single online classroom session which allowed everyone to ask questions of the professor with everyone else listening in. Very helpful.”

Another technology highlighted by participants was presentation software that allowed students to create and share presentations with visual and audio components so everyone could see and hear the presenter while watching. Twelve comments mentioned using this technology as one way to connect with peers. As one participant explained, “These technology components really help to make that connection and put a face with my classmates.”

Similarly, two final comments addressed how the use of a web camera could help participants get to know each other better by sharing real time, visual communication. One participant observed, “The use of a webcam helped me relate more to my fellow classmates.”

Personal communication between students

A total of 26 comments were directed towards personal communication between students. A little over half of the comments addressed how the communication originated and what happened as a result of the communication. For instance, participants explained that they made connections with their peers by e-mailing them and having conversations over the telephone. This additional step of reaching out to each other also contributed to the sharing of personal information that would not have occurred in the context of classroom activities. Four comments, all coming from participants who were new to the online environment, identified the formation of a support group as a primary means of connecting with their peers. One participant explained, “A few of us in the class agreed to join [a web chat room] so we could discuss the class.”

It is important to note, however, that not all participants felt that they had made connections with peers. Twelve comments addressed how the lack of effort from classmates in course activities such as discussion forums or live chats left them feeling disconnected. As one participant shared, “I have felt little to no connection with classmates. People just post the bare minimum to get the grade, and the instructors do not work to encourage greater interaction.” All of the participants who shared comments in this theme had completed two or less online courses. This may indicate a need for instructors to provide clear expectations about what constitutes quality performance in the course.

Structure of the course or academic program

While structure was a small theme, with only 10 comments offered, it is an important concept to consider. For instance, the academic program in this study has a “cohort model,” meaning that students take all of their courses with others who began the program at the same time. Four comments highlighted the benefits of this model, with one participant explaining that connections were made based on “the fact that I’m in the same classes with many of them as I’ve gone through my education.”

Another four comments focused on how instructors structure communication in a course and what expectations are shared for that communication. Participants felt more connected with each other when there was some form of required communication every week, along with having an environment that allowed each student to express themselves openly and with respect for their ideas.

Finally, two comments shared the importance of structure for group work that is required, primarily in the area of selecting groups. As one participant explained, “In [one professor’s] course, we had to select our own group members. This is very awkward and difficult when you do not know the others in your class. I think this works fine for a face-to-face course, but not for an online format.”

It may be important for administrators and instructors to consider the underlying structure of academic programs and individual courses. Providing a solid organizational foundation that emphasizes how students connect to one another may be essential in constructing an academic environment that promotes student success.

Conclusions and recommendations

As we continue to expand our travels into the world of online teaching, we find that we are doing many of the same things in online courses that we would do in traditional face-to-face courses. However, some modifications are required. It is apparent that creating communities of learners with strong peer connections requires both similar and different teaching approaches and skills. With our awareness heightened regarding the importance of connections for students in online classes, we sought to improve our methods of promoting those connections and an enhanced sense of community among students.

This study focused on the key methods (both formal and informal) used in an online graduate program to help students form connections with each other. The researchers quickly noticed the pattern in the survey data resulting in the four major themes analyzed: (a) course assignments, (b) using technology, (c) personal communication between students, and (d) structure of the course or academic program. All of the findings in the above four categories mimicked activities that are commonly found in the traditional classroom. The manner in which these activities are proffered, in the online environment, is the only difference. As with the traditional classroom, online students have a responsibility for the degree in which they connect with their fellow classmates.

The activities noted in the area of course assignments included student introductions, class discussions, group work, and student presentations. Although facilitated a little differently in the online classroom, all of these student activities take place in the traditional classroom with the instructor acting as facilitator. The faculty member determines how often these occur and at what grade value. Students see the magnitude of these activities based on the preponderance of points awarded for course assignments. They also realize the enhanced peer connections resulting from these requirements.

Since students also reported that using the technology for both the course content and for personal communications improved their online learning experience, we can conclude the proliferation of distance education has brought additional benefits. The technology of online meeting software, shared video presentations, podcasts, blogs, email and online support groups provides opportunities for students to connect with each other in ways that allow for both real time and asynchronous involvement. Traditional classrooms only allow for the real time experiences while technology affords many additional opportunities for connecting with peers.

The final theme noted in the survey research of course structure is one that falls totally in the hands of the program and/or instructor. It was obvious that the cohort model is a strong foundation for building the desired student peer connections. Taking subsequent courses with fellow students with which you initially entered an academic program strengthens the connection. A shared experience over a period of time promotes both frequent and consistent communication and the formation of groups and subgroups. Many of these groups are formed by the requirements of the course and the instructor mandates membership while others form informally and naturally develop as a result of the shared experience.

As faculty teaching online courses, we are not only concerned with the development of peer connections of our students, but with student satisfaction with the online learning environment, their online performance, and knowledge construction. Surveying students' perceptions of peer connections in an online classroom is a critical issue in the continued and growing use of technology to educate. Considering the foundation of the constructivist learning environment, our results indicate the importance of fostering strong peer connections for learning in which students can connect personal experiences to new material.

Future research is recommended particularly regarding the impact peer connections have on student learning in the online classroom. In addition, the role of the instructor in the four areas noted by students as enhancing their connections to fellow students should be explored. For example, how instructors use online discussions and ways to structure those discussions to enhance student participation, learning and the impact on persistence is worth exploring. Is the instructor's role to answer questions and validate students' comments or to actively engage in the ongoing academic discussion? The constructivist view requires the faculty member to facilitate learning by providing encouragement and asking probing questions (Rovai, 2007). Discovering the influence of instructor presence in the class discussions may prove vital to student performance in the online classroom.

One specific issue in need of additional research is the balance between the quality of interactions and the quantity of interactions and the impact on peer connections. Management and membership of classroom learning communities and promotion of peer connections is vital to quality teaching. Learning activities should increase student knowledge, promote learner satisfaction and performance, and strengthen a sense of community and peer connectedness. It has strengthened our desire to continue learning about the quality of our teaching and our contributions as online teaching faculty.

In conclusion, the present study offers initial insights into pedagogical approaches that might improve student peer-to-peer interactions in online learning environments. The concepts used to

introduce and engage students in the content of a class may result in deeper, more meaningful learning experiences and outcomes. Additional research will be beneficial to explore how other populations approach peer-interactions in online learning and the influences of these interactions on learning.

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Editor's Note: Feedback is a primary method of informing learners about errors, and for this reason it is also an essential step in error correction. There are many kinds of corrective feedback ranging from explicit to implicit, delivered live and through media, in contexts where feedback may be immediate or delayed. This paper is a very detailed analysis of the various kinds of feedback and their effectiveness based on extensive research of the literature in language learning.

Pedagogical contributions and empirical perspectives of corrective feedback in written, oral, and computer-mediated communication

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Abstract

Over the past few decades, the role of corrective feedback in language learning and teaching has attracted the attention of a host of researchers and language educators and controversial issues regarding its effectiveness have been offered. Most recent studies have substantiated the efficacy of feedback in enhancing learners' abilities in language production in and out of classroom. The purpose of this study is to give an account of corrective feedback and its contributions to language learning and teaching. This study also seeks to present a detailed discussion of different types of corrective feedback, previous research in the field, the role of oral corrective feedback, and findings on the role of computer-mediated communication technologies such as the Internet, e-mail, and chat in providing effective feedback to language learners. Furthermore, in this study, the significance of further research on feedback is emphasized and interested researchers are encouraged to delve deeper into and investigate innumerable learning possibilities this field has to offer in a variety of contexts.

Keywords: corrective feedback, accuracy, interlanguage, noticing hypothesis, computer mediated communication (CMC).

Introduction

Corrective feedback (CF) has been of great interest to both second language (SL) and foreign language (FL) researchers likewise. A growing body of research has investigated the potential efficacy of written CF (WCF) and its roles in language learners' development in different ways. History on the effectiveness of WCF has been controversial regarding whether error correction is beneficial to the learning process or not. On the one hand, CF has proved to be effective in promoting language learning (Sheen, 2007; Lee, 1997); yet on the other hand, as Truscott (1996) claimed, it could be obstructive or even detrimental. In an extreme view on CF, Truscott (1996) argued that the application of CF on the learners' writing should be totally avoided as it hinders and harms writing development. According to Truscott (1996), "grammar correction has no place in writing courses and should be abandoned" (p. 328). On the contrary, more recent studies support the positive contributions of CF to language learning and in particular writing skills (e.g., Bitchener & Knoch, 2008; Sheen, 2007). Gass (1997) also states that CF enables learners to notice the "gap" between their interlanguage and the target language resulting in more focused and accurate learning. Additionally, in accordance with general research on language learning, CF studies have specifically focused on the ways CF can alter and promote "learning processes" and "linguistic competence" (Sheen, 2010b, p. 204). This, in turn, enables learners to concentrate their attention on syntactical structures of their language products resulting in better learning of linguistic forms. Soori and Abd. Samad (2011) also cite Yates and Kenkel (2002) and mention that the main concern nowadays is not to whether provide CF for the learners but rather "when and how to provide feedback on the students' errors" (p. 349). As cited in Rezaei, Mozaffari, and

Hatef (2011), Schmidt's (1990, 1995, 2001) Noticing hypothesis suggests that “noticing is a prerequisite of learning, continuing that conscious attention must be paid to input in order for L2 learning to proceed.” (p. 22). Thus, CF provides learners with clues indicating what is wrong and draws their attention to erroneous forms resulting in better learning.

Grammar accuracy and writing improvement have also been shown to benefit from CF. Application of CF on learners' writing will help them avoid the possibility of future errors and promote accuracy of their writing with more focus on meaning (Ashwell, 2000). According to Ferris (2010), “the studies on written CF … examine whether written CF facilitates long-term acquisition of particular linguistic features and if so, how” (p. 188). Soori and Abd. Samad (2011) also refer to Russell and Spada (2006) and state that they “investigated the impacts of corrective feedback on second language grammar learning. The outcome of this study revealed that corrective feedback was helpful for L2 learning.” (p. 350).

Erel and Bulut (2007) refer to various studies (e.g., Ferris & Roberts, 2001) for “motivating” and “encouraging” effects of WCF on learners and state that, “it is believed … that if a teacher indicates a written grammatical error on a student's paper and provides the correct form in one or another way, the student will realize the error and will not repeat it in his/her future writings”. Consequently, “the ability of writing accurately will be improved” (p. 398). Additionally, Ferris and Roberts's (2001) experiment with different types of WCF substantiate the efficacy of CF on improving learners' writing accuracy.

As stated by Erel and Bulut (2007), numerous studies show the effectiveness of CF in promoting writing skills as well as grammatical accuracy of the learners:

Ashwell (2000) states that teachers believe that correcting the grammar of student writers' work will help them improve the accuracy of subsequent writing. Research evidence on error correction in L2 writing classes shows that students who receive error feedback from teachers improve in accuracy over time (Ferris & Roberts, 2001). There is also research evidence which proves that students want error feedback and think that it helps them improve their writing skill in the target language.
(Leki, 1991; Ferris & Roberts, 2001; Chandler, 2003). (p. 398)

Similarly, Leki (1991) and Zhang (1995) in their studies found out that the learners themselves greatly appreciate teacher-provided CF. This clearly shows that “L2 students have positive attitudes towards written feedback” (Kaweera & Usaha, 2008, p. 86). Finally, it should be mentioned that, Ferris (1997) also found that CF provided by teachers led to the development of learners' writing skills.

It is also worth mentioning that, “many scholars and researchers agree that feedback is essential and has a positive effect on students' writing. Thus, feedback on writing can be selected as a means of helping students to make revision and can help students improve their writing skills” (Kaweera & Usaha, 2008, p. 85).

Due to the aforementioned findings and studies, it becomes apparent that despite earlier controversy over the effectiveness of CF provided by teachers on learners' writing, it is obvious that CF plays a crucial role in promoting learning processes and eliminates learners' structural problems regarding what they produce, especially in written form. Teachers should also be aware of learners' needs which are the basis for appropriate feedback teachers intend to provide as there are different types of feedback ranging from explicit to implicit. This is because learners vary in their knowledge and level of proficiency and therefore, “can benefit from different ways of providing corrective focus on form” (Guenette, 2007, p. 47).

The following sections review previous studies on different types of CF in traditional way, i.e., in the classroom, and through technology, i.e., computer-mediated contexts. Different perspectives on CF are also discussed.

Brief review on different types of CF

According to Lyster and Ranta (1997), different types of CF have been identified including explicit, metalinguistic, elicitation, repetition, recast, translation, and clarification requests (see Appendix A for brief definitions and examples of CF strategies proposed by Lyster and Ranta, 1997 as cited in Sauro, 2009, p. 99). According to Rezaei et al. (2011), “all of these techniques are placed in an explicit-implicit continuum.” (p. 22). What follows is a brief review of each technique.

Explicit

Rezaei et al. define explicit feedback and mention that “as the name suggests, explicit feedback falls at the explicit end of corrective feedback spectrum” (p. 23). Rezaei et al. cite Ellis, Loewen, and Erlam (2006) and mention that this type of feedback “is characterized by an overt and clear indication of the existence of an error and the provision of the target-like reformulation and can take two forms, i.e. explicit correction and metalinguistic feedback” (p. 23). In explicit CF, teacher clearly draws learner’s attention to the erroneous part(s) and provides correct structures directly. Regarding metalinguistic CF, the teacher only provides learners with “comments, information, or questions related to the well-formedness’ of their utterances” (Lyster & Ranta, 1997, p. 47). Rezaei et al. also argue that, explicit CF aids “learners in noticing the gap between their interlanguage and the target like form” resulting in better understanding of target language (p. 23).

Metalinguistic

As characterized by Rezaei et al., “much like explicit error correction, metalinguistic feedback- because it diverts the focus of conversation towards rules or features of the target language- falls at the explicit end of the corrective feedback spectrum.” (p. 23). According to Lyster and Ranta (1997) metalinguistic feedback has been defined as “comments, information, or questions related to the well-formedness of the student’s utterance without explicitly providing the correct form” (p. 47). Rezaei et al. mention that “unlike its name, the inclusion of metalanguage is not its deterministic characteristics; rather the encoding of evaluations or commentary regarding the non-target-like nature of the learner’s utterance is considered as the defining feature.” (p. 23).

Elicitation

In this type of CF, self-correction is emphasized (Panova & Lyster, 2002). Regarding this type of CF, Rezaei et al. propose three different ways during face-to-face (FtF) interaction varying in their level of explicitness or implicitness. The first strategy “is request for reformulations of an ill-formed utterance. The second one is through the use of open questions. The last strategy which is ... the most implicit is the use of strategic pauses to allow a learner to complete an utterance.” (p. 24). Due to these stages, “elicitation falls in the middle of explicit and implicit continuum of corrective feedback.” (p. 24).

Repetition

This type of CF, according to Rezaei et al., “is less communicatively intrusive in comparison to explicit error correction or metalinguistic feedback and hence falls at the implicit extreme on the continuum of corrective feedback.” (p. 24). Panova and Lyster (2002) define repetition CF as “the teachers’ or interlocutors’ repetition of the ill-formed part of the student’s utterance, usually with a change in intonation” (p. 584).

Recast

According to Rezaei et al., numerous studies (e.g., Nelson, Carskaddon, & Bonvillian, 1973; Nicholas, Lightbown, & Spada, 2001) indicate that “The term recast was initially used in the literature of L1 acquisition to refer to responses by adults to children’s utterances …; afterward it merged into the domain of L2 acquisition in which different definitions were utilized for this term.” (p. 22). As stated by Rezaei et al., different types of recast are identified as:

According to Ellis and Sheen (2006, pp. 78-80), recasts are of various types including corrective recasts (Doughty & Varela, 1998), corrective/non-corrective recasts (Farrar, 1992), full/partial recasts, single/multiple recasts, single utterance/extended utterance recasts, and simple/complex recasts (Ellis & Sheen, 2006). Nelson, Denninger, Bonvillian, Kaplan, and Baker (1984) also propose two further classifications of recasts, i.e. simple and complex recasts; the former deals with minimal changes to the child’s utterance while the latter is concerned with providing the child with substantial additions. (p.22)

Although recast is “the most frequently used feedback”, there is a great deal of controversy over its effectiveness. Some researchers (e.g., Long, 2006; Doughty, 2001) “consider recast as an effective corrective feedback technique”, while others (e.g., Lyster, 1998; Panova & Lyster, 2002) “propose that learners usually pass recasts unnoticed and thus they regard them not as effective for interlangauge development” (Rezaei et al., p. 23).

Translation

Translation was regarded as a subdivision of recast (Lyster & Ranta, 1997). But, according to Rezaei et al., the difference between translation and recast is that “the former is generated in response to a learner’s ill-formed utterance in the target language while the latter is generated in response to a learner’s well-formed utterance in a language other than the target language.” (p. 24). In this vein, translation and recast CFs also have some common features. According to Rezaei et al.:

They both lack overt indicators that an error has been produced. This shared feature places both toward the implicit end of the corrective feedback spectrum Translations also have another feature in common with recast as well as explicit error correction that is they all contain the target-like reformulation of the learner’s error and thus provide the learner with positive evidence. (p. 24)

Clarification requests

According to Rezaei et al., this kind of feedback “carries questions indicating that the utterance has been ill-formed or misunderstood and that a reformulation or a repetition is required” (p. 23). This type of feedback “unlike explicit error correction, recasts, and translations, can be more consistently relied upon to generate modified output from learners since it might not supply the learners with any information concerning the type or location of the error.” (p. 23). Thus, they demand deeper levels of mental processing required by the learners to produce target-like forms and therefore are more beneficial to high-level learners.

Findings on different types of written CF

In order to explore the issue of corrective feedback in writing development, numerous researchers and scholars have focused on the effectiveness of different types of CF in dealing with learners’ errors in writing and various positive outcomes have been reported. These studies have focused on the continuum ranging from explicit (direct) to implicit (indirect) CF. Generally, Sheen, Wright, Moldawa (2009) support CF and its contributions to writing development and learning by mentioning that “…CF may enhance learning by helping learners to (1) notice their errors in their written work, (2) engage in hypotheses testing in a systematic way and (3) monitor the accuracy of their writing by tapping into their existing explicit grammatical knowledge” (p. 567).

According to Ellis's (2009) and Bitchener's (2008) findings, explicit CF provides learners with direct information as to what has gone wrong especially if learners are not proficient enough to come up with a solution to the problem. Explicit CF has also proved to enhance acquisition of certain grammatical structures (Sheen, 2007). As opposed to explicit CF, indirect CF does not provide learners with overt indicators as to what has gone wrong nor does it provide the corrected structures. Instead, some clues or hints attract their attention to the problematic areas (Ferris & Roberts, 2001). It has also been argued that explicit CF, by nature, does not involve learners in deep internal processing as it is the case in implicit CF. Therefore, indirect CF is more probable to result in long-term learning than direct CF (Ferris & Roberts, 2001). In the same vein, Ferris (2002) contends that direct CF is more preferable to indirect CF when dealing with lower-level learners as they have not yet acquired enough grammatical knowledge to self-correct their errors.

Recent studies on CF have also supported the positive contribution of feedback to writing improvement (e.g., Chandler, 2003; Bitchener & Knoch, 2009; Bitchener, 2008). In an earlier study, Lalande (1982) showed that indirect CF had better results than direct CF in learning promotion. As opposed to Lalande's (1982) findings, Chandler (2003) investigated different types of WCF, including direct and indirect types. She concluded that, direct CF had significant effects on the improvement of learners' writing grammar accuracy. Liang (2008) conducted an experiment with different groups of participants receiving different types of WCF as well. Results of this study showed that, both direct and indirect CF helped learners promote certain aspects of their writing such as morphological and syntactic features.

As stated by Campillo (2003), Lightbown and Spada (1990) examined and "analysed the effect of explicit corrective feedback in an intensive communicative classroom having English as L2. Their results corroborated the hypothesis that the teaching of formal aspects ... contributer to the learners' linguistic accuracy" (p. 210). Spada and Lightbown (1993) later conducted another study similar to their previous study demonstrating that "explicit corrective feedback increased linguistic accuracy" (Campillo, 2003, p. 211). Accordingly, another study was conducted by White, Spada, Lightbown, and Ranta (1991) comparing "the performance of explicit corrective feedback learners with those who didn't receive the treatment. ... Again, the groups exposed to explicit teaching and explicit corrective feedback showed a higher level of linguistic accuracy than in control groups" (Campillo, 2003, p. 211). Likewise, according to Campillo, alongside with explicit CF, "implicit corrective feedback has also been widely investigated and can be implemented in different ways" (p. 211).

Kim and Mathes (2001) examined the effectiveness of explicit CF, i.e., metalinguistic, and implicit CF, i.e., recasts. Their findings revealed that both explicit and implicit CF were quite effective in diminishing the chances of error repetition in the future. They also concluded that it would be more beneficial to learners if teachers provide them with "incessant" flow of CF over a more prolonged period of time. In a survey conducted by Ancker (2000), it was concluded that most of the surveyed learners corroborated the application of CF by teachers as often as possible, whereas teachers indicated that it is not necessary to correct errors all the time as it might hinder negotiation of meaning among learners. Nabel and Swain (2002) also investigated the degree of learners' awareness towards CF provided by the teacher. They found that during the experiment, participants could successfully identify recasts given by the teachers. Moreover, they discovered that recasts are more effective regarding student-centered interaction rather than teacher-centered communication. Carpenter, Jeon, MacGregor, and Mackey (2006) argue that recasts are ambiguous and even perplex learners. They also conclude that teachers need to provide more evidence and information for learners to recognize recasts. Numerous studies (e.g., Lyster & Ranta, 1997; Panova & Lyster, 2002) revealed that recasts are the most frequently used type of CF. Lyster and Ranta (1997) also conclude that recasts are beneficial as they reduce the possibility of interruption in the flow of communication of meaning. Campillo (1993) also argues

that, "nevertheless, not all corrective feedback techniques have been regarded as equally effective" (p. 212). He also refers to some recent studies (e.g., Lyster, 1998) and states the need "to explore the effect of combinations of corrective feedback, as opposed to isolated techniques" (p. 212).

Findings on oral CF

In recent years, research has also offered growing body of evidence confirming the effectiveness of oral CF (OCF) on learners overall language learning development. In this sense, Mackey (2006) conducted an experiment focusing on the probable effectiveness of OCF on learners' ability in noticing linguistic structures in second language (SL) context. These findings indicated that those who received CF orally performed better in noticing some linguistic features than the control group who received no feedback. As opposed to Mackey's (2006) findings, Es's (2003) investigation of OCF revealed no significant difference of linguistic accuracy between those who received CF and those who did not. Es's (2003) findings have been inconsistent with most of the CF studies confirming the efficacy of CF up to now. In order to further substantiate positive contributions of CF to language learning, Kılıç (2007) used different types of OCF in his classes and found that recasts were the most used CF (about 56%) in communication classes. Nassaji (2007) in his investigation of different types of CF found that explicit CF is more effective than implicit CF in getting learners to repair their errors. Lyster (1998) also found positive evidence regarding the use of implicit CF such as elicitation, clarification requests, and repetition in dealing with syntactic problems. In one study, Ammar and Spada (2006) conducted an experiment evaluating the efficacy of different types of OCF in speaking classes. In this study, three groups of participants, i.e., two experimental groups receiving OCF and one control group were identified. The experimental groups showed significant improvement over the control group in applying certain grammatical features in their future speaking. To conclude, this study also indicated that the application of different OCF techniques help learners promote their interlanguage with respect to their level of proficiency.

In order to investigate the possible effects of OCF on the improvement of learners' interlanguage, Ellis, Loewen, and Erlam (2006) embarked on a study with a similar design to Ammar and Spada's (2006) experiment. In this study, two experimental groups received recasts and metalinguistic types of CF. Findings of this study revealed that the experimental groups performed significantly better than the control group who received no CF in their understanding of linguistic structures. Regarding experimental groups, metalinguistic CF proved to be more effective than recasts. In an interesting study conducted by Bitchener, Young and Cameron (2005), the combination of OCF and WCF was investigated on the learners' writing accuracy. In this study, they specifically focused on the usage of definite articles and past simple tense. This amalgamation of oral and written CF proved to be quite effective in improving certain grammatical features of learners' output.

Computer-mediated communication and corrective feedback

Language educators and specialists have recently begun to discover the potentiality of computer technologies and in particular computer-mediated communication (CMC) for language learning and teaching. The term CMC was first coined and introduced by Hiltz and Turoff (1978) while experimenting on computer conferencing as a means of communication on the Internet. Barnes (2002) defines CMC as a wide range of technologies that paves the way for human interaction and sharing of information through interconnected networks of computers including e-mail, discussion groups, newsgroups, and real-time chat. December (1997, ¶ 3) also states that "Computer-Mediated Communication is a process of human communication via computers, involving people, situated in particular contexts, engaging in processes to shape media for a variety of purposes". Having been adopted in language learning and teaching, CMC has proved to

be more effective than class-restricted environments in that students no longer feel bored and frustrated with monotonous materials and teaching and can learn new things in more interesting and effective ways. Fey (1998) maintains that, “computer networks are allowing students to transcend boundaries of classroom walls and to learn in new ways” (p. 86).

According to Warschauer (2001), CMC or “on-line communication refers to reading, writing and communication via networked computers” and comprises of:

- a) Synchronous computer-mediated communication, whereby people communicate in real time via chat or discussion software, with all participants at their computers at the same time;
- b) Asynchronous computer-mediated communication, whereby people communicate in a delayed fashion by computer, e.g. by e-mail; and
- c) The reading and writing of on-line documents via the internet. (p. 207)

As stated by Sauro (2009), “With the tools of technology making their way into the L2 classroom, corrective feedback delivered via written synchronous computer-mediated communication (SCMC) holds particular promise for the learning of especially complex or low salient forms ... during written interaction” (p. 96). Thus, synchronous and asynchronous CMC environments are ideal contexts for the investigation of CF during written communication as they provide student-teacher interaction in a way that increases students’ awareness towards target language and eliminates time and distance limitations. CF in this sense can draw learners’ attention to the discrepancies between learners’ output and target-like norm and facilitate the occurrence of noticing of the gap which according to Schmidt (2001) is the “first step in language building” (p. 31). Therefore, one of the main areas of research which has recently provoked a great deal of interest and attracted considerable attention is the investigation of the extent to which corrective feedback via online media can contribute to language development. However, the investigation in this area is still limited and more research is merited to gain deeper insight into the advantages of computer technologies on language learning.

According to Loewen and Erlam (2006), “while most of the research that has focused on interaction has taken place in the language classroom, there is increasing recognition of the importance of the computer in providing opportunities for learner interaction” (p. 1).

Accordingly, “Early research that has looked at the effectiveness of ... CMC in promoting interaction is encouraging, suggesting that it may indeed be superior to the (often teacher-dominated) language classroom in terms of the opportunities it affords” (p. 1). These opportunities, in turn, provide learners with an environment in which they can interact and exchange information contributing more to the negotiation of meaning with the result of overall learning improvement.

A number of studies (e.g., Lea, 2001) on CMC and students’ academic writing assignments have also shown that students make use of online collaborative learning context, reflect on their own learning, draw upon their peers’ feedback in the construction of their own knowledge, and thus benefit in their own academic writing. In one study, Razagifard and Rahimpour (2010) investigated the effectiveness of corrective feedback through chat on learners’ grammar improvement and found out that meta-linguistic corrective feedback is more effective than recasts in getting learners to both notice the gap and enhance their ability to correctly apply grammatical structures.

As referred to in Loewen and Erlam (2006), Nagata (1993) conducted a study in order to investigate the effectiveness of synchronous CF on two groups, “one received feedback about what was missing or not expected, while the other received feedback that included the former, along with metalinguistic explanations. Nagata found that of the two, metalinguistic feedback was more effective” (p. 3). Accordingly, in another study, Sanz (2004) “found no difference between

the effectiveness of explicit and implicit feedback in a CALL study which had students work at input processing activities" (Loewen & Erlam, 2006, p. 3). Castañeda (2005) experimented on CF through both asynchronous and synchronous CMC. The findings of this study showed that instructors, responsible to provide feedback in this experiment, used asynchronous CMC more frequently than synchronous CMC. In the same vein, Iwasaka and Oliver (2003) conducted an experiment to investigate the existence of CF in computer-mediated contexts. They utilized online chat as it resembled FtF interaction and allowed learners to interact directly with native speakers providing them with CF on their erroneous language output. The findings of this study revealed that the frequency of CF via chat was less than that in FtF interaction. It was also found that CF was mostly used to deal with lexical and syntactic errors.

Pellettieri (2000) investigated implicit and explicit types of CF through electronic media and found positive results. Accordingly, she examined whether negotiation of meaning during task-based chat provide any chance for incorporation of CF into learning context. Results of this study suggested that the participants' negotiation of meaning during task-based chat improved and CF was also facilitated and applied more. Pellettieri (2000) supports feedback through CMC and states that "Because CMC fosters negotiation of meaning and form-focused interaction and because students communicating through this medium have more time to process and monitor the interlanguage, I believe that CMC can play a significant role in the development of grammatical competence" (p. 83). Tudini (2003) also supports that negotiation of meaning and CF through CMC facilitates learners' understanding of syntactic and grammatical issues. Another study by Whyte, Karolick, Neilsen, Elder and Hawley (1995) proved that the learners who received computer-provided CF greatly improved their learning conditions over those who did not receive any CF. In yet another study, Clarina (1992) found that those who received asynchronous CF outperformed those who did not receive any feedback.

It has also been suggested that "low-achievers" benefit more from synchronous CF, while "high-achievers" from asynchronous CF (Gaynor, 1981; Roper, 1977). According to Roper (1977), this may be due to the fact that low-achievers do not have enough knowledge and internal processing abilities to find a solution to their problem. Thus, it would be more beneficial to them if their deviation from the target-like form is brought to their attention immediately. On the other hand, high-achievers can contemplate carefully and draw on their own background knowledge and come up with an appropriate solution to the problem at hand.

Heift (2004) refers to various studies (e.g., Bangs, 2002; Felix, 2002) and mentions that "Despite a vast interest in studying the role of corrective feedback in the oral classroom, very little research has been conducted for the Computer-Assisted Language Learning (CALL) environment" (pp. 416-417). Similarly, Sauro (2009) cites various other studies (e.g., Loewen & Erlam, 2006; Sachs & Suh, 2007) and argues that "despite the potential advantages of SCMC for facilitating the noticing and learning of these low salient and difficult forms, research on learning outcomes following computer-mediated corrective feedback is still limited" (p. 96).

Conclusion

In light of the aforementioned studies, it has become evident that corrective feedback, ranging from explicit to implicit, holds great potentialities in language teaching and learning. Of all language skills, writing abilities were shown to benefit most from corrective feedback as the focus is on syntax and accuracy. Oral skills were also shown to improve. Promising grounds have been broken through by the introduction of computer technologies into language learning environments and providing feedback through electronic media has provided a host of pristine searching sphere well worth delving deeper into.

Researchers have sought to provide evidence and plausible answers to the questions proposed by Hendrickson (1978) but they have not yet been successful in drawing a clear picture of different aspects of CF. These five questions on CF have been the basis for most of the ongoing studies in this field. According to Hendrickson (1978), CF generally should aim at answering the following questions:

1. Should learner errors be corrected?
2. If so, when should learner errors be corrected?
3. Which learner errors should be corrected?
4. How should learner errors be corrected?
5. Who should correct learner errors?" (p. 389)

Therefore, corrective feedback provides interested educators and researchers with many aspects for further investigation resulting in a great deal of contribution to the field of language learning and teaching.

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Appendix A

Characteristics of Lyster & Ranta's (1997) Categories of Corrective Feedback

Corrective Feedback Type	Definition	Example(s)	Nature of Error Indicated	Targetlike Reformulation Provided	Elicited Output
Explicit Error Correction	Explicit provision of the targetlike reformulation	You should say visited.	Yes	Provided directly	None or repetition
Metalinguistic Feedback	Comments, information or questions (that may or may not contain metalanguage but do not include the reformulation) related to the ill-formedness of the utterance	There's a mistake. It's past tense. Did you use the past tense?	No Yes Yes	No Provided indirectly through metalinguistic hint at correct reformulation Provided indirectly through metalinguistic question concerning rule governing reformulation	Identification of error and/or reformulation Reformulation Metalinguistic response, yes/no response, or reformulation
Elicitations	A prompt for the learner to reformulate	Try that again. How do we say that in the past tense? Yesterday we ...	No Yes Sometimes	No No No	Reformulation Reformulation Reformulation
Repetitions	Repetition of all or part of the utterance containing the error, often accompanied by a change in intonation	Yesterday we visit my aunt.	Sometimes	No	None or repetition
Recasts	Implicit reformulation of all or part of the learner's utterance	Yesterday we visited my aunt. I visited my aunt last week.	Yes Yes	Reformulation provided Reformulation provided	Repetition Repetition
Translations	Target language translation of unsolicited use of the L1.	***	Yes	Reformulation provided	Repetition
Clarification Requests	An utterance indicating a problem in comprehension, accuracy or both.	Pardon?	No	No	Repetition, reformulation, or meaning elaboration

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Editor's Note: Prepared materials and interactive media provide many opportunities to enrich learning. The simplicity of hyperlinks and the ease of producing testing and revising lesson materials make the Internet the medium of choice for many educational applications. It changes the way we teach, but more importantly it changes the way we – and our students – learn. And by placing more responsibility with the learner, the system becomes flexible and able to support a wider range of learner needs and interests.

The impact of the Webquest instruction system on Iranian intermediate EFL learners' writing performance and perception

Marzie Arsanjani and Esmail Faghih

Iran

Abstract

This study investigates the effectiveness of Webquest instruction system on improving learners' writing performance and perception. For this purpose, 32 Iranian intermediate EFL learners aged 14-17 were randomly assigned to an experimental group receiving Webquest lesson plan, and a control group received traditional writing instruction. The writing pretest was administered to both groups in order to assess the writing proficiency of participants. After the treatment, a writing posttest was administered to evaluate the probable improvement in the writing performance for the experimental group in comparison with the control group. Analysis of the results through two Independent Sample Test revealed that the experimental group outperformed the control group in terms of writing performance. Additionally, results of One-Sample Wilcoxon Signed Rank Test indicated that learners had positive perception of the Webquest writing instruction. Finally, Webquest proved to increase learners' motivation to have more interaction in classroom.

Keywords: Webquest, performance, critical thinking, World Wide Web, computer-assisted language learning, higher-order thinking skill, input, inquiry, peer assistance, constructivism.

Introduction

With the advent of the Internet, new forms of communication emerged. Technology touched every aspect of our lives. It is interesting to make use of World Wide Web as a powerful and innovative tool in the classroom and outside of the class as a home activity. Since the early 1990s, research into computer-mediated communication (CMC) has explored ways in which electronic media can enhance second language learning (Kern & Warschauer, 2000). Today, increased use of the web has changed conditions for communication and learning (Lankshear & Knobel, 2008). Ware and Kramsc (2005,p190) suggest that "Web-based technology has demonstrated promising examples of computer-based learning with the potential to enable language students to interact across geographic, linguistic, and cultural lines". Warschaure (2001) also states that, "CMC or online communication refers to reading, writing and communication via networked computers" (p.207). CMC can be greatly improve writing in English. According to Goodman and Graddol (1996), computer-mediated technologies are mainly associated with written text through English language, leading to direct teacher-student interaction focusing on linguistic accuracy of the learners. Web-based technologies permit us to access information in different ways and create opportunities for students to collaborate and interact.

Webquest Instruction System (WIS)

Among many web-based tools in education, Webquests have become one of the prevailing learning applications. Webquest was first developed by Berine Dodge and Tom March at San Diego State University in February, 1995. According to Dodge (1995, para 3) Webquest is "an inquiry-oriented activity in which most or all of the information used by learners is drawn from

the web. Webquests are designed to use learners' time well, to focus on using information rather than looking for it, and to support the learner's thinking at the level of analysis, synthesis and evaluation."

Barros and Carvalho (2007) state that, Webquest gives students the chances to encounter authentic materials that increase their language writing skills; in addition, it produces opportunities for cooperation and collaboration among groups of learners. It helps students to learn from each other and to improve social skills and critical thinking. Webquests integrate technology into teaching and help students concentrate on how to use and seek information on the Internet. It also helps students to develop autonomy as they perform their work, discuss, share opinions and solve problems.

Webquests consist of authentic and motivating tasks that need students to focus (Dudney, 2003). Webquests improve student motivation by preparing a real life resource and open-ended basic questions. This stimulates more advanced performance by learners and motivates them to search the topic (March, 2003; Strickland, 2005). Torres (2007) states that applying Webquest in learning has a lot of benefits. It increases effective use of time. Students are exposed to different links given by teacher and search for new information in an organized manner. It increases motivation among students and stimulates higher-order thinking. Students are required to read, think, analyze, synthesize, and evaluate by means of Webquest.

Webquest is a system that teachers apply to enhance learning. Learners can use it out of the classroom and have enough time to expand their learning. Generally, Webquest activities include:

1. An introduction that briefly explains an activity and provides background information.
2. A task that provides a feasible and interesting activity for learners to perform.
3. A process that defines the steps for learners to follow to accomplish a task with guidelines on how to organize information. It introduces learners to preselected resources.
4. An evaluation in which student's performance will be assessed.
5. A conclusion which summarizes the teaching goal as a result of completing the activity and that reminds learners of what they have taken into consideration (Dodge, 1995).

Braun (1999) states that middle school teachers can control and use the power of Internet technology and integrate it into their instruction. Loveless (2001) states that the computer can improve students writing skills and can help them to improve their writing. Traditionally, most writing teachers regard writing as a product and emphasize grammatical features of a text. Writing teachers are usually conscious of linguistic knowledge, vocabulary choices, and syntactic patterns (Hyland, 2003).

According to Richards and Renandya (2002), there are highly complex skills in writing and writers should consider higher level skills of planning and organizing as well as lower level skills of spelling, punctuation, word choice. Richards and Renandya (2002) cite Seow (1993) and state that process approach involves four basic stages – planning, drafting, revising, and editing. The stages may not be in this order. In fact many good writers use non-linear approaches. At each stage, writers can go back to earlier stages to make meaning clear.

Webquest can be a powerful tool for web-based learning. Webquest levels of activities are suitable for step-by-step development of the writing process. At the pre-writing stage, students are made familiar with the task or problem at the introduction of web quest lesson plan. This will encourage and provoke students' thought for getting started. Following a given process, students then search preselected internet resources pertinent to the task or problem. At the writing stage, students will analyze and synthesize their findings from internet-linked information. At the post writing stage, students will discuss and share the information through peer review and teacher

feedback. Webquest writing instructions (WWI) construct input, increase interaction, and encourage output. Input, interaction and output are three essential elements for language acquisition. (Chuo, 2007). Input in WWI is from the web resources. Web-based technology engages students in active reading to gain comprehensive input from it (Chapelle, 1997; Pica, Holliday, Lewis, & Morgenthaler, 1998 as cited in Chuo, 2007).

Theoretical background

Webquest system

Webquest is web-based activity based on different learning theories. Webquest is rooted in learner-centered, project-based learning (PBL), inquiry-based and constructivist approach to learning (Hopkins, Moore & Fowler, 2002; Matejka, 2004; Lamb & Teclehaiamanot 2005).

Webquest can be used in all fields of study and with a variety of age groups. Webquest has an important effect on the instructional system (Seamon, 2001; Lipscomb, 2003; Peterson. et al., 2003).

A study conducted by Abbott and Ophus (2008) about the positive and negative impact of Webquest on teaching and learning, categorizes the review of published literature into three general groups:

1. Attitude and perceptions of students: Many studies demonstrate generally positive attitudes and perceptions towards Webquest (Carroll, Legg, & Taylor, 2003; Fox, 1999; Gaskill, Mc Nulty, & Brooks, 2006; Murray, 2006; Tsai, 2006; Santavenere, 2003).
2. Effect on learning content and skills: The study conduct by Tsai (2006) identifies a benefit of using the Webquest model to increase students learning and achievement. In this research, Tsai examines the effect of using Webquest model in an English-as-a-foreign-language program. Learners who used Webquest activites outperformed students who did not work with Webquest in vocabulary performance and story reading performance; however no significant difference was found for thematic reading comprehension.
3. The cognitive issue of Webquest: A study by Kanuka, Routke, and Leflamme (2007), demonstrated that Webquests were better than some other activities at cognitive presence. Popham and Wentworth (2003 studied the cognitive requirements related to problem-solving nature of Webquest and found positive correlation between problem-solving activities and critical thinking.

Technology and Writing: According to Warschauer (2001), the use of networked technology in a second or foreign language course has split the pattern of teacher-centered routing into a more student-centered work setting. The nature of communication via computer writing permits students to promote and examine their views on significant topics related to second language writing.

Electronic writing causes students to pay more attention to the structure of what they are writing and to create more complex language, syntactically enhancing the overall language development (Warschauer, 1999).

According to Williamson Pence (1989), computer tools are effective applications that promote the writing process in all stages. Applying computer in writing noticeably develops the quantity and quality of student writing (Goldberg, Russell, Cook, 2003).

Researches on the use of technology demonstrate that computer tools can enhance collaborative and interactive environment, can foster the writing process and support the social view of learning (Jonassen, 2005).

Practicing the process skills and strategies via collaboration with teachers and peers enables students to become independent writers (Read, 2010).

According to Warren et.al. (2008), without worrying about the type of computer instruction programs teachers in writing instruction, increased educator time on the writing task is an important factor in developing writing performance.

MCGheen & Lew (2007), point out that teacher perceptions and personal view and attitude on how to teach writing can influence the way writing is taught.

Writing skill can be improved by the Webquest instruction system. Students have to solve world related affairs from authentic materials using Webquest. Learners have the opportunity to access authentic language from the web through reading (Murry & Mcpherson, 2004). Webquests provide learners situations to interact and communicate through engagement with real tasks. It opens new instructional opportunities to promote reading and writing skills (Peterson et al, 2003). Instructors who make effective use of technology can make reading and writing more communicative and authentic when they apply the Webquest instruction system (Egbert & Handson Smith, 1999). The study by Chuo (2007) examined the effect of the Webquest writing Instruction on EFL learner's writing performance, writing apprehension, and perception. According to the findings, the use of Webquest instruction program enhanced students' writing performance more than the traditional writing instruction. The students also demonstrated positive perception of the WWI.

Despite the potential advantages of Webquest instruction for enhancing students' development of writing, research on learning outcomes following Webquest instruction in EFL and EFL settings is still limited (e.g., Tsai, 2005; Chuo, 2007).

More research needs to be conducted regarding writing performance through Webquest instruction in foreign language learning contexts.

The Present Study

The present brief review of the related literature reveled that some studies have examined the benefits of Webquest instruction system. Moreover, the number of studies about the effect of Webquest on learning different skills is limited and to the best of my knowledge, no research has been conducted in Iran on the impact of Webquest instruction system, attitude of students toward Webquest, their perception and motivation on Webquest especially in an EFL settings. In order to fill this gap, the present study seeks to answer whether Webquest use have an impact on writing performance of Iranian learners and the following research questions were proposed:

- Q1. Does Webquest instruction system have any significant effect on Iranian intermediate EFL learners' writing performance?
- Q2. Do Iranian intermediate EFL learners have positive perception of Webquest instruction system?

Method

Participants

This research was conducted at Shokohe Enghelab Language Institute in Babol. Participants were selected from intermediate EFL learners aged 14-17. In this experiment, participants of the study were chosen voluntarily and according to their access to the internet out of the class. The participants of this study were randomly selected from among two classes with the total population of 47 students. In order to make sure that the participants were of the same level of proficiency, Nelson English Language Test developed by William S. Fowler and Nelson Coe was

administered prior to the study. Regarding the participants' score on Nelson, the learners whose scores were within one standard deviation above and below the mean in this test were chosen as the participants of the study. Thirty-two participants were randomly allocated to one experimental group and one control group. Experimental group ($N=16$) received Webquest writing instruction program and the control group ($N=16$) received traditional writing instruction. Assignment of the participants to the experimental and control groups were random.

Instruments

The participants of this study were presented with their regular coursebooks. Students in both groups were supposed to have a writing task according to the writing topics of their book every week as a home assignment. In order to conduct this research, the following instruments were used:

1. Writing performance test of Nelson was administered prior to the experiment to make sure that participants were homogenous.
2. The writing performance test consisted of a pretest and posttest in which participants were asked to perform a writing task on a familiar topic. Learners' writing performance was assessed by the researcher and another skillful, experienced EFL teacher. Evaluation of participants' writing was based on the following components according to Teep Attribute Writing Scale (Weir, 1990, Reproduced in Weigle, 2002). (see appendix A)
3. The post-instruction perception questionnaire (Chuo, 2007), was administered for this study. It was administered to measure student perception of web-based learning as an experience in the Webquest writing instruction system (see Appendix B).

Procedure

Data collection was conducted in the following order:

At the beginning of the treatment, the practice test of Nelson was administered in order to determine participants' level of general proficiency and their homogeneity in EFL. Then the writing performance pretest was administered to participants in the control and the experimental groups. The pretest topic was about the advantages and disadvantages of the internet. Students were asked to use specific reasons and examples to support their idea and to write a paragraph with 12-15 sentences in 50 minutes. The control group received traditional classroom writing instruction which focused on the products. According to students' text book, they had some writing exercises in each unit. They were expected to do their writing exercises on a piece of paper and were requested to deliver them to their teacher the next session. The teacher collected, corrected, and brought them back the next session. Then the teacher explained about their errors and gave suggestion about how to write effectively.

The experimental group in addition to writing tasks assigned in their book received the Webquest writing instruction lessons. The researcher integrated appropriate Webquest lesson plans in line with the topic of their book into the syllabus. Four Webquest tasks from Dodge's Matrix of Webquest Examples were adopted at www.Webquest.org and www.academics.uwww.edu and were modified to some extent by the researcher. Each Webquest lesson was implemented for five sessions while students worked collaboratively in a group of four. They were discussed with the other groups and expanded their ideas. Peer feedback and teacher review were presented at class. The six attributes of Webquest activity were adopted for each lesson plan. In the first week, instructor introduced the topic at the introduction part of the Webquest and gained students attention at the prewriting stage. For example one of the Webquest's topic was "Save your sport". (see Appendix C). Then instructor introduced the activity, task, or problem and activated the students' background knowledge. Students were assigned to a group of four and their roles were allocated in each group. For example, students' task was to create a brochure that highlighted the

physical, social, and emotional benefits of the selected sport. Then students searched pre-selected internet resources related to the topic and in the next session they discussed difficulties and problems encountered while searching. The teacher helped them to compile and analyze information. For example, they discussed the origins of their favorite sport like football and physical and mental benefits of playing it. Then, at the writing stage, students completed the task. They analyzed and synthesized what they had understood from the information gathered from the internet resources and conveyed it into a written assignments. Next, at the post-writing stage, students shared their written products and gave feedback and suggestion on each other's task through peer review and revision. The teacher also gave feedback to their writing at the website and evaluated their task through the rubrics on evaluation part of the Webquest. Each Webquest activity lasted five session. Four Webquest lesson plans were conducted during 21 sessions. In fact, this is the regular length of the whole quarter at the Language Institute.

A sample written task by a participant of experimental group:

Football or soccer is very famous sport in the world. The origins of football can be seen in China, Japan, Egypt, and Greece. Modern football game developed in England. There are two teams of eleven players. The game last 90 minutes. Players need good strength and power.

There are some physical and mental benefits of playing football; for example, they reduce high blood pressure and high cholesterol. They also control body weight and diabetes. In addition, playing football are good for mental well-being. They reduce anxiety and increase your personality. They make you happy and generate a positive energy in you.

Playing football involves winning and losing. Children need to know both aspects of life. They learn how to communicate with each other as a team. There are a lot of advantageous of playing football, so go and play it today.

At the end of the treatment, the writing performance post-test was administered to participants in both groups. The post-instruction perception questionnaire was also administered to the experimental group who received the web quest instruction.

Results and discussion

In order to analyze the data to check the null hypothesis one, first the descriptive statistics of participants' writing performances of the two control and experimental groups at pretest (see Table 1), and at posttest (see Table 2) on Writing Test by the two raters were computed.

Table 1
Descriptive statistics of two group's writing scores at pretest

Group	N	Range	Min.	Max.	Mean	SD	Variance
Control R1	16	4	11	15	12.75	1.390	1.933
Control R2	16	4	11	15	13.00	1.033	1.067
Experimental R1	16	3	12	15	13.13	1.147	1.317
Experimental R2	16	3	12	15	13.13	.957	.917

Table 2
Descriptive statistics of two group's writing scores at posttest

Group	N	Range	Min.	Max.	Mean	SD	Variance
Control R1	16	4	12	16	13.56	1.031	1.063
Control R2	16	4	12	16	13.81	.981	.963
Experimental R1	16	6	12	18	14.81	1.424	2.029
Experimental R2	16	4	13	17	15.06	1.063	1.129

Independent Samples Test was used to compare the mean writing score of two groups at both pretest and posttest. The results of Independent Sample Test at pretest are set forth in Table 3.

Levene's Test in Table 3 reveal that the assumption of equal of variances was verified since the Sig., .60 was greater than .05.

Table 3
Independent samples test to compare control and experimental groups' writing scores at pretest

Levene's test for variances			T-test for means			
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.
Equal variance assumed	.272	.606	-.641	30	.526	-.250

Independent Samples Test (Table 3) indicated that there was no statistically significant difference in writing scores between the two groups at pretest with ($t = -.641$, $p = .52$, $p > .05$), in which the t-observed, .641 was lower than the t-critical, 2.02, and the p value, .52 was higher than .05.

The results of Independent Sample Test to compare the writing mean score of the two groups at posttest are manifested in Table 4

Levene's Test in Table 4 shows that the assumption of equal of variances was proved because the Sig., .74 was more than .05.

Table 4
Independent samples test to compare control and experimental groups' writing scores at posttest

Levene's Test for Variances			T-test for Means			
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.
Equal variance assumed	.106	.747	-3.189	30	.003	-1.250

Independent Samples Test results in Table 4 indicate that there was a statistically significant difference in writing scores between the two control and experimental groups with ($t = -3.18$, $p = .003$, $p < .05$), in which the t-observed, 3.18 was greater than the t-critical, 2.02, and the p value, .003 was less than .05; Consequently, it can be claimed that here is a statistically significant difference between writing skill of Intermediate Iranian EFL learners who were taught

by teachers with control and experimental groups. In fact, the students in the experimental group exceeded those in control group with the mean difference (gained score) of 1.25.

In order to analyze the data to test the second question, the normal curve of the perception scores and their frequency of the participants obtained on Webquest perception questionnaire are displayed in Figure 1 below.

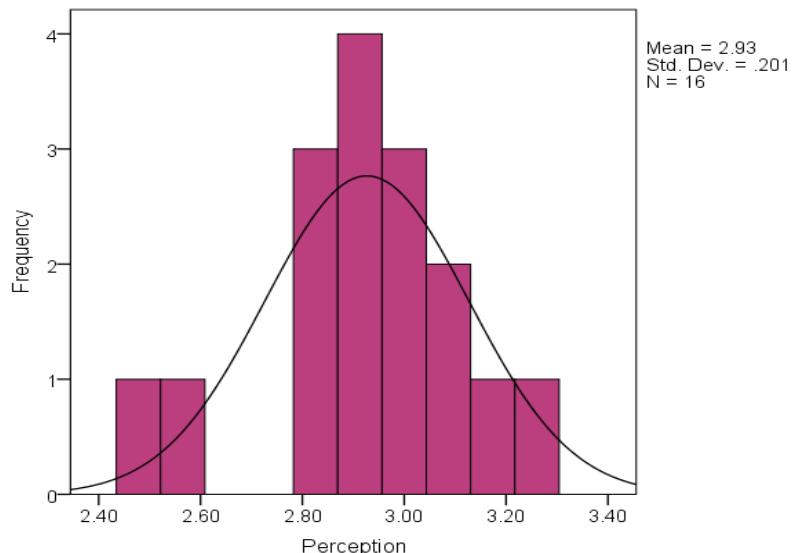


Figure 1 Participants' perception scores of web quest writing instruction

Nonparametric One-Sample Wilcoxon Signed Rank Test was used to test the second question of the present study. Table 5 present the results of this analysis.

Table 5
Nonparametric One-Sample Wilcoxon Signed Rank Test

Null Hypothesis	Test	Sig. (2-tailed)
1. The median of Perception equals 2.500	One-Sample Wilcoxon Signed Rank Test	.001

Asymtotic significances are displayed. The significance level is .05

One-Sample Wilcoxon Signed Rank Test results revealed the p value of .000 which is less than the selected significant level in this study, .05 ($p = .001, p < .05$): and we can claim that Iranian intermediate EFL learners have positive perception of the Webquest writing instruction program.

Conclusion

The current study was conducted to investigate the effect of Webquest instruction system on Iranian intermediate EFL learners' writing performance and perception. On the basis of the results, it became evident that the Webquest instruction system had significant effect on learner's writing performance and perception. Students who worked with Webquest gained significantly higher scores in writing performance than the students in the traditional writing classroom. Both the findings of the present study and teacher's view demonstrated that those students who worked with the Webquest were more active than students in traditional classroom. In addition, it is suggested that teachers can use Webquest instruction system in their courses in order to have an effective student-centered learning environment. As teachers observed, Webquest offered good

internet based language learning opportunities because they provide learners with exposure to authentic materials, and possibilities for real communication in the target language. However, some limitations are attributed to this study. First, the sample size in this study was relatively small ($N= 32$). Larger samples may provide different results. Second, the proficiency level of the participants was intermediate, and it is possible that learners of higher proficiency would have performed differently. Finally, the effect of Webquest instruction system in students' writing abilities in this study was investigated. Further research can be conducted to develop other language skills such as reading or language components like grammar and vocabulary.

In conclusion, despite these limitations, it is hoped that the findings of this study provide further guidelines to teachers and researchers with the aim of gaining more comprehensive insights about computer technologies in a pedagogical environment and support the needs and requirements of English language learners.

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Appendix A
TEEP Attribute Writing Scales
(Weir, 1990, reproduced in Weigle, 2002)

A. Relevance and adequacy of content

0. The answer bears almost no relation to the task set. Totally inadequate answer.
1. Answer of limited relevance to the task set. Possibly major gaps in treatment of topic and/or pointless repetition.
2. For the most part answers the tasks set, though there may be some gaps or redundant information.
3. Relevant and adequate answer to the task set.

B. Compositional organization

0. No apparent organization of the content.
1. Very little organization of content. Underlying structure not sufficiently controlled.
2. Some organizational skills in evidence, but not adequately controlled.
3. Overall shape and internal pattern clear. Organizational skills adequately controlled.

C. Cohesion

0. Cohesion almost totally absent. Writing so fragmentary that comprehension of the intended communication is virtually impossible.
1. Unsatisfactory cohesion may cause difficulty in comprehension of most of the intended communication.
2. For the most part satisfactory cohesion although occasional deficiencies may mean that certain parts of the communication are not always effective.
3. Satisfactory use of cohesion resulting in effective communication.

D. Adequacy of vocabulary for purpose.

0. Vocabulary inadequate even for the most basic parts of the intended communication.
1. Frequent inadequacies in vocabulary for the task. Perhaps frequent lexical inappropriacies and/or repetition.
2. Some inadequacies in vocabulary for the task. Perhaps some lexical inappropriacies and/or circumlocution.
3. Almost no inadequacies in vocabulary for the task. Only rare inappropriacies and/or circumlocution.

E. Grammar

0. Almost all grammatical patterns inadequate.
1. Frequent grammatical inaccuracies.
2. Some grammatical inaccuracies.
3. Almost no grammatical inaccuracies.

F. Mechanical accuracy I (punctuation)

0. Ignorance of conventions of punctuation.
1. Low standard of accuracy in punctuation.
2. Some inaccuracies in punctuation.
3. Almost no inaccuracies in punctuation.

G. Mechanical accuracy II (spelling)

0. Almost all spelling inaccurate.
1. Low standard of accuracy in spelling.
2. Some inaccuracies in spelling.
3. Almost no inaccuracies in spelling

Total (21 marks, approximately 20)

Appendix B

Post Instruction Perception Questionnaire (Chuo, 2007)

Part I

Directions: Below are 23 statements concerning how you feel about the WebQuest writing class. Please indicate the degree to each statement applies to you by circling whether you (1) strongly disagree (2) disagree (3) agree (4) strongly agree. Please take your time to answer the questionnaire and try to be as honest as possible. Thank you for your cooperation in this matter.

1. My English writing skills improved as a result of the WQWI. 1 2 3 4
2. My English reading skills improved as a result of the WQWI. 1 2 3 4
3. My choice of words in English writing improved as a result of the WQWI. 1 2 3 4
4. My organization in English writing improved as a result of the WQWI. 1 2 3 4
5. My content in English writing improved as a result of the WQWI. 1 2 3 4
6. My grammar accuracy in English writing improved as a result of the WQWI. 1 2 3 4
7. The web materials provided by the WQWI were appropriate to my English proficiency level. 1 2 3 4
8. The WQWI offered more updated content than printed materials in traditional classroom writing instruction. 1 2 3 4
9. The WQWI offered more varied content than printed materials in traditional classroom writing instruction. 1 2 3 4
10. The writing tasks in the WQWI related to my real-life experiences. 1 2 3 4
11. Collaborative writing in the WQWI was helpful for my writing. 1 2 3 4
12. I had plenty of interaction with my classmates in the WQWI. 1 2 3 4
13. I had plenty of interaction with my instructor in the WQWI. 1 2 3 4
14. The WQWI was helpful for me to generate ideas for writing. 1 2 3 4
15. I enjoyed the WQWI. 1 2 3 4
16. I prefer traditional writing instruction to the WQWI. 1 2 3 4
17. I would like to take another English course that has a web component, such as the WQWI. 1 2 3 4
18. The WQWI was more interesting because of the web use. 1 2 3 4
19. I frequently came across technical difficulties in using the web in the WQWI. 1 2 3 4
20. Lack of access to networked computers impeded my writing activities in the WQWI. 1 2 3 4
21. I felt nervous using web technology for English learning. 1 2 3 4
22. I felt fear using web technology for English learning. 1 2 3 4
23. I was not accustomed to using web technology for language learning. 1 2 3 4

Appendix C

Save your sport

by Lorna Maudslay, Lamar University

Introduction

Sports are very popular all around the world. They can be played for fun, competition, and at the highest level can be played for a living. People not only play sports to lead an active, healthy lifestyle but also enjoy being a sport spectator. However, several people dismiss the importance of sports. It's your job to prove them wrong.

Save your sport!

Task

With many people undermining the importance of sports, and many people advocating for physical education to be removed from the curriculum, it is your task to prove the importance of sports.

In simple terms, 'Save your Sport'

So, your task is to create a brochure that highlights the physical, social and emotional benefits that your sport provides. In order to provide the reader with some background knowledge of your sport you should include information pertaining to the history and the rules of the sport. You should also find a professional athlete that represents your sport and include their picture on your brochure.

'On your marks, get set, GO!'

Process

Where to start?

Firstly, you'll need to pick the sport that you wish to save. This can be selected from the following website:

Select your sport

Next

You'll need to find some information about the history and the rules of your chosen sport.

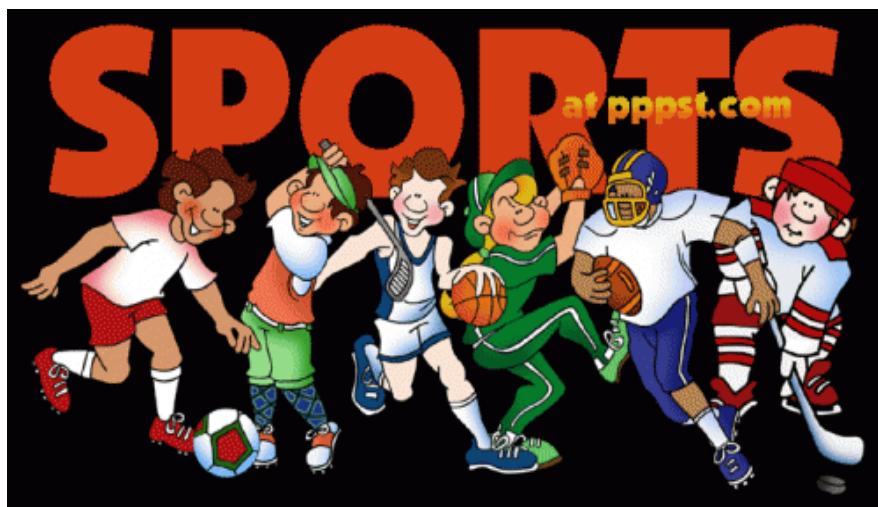
After you have established the rules and history of your sport, you need to select some of the health, social and emotional benefits of playing your sport. Here are a few examples of websites that you can use.

1. Health Benefits, Physical Benefits of Sport Emotional Benefits
2. Emotional Benefits
3. Social Butterflies

You will then find a professional athlete that represents your sport and include their picture to your brochure.

Finally

- you are one step away from the finish line. In order to finish the race you will compress all the information that you have found and organize the information into a brochure that advertises your sport.



Evaluation

This is how your work will be evaluated.

	Beginning 1	Developing 2	Qualified 3	Exemplary 4	Score
Overall Effort	The brochure was turned in with some parts incomplete or missing.	The brochure was completed to a satisfactory level.	The brochure was completed to a good standard showing most of the requirements.	The brochure was completed to a high standard, and included all stated requirements	
Spelling and Grammar	Spelling and grammar errors distracted readers from focusing on the content.	Multiple but subtle spelling and grammar mistakes were made.	Only a handful of spelling mistakes and grammatical errors were present.	Contains few if any spelling mistakes and grammatical errors.	
Brochure Components	Contains none of the requirements listed.	Contains at least 2 of the requirements listed.	Contains 3 of the listed requirements in the brochure.	Contains all of the listed requirements in the brochure.	
Includes Historical Information and Rules of the Game	Information pertaining to the rules and history of the game is missing or incomplete.	Information pertaining to the rules and history of the game is present but brief.	Information pertaining to the rules and history of the game is clear and precise.	Information pertaining to rules and history of the game is clear and detailed, and in a format presentable to the readers.	
Benefits of Sports	None of the required benefits are listed.	Either Physical, Social, or Emotional benefits are listed but not all.	All benefits are listed and briefly explained.	All physical, emotional and social benefits of the sports are described and clearly explained.	
Brochure Design	The brochure has little or no structure.	The brochure shows an attempted design and sequence.	The brochure has a clear design but sometime lacks a sequential element.	Brochure has a clear and inviting design, and follows a highly organized sequence.	

Conclusion

Now that you have completed your brochure and studied your sport, you should have a clearer idea of the history and the rules that govern your sport.

However, most importantly you should now know the key physical, emotional, and social benefits of sport, and hopefully this will encourage you to sustain or even increase your participation level.



Click here to give feedback to the author

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