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THE USE OF DISRUPTIVE NET-BASED TOOLS TO RE-IMAGINE THE TEACHING OF BUSINESS COMMUNICATION: EMERGED AND EMERGING OPPORTUNITIES

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ABSTRACT

This paper addresses issues of the digital revolution and the use of emerged and emerging digital tools in the teaching of business communication. Within the context of The Red Balloon Project, a national initiative of the American Association of State Colleges and Universities (AASCU) to re-imagine and then to redesign undergraduate education for the 21st century, the paper explores a) web-based technology; b) the Open Education/Sharing Movement; and c) collaborative peer production communities. Student-generated You-Tube videos, Prezi, Lino, and instructor-generated mobile apps are explored. Research questions based in the emerging discipline of Media Ecology are proposed.

Key Words: Red Balloon Project, web-based technology, You-Tube videos, Prezi, Lino, apps, Media Ecology

INTRODUCTION

Writing in Wired magazine, Gary Wolf noted that: "…the advent of the new digital media has brought the conditions of the old technologies into sharper relief, and made us suddenly conscious of our media environment. In the confusion of the digital revolution, McLuhan is relevant again." http://www.wired.com/wired/archive/4.01/saint.marshal_pr.html

This paper will address the issues of the digital revolution and will open a dialog on the use of emerged and emerging digital tools in the teaching of business communication.

Educational institutions are preparing learners for employment opportunities which do not yet exist, using digital tools not yet invented. The Red Balloon Project, a national initiative of the American Association of State Colleges and Universities (AASCU) to re-imagine and then to

redesign undergraduate education for the 21st century, establishes two goals relative to this paper: a) Utilize educational technologies to better engage students in authentic learning experiences more aligned with the ways that knowledge is being generated, aggregated, and disseminated in an age of networked knowledge; and b) provide students with the knowledge, skills, and abilities they will need to become successful participants in careers, engaged citizens in a democracy, and thoughtful leaders in the global society of the 21st century.

The disruptions brought about through digital technology have altered society in general: how we communicate individually and organizationally as well as societal expectations about time, speed, skills and education. Just as the printing press forced society to re-imagine how knowledge was disseminated and eventually ushered in vast societal and political change, these emerged and emerging tools of the Digital Age require a re-imagining of higher education: the vision and mission, structural organization, delivery modes, to name a few impacted areas.

Institutions and professional educators are challenged with three major emerging and emerged disruptions that enable both Red Balloon Project goals cited above: a) web based technology; b) the Open Education/Sharing Movement; and c) collaborative peer production communities. All these disruptive tools are enabled by technology and technology has historically brought about great environmental change. The inventions of stone and cuneiform, papyrus, paper, the printing press, the steamboat, the railroads etc., changed the course of history and civilizations economically, socially, and spiritually (Innis, 1951).

This paper will demonstrate instructional use of these emerged and emerging technologies that have changed and are changing our contemporary society. Instructional use of these digital tools prepares learners to work in a Wikinomics, churning workforce and community to master the white surf of turbulent change. With these competencies, and familiarity with an emerging shift in the focus on how work is performed, learners will better be prepared for the competitive marketplace. There is very little current qualitative or quantitative research in the tools described in this paper. The paper concludes with suggested specific research agendas related to the practical use of the tools and to a higher level, media ecology: the study of how tools, ideas, technologies etc., change society.

DIFFUSION OF INNOVATION: RE-IMAGING EDUCATION

Rogers (1995) defines diffusion as the process by which "an innovation is communicated through certain channels over time among members of a social system. It is a special type of communication, in that the messages are concerned with new ideas" (p. 5). Clearly the innovations described in this paper are in the early stages of awareness, knowledge, skill, and mastery. As will be noted there is little to no qualitative or quantitative studies to support their use. Friesen (2011) argues that these tools are extensions of the lecture, now enabled by changing technology: "The lecture, in short, transforms the artifact of the text into an event- an event in which the text is brought into conversational relationship with the audience and with the present" (p. 100). Friesen cites Prezi, VoiceThread, and You Tube as presenting many opportunities to transform lectures in new "fresh talk" ways. This paper argues that these "fresh talk" technologies enable collaborations in learning environments in innovative ways that assist in the "re-imagining of education."

Disruption 1: Web-Based Technology

We live in an age of flux and ambiguity as noted in *Wikinomics: How Mass Collaboration Changes Everything*: "…the quickening pace and deep consequences of

globalization for innovation and wealth creation are not fully understood" (Tapscott & Williams, 2006, p. 28). In fact, we are past the tipping point: "Mass collaborations are changing how goods and services are invented, produced, marketed, and distributed" (p. 10). The consequences are not yet fully understood due to rapid, never pausing change and the fact that the internet has become a de-stabilizing force for business and institutions of learning. Historically businesses adapt or fail. However, until recently, institutions of higher education have avoided what Christensen and Eyring (2011) call *competitive disruption*. Today, however, education is faced with disruptive technologies, technology impacts that incoming freshman are more than familiar with and which educators should be aware of in order to maintain legitimacy with their students and parents, their customers, and their overall stakeholder community.

Disruptions 2 and 3: The Open Education/Sharing Movement and Collaborative Peer Production Communities

The Open Education/Sharing Movement tells us to share intellectual property to professionally grow quickly with colleague feedback via wikis and blogs and offer just-in-time opportunities to learners. (Weller, 2011) Creative Commons challenges the concept of copyright while "the CEO of Skype states: The idea of charging for the telephone call belongs to the last century" (Tapscott and Williams, 2006, p. 27). Tapscott and Williams build on the concept of network programming, and argue that a second force disrupting the status quo is peering, peer production communities "where the basic rules of operation are about as different from a corporate command and control hierarchy as the latter was from the feudal craft shop of the preindustrial economy" (p. 25).

Tim Berners-Lee, inventor of the web, commented: "I have always imagined the information space as something to which everyone has immediate and intuitive access, and not just to browse, but to create" (2000, p. 216). Rosen (2006) refers to collaborative peer production communities as the "people formerly known as the audience." (http://archive.pressthink.org/2006/06/27/ppl_frmr.html)

The blog has given the printing press to the former audience. New forms of participation have been created: "Web 2.0 allows customization, personalization, and rich opportunities for networking and collaboration" (Bryant, 2006, p 62).

SOCIETAL AND BUSINESS IMPACTS OF DISRUPTIONS

Marshall McLuhan, the Canadian communications philosopher/theorist, argued that the medium, be it an idea, tool, machine, or technology, is a change agent in our perception of the world. Medium is also an extension of our body or mind: "…clothing extends skin, housing extends the body's heat regulating mechanism. The stirrup, the bicycle, and the car are extensions of the human foot" (McLuhan, 1964, xiv). McLuhan was not referring to the medium as mass communication, and in his day mass communication was via radio and the early development of television. A medium is, to McLuhan, a side effect of technology: "it consists of all the psychic and social adjustments that its users and their society undergo when they adopt the new form. It is the 'message' sent by the new technology; so 'the medium is the message" (McLuhan, 1964, p. 564).

McLuhan's discussion of the impact of the railroad is similar to the impact of the digital tools discussed in this paper: "The railroad radically altered the personal outlooks and patterns of social interdependence. It bred and nurtured the American Dream. It created totally new urban,

society, and family worlds. New ways of work. New ways of management. New legislation" (McLuhan, 1964, p. 72).

The writer believes that the message, the social and educational disruptive impact created by the digital tools described in this paper, has, like the railroad, radically altered personal outlooks of the definition of social interdependence. They have created totally new learning and business tools requiring new skills sets. Facebook has redefined a "family world" and the digital age has generated new ways of how to learn, work, manage, and legislate. They enable virtual collaboration across borders, time zones, cultures and languages both in education and in business. This ability has forced organizations, including educational institutions, to stop looking through the rear view mirror of the unfolded past and to re-imagine and then to redesign undergraduate education for the 21st century. In fact, McLuhan and Fiore (1967) added that "When faced with a totally new situation, we tend to always attach ourselves to the …flavor of the most recent past. We look at the present through a rear-view mirror" (pp. 74-75). A trainer at the Cargill grain elevator in Salina, Kansas now has the tools to collaborate with fellow trainers across the globe in highly interactive fashion, as indicated by McLuhan and Fiore: "Time has ceased', 'space' has vanished. We now live in a global village…a simultaneous happening...Because of electric speed, we can no longer wait and see. George Washington once remarked, 'We haven't heard from Benjamin Franklin in Paris this year. We should write him a letter'" (McLuhan & Fiore, 1967, p. 63).

The odds are strong that these emerged and emerging tools, sharing and peer production communities, which are so disruptive to the status quo of lecture, PowerPoint, and "sage on the stage" mental models, will continue to rapidly expand global net collaboration and create business solutions through virtual teams who have informally learned the basic digital tools before they entered higher education. Learners born with a cell phone in their hands expect instructors to be at least aware of the communication tools they use daily. As Jose Bowen (2012) noted in *Teaching Naked- How Moving Technology Out of Your College Classroom Will Improve Student Learning*, "Now, our constant connectivity with other people regardless of physical distance has become an indispensable part of our lives, but it has also redefined community" (p. 24). The medium of digital communication has changed our society – expectations on speed of response and independence in accessing information anytime and anywhere. Bowen added:

Teaching is about making connections, and first thing we need to do is connect with our students. Relevance and credible analogies are critical for good teaching; being unable to understand a fundamental premise of your student' lives will make it harder for you to teach and related to them (p. 30).

INTO THE LEARNING EXPERIENCE AND LESSONS LEARNED

This section will share lessons learned from the classroom use of four existing net-based tools allowing for individually created video with viewer response features (YouTube), a net-based presentation tool (Prezi), and Lino, a tool that allows the use of written narrative, and sound and files video files. These tools meet the Red Balloon Project criteria of utilizing technologies to engage online students in authentic learning experiences aligned with Digital Age. The paper then presents the case for a new, and now emerging, disruptive technology: instructor generated iPhone and Android apps aimed at the lifestyle and preferences of digital nomads, those who have their phones 24/7/365, enabling learning literally anytime and anywhere.

Existing Opportunity 1: Learner-Generated YouTubes

Much literature exists on faculty generated YouTubes, especially in light of the flipped classroom movement. There is little research currently published on the use of student-generated YouTube videos. There are a few of publications describing classroom use.

Frydenberg (2006), in describing classroom use, has written on students creating group and pair production of video podcasts to teach course topics to peers. Frydenberg reports:
Earlier podcasts that they created showed students sitting in their dorm rooms facing a particular topic or summarizing steps for a procedure that they learned in class on their particular day. As the semester progressed, students engaged in moments of discovery as they viewed the podcasts that their classmates had created. Often their classmates' work served as examples to refine and improve their own processes for creating video podcasts (p. 5).

Kearney and Schuck (2009) reported on a learning design for student-generated digital storytelling and reports on teacher strategies and peer learning structures. Digital story telling tasks are a "valuable, transformative tool for learning in a range of curriculum and discipline contexts" (Kearney, p. 29).

Sherer and Shea (2011) described three types of assignments for the instructional use of videos: listening and writing about current YouTube uploads, collecting and archiving existing YouTube videos, and student production of videos podcasts uploaded to wikis, a web site, or YouTube.

Keisen (2009) reported on the use of YouTube as supplementary learning materials in Teaching English as a Foreign Language in Taiwan. Keisen concluded that some students highlighted the importance of providing clear explanations regarding how to use this learning tool effectively" (p. 1).

Ludewig (2001) reported on the use of student-generated iMoves in the teaching of German: "All of the above make the iMovie project learner-centered and divert the control over the material from the teacher to the learner who must actively construct their learning around the given task" (p. 12).

Benedict and Pence (2012) focus on the use of student-created videos in the teaching of chemistry. "Students were given a week to find time to go into a prepared laboratory, videotape an instrument or performing s titration, edit the video, and then upload it to YouTube" (p. 493). They combined their study with the use of smart phones and barcodes on worksheets: "When a barcode (Quick Response Code or QR code) is added to a piece of paper, the paper becomes a smart object, which is clickable as a web page when viewed with a smartphone" (Benedict & Pence, 2012, p. 494).

A virtual course at Fort Hays State University, Business Communication 301, requires learner teams to create a set of YouTube videos to support and expand on a research paper and topic. The overwhelming majority of course participants are non-traditional and work full time, ranging in age from the 20s to the 50s. The majority are female. Participants are given a choice of topics under the assumption that adults value choice (Caffarella, 2002 p. 29). Learner buy-in is achieved by communicating three points. Videos: (a) substitute for face-to-face presentations on campus; (b) provide experience in technology; and (c) replicate video conferences, cost saving business tools.

<u>Lessons learned from learner-generated YouTube videos:</u> (a) it appears that a small team made up of three works best as online learners are able to more easily make time to engage with

teammates. Skype is the tool of choice. Other means of communication include email, texting, VOIP conference calls, and project Facebook pages which are taken down at the end of the course. The instructor is made a member of the Facebook team in order to follow the process; (b) a YouTube link is provided on how to create a channel and video and also how to upload. The expectation was push back and that learners would have difficulty in the process. However, this has not been the case. The most common issues are around the type of web cam to purchase. Participants are encouraged to purchase a microphone to ensure acceptable sound recording. Learners are reminded to look into the camera and to review the final product. Production quality is a communication process; and (c) in order to ensure that the final set of three videos form a cohesive whole, directions are provided as follows: Team member A introduces him or herself, provides the names of the other team members as well as the title of the topics, and then address the information they are presenting. At the conclusion, students are to introduce the next team member and what the team member will address. Team member B provides an introduction and presents his or her information, and at the conclusion of the segment introduces the next speaker. The final speaker ends with a brief summary of what they have shared as a whole.

Existing Opportunity 2: Prezi

As with learner-generated YouTubes, there is minimal literature available relative to the use of Prezi, and it appears that at this time no qualitative or qualitative research exists.

Yee and Hargis (2010) describe Prezi and conclude that Prezi "represents the first step toward other visual tools that are not, strictly speaking, presentations at all, but may find uses in the classroom" (p.10).

Perron and Stearns (2011) indicated that because Prezi is relatively new, it "is still unfamiliar to researchers and educators, especially in the field of social work. However, it has tremendous promise for communicating information and ideas in both research and educational settings" (p. 376).

In the aforementioned Fort Hays State University BCOM 301 course, participants are assigned a reading and then are offered a set of activities from which to select. A team-created Prezi, often called the zooming PowerPoint, is one option. Settle, Abrams, and Baker (2011) describe Prezi as follows: "Prezi is an online Adobe Flash-based presentation program….Prezi presentations exist on a canvas. The presentation is navigated by zooming in and out of different points on the canvas, as needed by the presenter" (p. 105). Prezi also allows for team collaboration, similar to Google Docs. http://prezi.com/learn/invite-others-collaborate/. In the following Screencast-o-matic, the author created to provide feedback to a class entitled *Prezi--Moving from Good to Great*, http://www.screencast-o-matic.com/watch/clQ2ruL8T. The following is a link to an in-class learner-created Prezi indicating an activity which was to view a selected TEDTalk and to relate the talk to the text book chapter: http://prezi.com/kfmcz5vvrkq1/true-power/ (Anderson, 2012).

Lessons learned from the use of Prezi: (a) learner-generated Prezis are used in both virtual and face-to-face classes, both as team efforts and as individual work. The digital native generation requires little orientation to the tool. Teams collaboratively engage and intuitively make guesses and take risks in order to figure the tool out. Thus, the tools foster analytical thinking, risk taking and collaboration, critical skills required in the work place. In addition, there is a free Prezi Viewer application on iTunes for the iPhone and iPad, http://itunes.apple.com/us/app/prezi-viewer/id407759942?mt=8. Again, this meets the needs of the digital nomad generation with

mobile devices; (b) as with PowerPoint, learners have to work with a font size that is readable at the back of the room; avoid color clashes that make the font unreadable; and avoid reading the Prezi to the audience; (c) learner-presented Prezis provide an opportunity for the instructor or facilitator to deliver an impromptu lecture developing the concepts presented by learners.

Existing Opportunity 3: VoiceThread

As with learner generated YouTube and Prezi, the writer could not find any research on this tool. While reports are published on classroom use of student-generated YouTube and Prezi, the researcher could not locate any descriptions of the instructional use of VoiceThread. VoiceThread, or conversation in the clouds, allows learners to communicate with voice or video, building on what others have said. It has also become a business tool allowing users to engage in a virtual dialogue across time zones (http://vimeo.com/46457367).

The site http://voicethread.wistia.com/projects/b19a266909 offers a number of webinars for instructors. Again, meeting the needs of the digital native/nomad generation, there also is a mobile application for iPhone, iPad, and the iPod touch, http://itunes.apple.com/us/app/voicethread/id465159110?ls=1&mt=8. Users post audio or video comments, responding to the instructor or fellow students, in a "thread-like" manner.

Lessons learned for VoiceThread: a) as with a Prezi, learners required little instruction in use of the tool; b) virtual learners uniformly commented that VoiceThreading united the class via a feeling of being connected, hearing and seeing both the instructor and other learners; and c) there were ample existing videos online for self-directed learning. At the time this paper was first drafted in October, 2012, a Vimeo search yielded 276 videos on the use of VoiceThread https://vimeo.com/search?q=VoiceThread.

Existing Opportunity 4: Lino

As with the other tools, the writer is unable to unearth any peer reviewed research on this tool. http://en.linoit.com/

Lino is both a website and a free iOS productivity app created by Japan-based Inforteria Corporation, founded in 1998. (A beta version Android app is now available.) The company describes Lino as a "Sticky" canvas and photo sharing site.

The site appears as a corkboard where users can post "stickies" (Post-It notes) of colors of their choice. The Post-It notes can contain a range of audio and visual information--written notes with comments/ideas, photos, and links to documents, websites and sound or video files. Lino is a virtual version of the face-to-face business process of using Post-It notes to visually lay out a process or concept at a business team meeting.

The Summer Institute on Distance Learning and Instructional Technology (SIDLIT) is a professional organization in Kansas that organizes one summer program and two "Colleague to Colleague" (C2) events annually. The steering committee uses this cloud-based tool for visual planning purposes: http://c2conline.org/sidlit/about.

The Fall 2012 C2C event had a large screen with a projected event Lino "canvas." Participants actively and continually posted stickies with links, videos, photos and comments as the day progressed: http://c2conline.org/fall/2012.

The writer uses Lino as a course event organizer to support online classes and class conference calls. The topic is "What are your aha moments thus far in this class?" Learners populate the canvas in advance and Lino provided the varied visual input conference calls lack.

Lessons Learned for Lino: Given the lack of publications on Lino, it appears this tool not well known, even in the "popular" literature. The writer intends to integrate it into team activities in both virtual and face-to-face class in business communication classes. Learners in both environments will be offered the opportunity to use Lino as a project "report out" presentation tool.

Emerging Opportunity: Faculty-Generated Mobile Web Apps

There are currently two types of apps: native and mobile web. A native app is an application for a specific mobile device and is installed directly onto the device. These apps are traditionally available, free or for cost, at an iPhone (iOS) or Android online store. A mobile web app is an Internet-enabled app that is accessed from the mobile device's web browser, such as Safari on an iPhone. The site is then bookmarked on the phone for rapid access (Mudge. 2012). This paper addresses the development of mobile web apps because they are free and are relatively easy to create and do not require specialized IT skills.

A comprehensive literature review of faculty-developed apps to support the teaching of business communication, or any field, does not yield any research. Smart phone apps do exist for instructor transactional functions, such as taking attendance. An example of such an instructor-generated transactional and native app is one created by David M. Reed, Professor of Computer Science Department of Mathematics, Computer Science, and Physics Capital University. According to the Young (2011) writing in the Chronicle of Higher Education:

He couldn't find any software to keep those paper check marks on a smartphone, so he wrote his own app about two years ago, in a two-week burst of coding. He called his task-specific app Attendance and put it on the iTunes store for other professors, charging a couple of bucks (and adding features as colleagues suggested them). So far he has earned about $20,000 from the more than 7,500 people who have virtually shouted "Here." Several professors said their favorite feature of the app (which now sells for $4.99) is a flashcard function that helps them learn the names of their students. It literally puts names to faces, if professors add photos supplied by the college. Some professors take pictures of their students on the first day of class and put them in the app. An iPad version takes advantage of the larger screen of Apple's tablet computer. http://chronicle.com/article/6-Top-Smartphone-Apps-to/125764/

Sibley and McKethan (2012) describe smart device programs for school health and physical education programs. Sibley and McKethan describe uses of these native for exercise prescription/workout logs, including videos and pictures. Some apps also include social networking tools allowing social support.

In order to support Fort Hays State University Business Communication classes, the author and Graduate Assistant Frederick Arnipiger, developed an app, "NextGenLearning." The tool was developed on wix.com. The app is then bookmarked on the smartphone for fast access. As noted on the app, "Welcome to my experimental app. I am developing a mobile information delivery system that meets the needs of learners in Business Communication courses. Bookmark the site on your iPhone or Droid mobile and you will have access anytime-anywhere." The site currently has four features--Twitter, the author's feed; YouTube, providing direct access to the author's YouTube business communication channel; SlideShare, with a direct link to the author's work; a 'call me' feature for those that require immediate assistance; and a 'click to text' feature. Twitter provides links to relevant articles, photos, and sound files and learners are expected to

discuss the links in class. The YouTube channel, "storiesfromthefield," provides short anecdotal stories from the author's work experience related to course topics and/or textbook.

WHAT ARE SOME DISRUPTIVE NEXT STEPS IN THE USE OF APPS?

The author of this paper argues that instructor-generated smart phone apps will lead to student-created smart phone apps as well as faculty-developed iPad apps for specific courses. The forces of intuitive learning, the open education movement, collaboration and free app and web development sites will lead to timely, current event-based themes and assignments such as "Use X site. Build a learning app for your classmates on the topic of the *fiscal cliff*. Link to an existing twitter feed, YouTube videos, and your team blog. Deploy to the class." Faculty-generated course iPad apps are not yet developed. However, the author argues that the early definition of what these apps might look like was revealed in October 2012. American Telephone and Telegraph, the National Archives, the John F. Kennedy Presidential Library and Museum, the Foundation for the National Archives and the Kennedy Library Foundation partnered to create a multi-media app, To the Brink, to support an exhibit at the National Archives, "To the Brink: JFK and the Cuban Missile Crisis" (PR Newswire) The author argues that iPad technology will develop as smart phones--open with free developmental sites for faculty and students. Faculty or student-generated apps could then be generated for a series of issues in business communication.

RECOMMENTATIONS FOR FURTHER RESEARCH

Practical Applications

Given the lack of existing research, exploratory descriptive research might include the following related to the practical application of the tools to the learning process.

1. Studies to identify challenges encountered by learners during the process of creating YouTube videos, Prezis, Lino sites, and VoiceThreads. What were the specific challenges and how were they overcome? How and when were the challenges discovered? What specific resources were used to overcome the challenges? Within the framework of challenges, are there age or gender differences? Are there differences between urban and rural learners? Results would potentially lead to improved instructor guidance prior to student engagement in activities/projects.

2. Studies on learner use of faculty-generated smart phone apps in order to lead to app revision. How frequently is the app used? When and where is the app used? What features are most used/least used and why? What feature would learners like to see on the app and why?

Media Ecology and Re-imagining Higher Education

This paper has previously mentioned how technology has driven societal and environmental change. This second area of proposed research, media ecology, expands on this theme. The author proposes a set of research projects centered on the principles of media ecology, a field of humanities that emerged in the 1970s. New York University established the first US program in 1971. The first Media Ecology Association convention was in 2000 at Fordham University.

The author has been unable to discover any current research in the area of collaborative digital tools and the teaching of business communication within a media ecology framework.

Postman (2000), one of the original pioneers of media ecology, along with the previously cited McLuhan and Innis, describes the term *media* (in this case technology*)* and its impact on culture/environment in this manner:

You will remember from the time when you first became acquainted with a Petri dish, that a medium was defined as the substance within which a culture grows. If you replace the word "substance" with the word "technology," the definition would stand as a fundamental principle of media ecology: A medium is a technology within which a culture grows; that is to say, it gives form to a culture's politics, social organization, and habitual ways of thinking (p. 1).

The Four Laws of Media

Prior to his death in 1980, McLuhan and his son, Eric, began a revision of his 1964 book, *Understanding Media*. The resulting book, *Laws of Media: The New Science*, was published eight years after the elder McLuhan's death.

McLuhan and McLuhan (1988) propose four laws of media framed as questions: and the author proposes that these become research questions as they have deep relationships to the field of media ecology: What does the media enhance or extend? What does it make obsolete? What does it retrieve from an earlier obsolete medium? What does it reverse or flip into when pushed to its extreme? Strate (2004) comments "An alternate way to understand the four laws is that they represent the dynamics of a system or ecology as it reacts to disturbances in its equilibrium" (p. 7).

Three of the digital tools in this paper, VoiceThread, Lino, and instructor generated apps, are inherently interactive, visual, and auditory. These tools empower the learner to engage with the medium of technology in a collaborative, social fashion. One tool, Prezi, a primarily visual presentation tool, is an emerged digital alternative to PowerPoint, only possible via use of the Net to present before a live audience or to a virtual audience via a screen capture tool such as Screencast-o-matic.

The following studies can be of value to the re-imagination of higher education as well as the teaching of business communication:

In what ways do these tools enhance learning? What do these tools make obsolete? How are these tools rooted in earlier technological or non-technological media? When pushed to the extreme--using only these media--what is the outcome? Where do these tools seem most beneficial to the learners- in face-to-face or online settings? How does the use of these tools impact or change how learners view the teaching/learning process? Their attitude toward work and their career? What professions do the digital tools create, and what do they eliminate or make obsolete?

Change in Our World View

As indicated by McLuhan and Fiore (1967): "Any understanding of social and cultural change is impossible without knowledge of the way media (the digital tools reviewed in this paper) work as environment" (p. 26). Ten years later, in a television interview, McLuhan (1977) commented that the telephone as a system effects all of us, but what you say using the system affects few people by comparison. The telephone is the medium. The effect of television, a massive environment, is the medium and is independent of the programming. The question becomes- How has the telephone and television impacted society? Our research questions become anchored around the big picture in the media ecology tradition.

Commenting on McLuhan's pithy, succinct and provocative phrase "the medium is the message," Strate (2004) stated, "Simply put, it is the idea that the media or technologies that we use play a leading role in how and what we communicate, how we think, feel and use our senses, and in our social organization, way of life, and world view" (p. 7).

Research questions include the following. How has the use of digital media in learning impacted the learner and society at large? What are learners thinking prior to use of the tools? What are they thinking about after use of these tools? Are they applying these tools in other social organizations? How? Why? Are there gender or age differences in the above? Do the tools change thinking or opinions depending on physical location, rural or urban? What and how have users learned from others? How have these tools impacted or changed the concepts of relationships, cooperation, and sharing?

SUMMARY AND CONCLUSION

Higher education is being disrupted by three major media ecology trends: a) web based technology; b) the Open Education/Sharing Movement; and c) collaborative peer production communities. We must prepare learners for a Wikinomics world of global collaboration and peer communities using the tools we have at the moment. The medium of technology adds a new dimension to communications and collaboration and impacts—changes--society as a whole as well as the educational establishment. "The goose quill put an end to talk. The hand that filled the parchment page built a city." (McLuhan & Fiore, 1967, p. 48) Given the lack of peer reviewed and published qualitative and qualitative research, the field of digital tools for learning in our profession is ripe for rigorous academic inquiry.

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