PHENOMENOLOGY OF A MULTIMEDIA FISHBOWL: A LEARNING ECOSYSTEM THAT ENCOURAGES INDIVIDUALS TO INNOVATE THROUGH COLLABORATIVE DISCOVERY

By

JAMES E. FOLKESTAD * ANNE SMITH ** MAURA MORITZ ***

* Associate Professor, Colorado State University.
** English Teacher, Arapahoe High School.
*** English Teacher, Arapahoe High School.

ABSTRACT

The success of each nation will depend on the agility (see www.edgility.net) of its citizens to acquire and utilize knowledge. In response to this imperative governments have crafted and followed rigorous educational strategies. For example, the European Union's Lisbon Agreement outlines an agenda for education and training focusing on educational benchmarks and indicators. The United Kingdom outlines their national strategy in "Every Child Matters" and the United States defines rigorous learning goals within "No Child Left Behind." Despite almost a decade of work to transform the quality and reach of education, these strategies have proven insufficient to significantly raise citizens' academic performance.

The problem is that "top down" strategies themselves are part of the systemic issue. In the old industrial system, benchmarks and indicators were sufficient to encourage school-level improvements. However, one need to move beyond promoting/demanding innovation from the local schools and teachers (via benchmarks), to engaging each individual learner to innovate their scholarship. This phenomenology examines an innovative use of streaming video, live-blogging, and discussion to create an ecosystem that places the student at the center of the learning, allowing them to use the Internet and freely-available collaborative tools to acquire new information and to work together in discovery.

Keywords: Multimedia, Web-base, Live-blogging, Fishbowl, Collaboration, Creativity, Innovation

INTRODUCTION

Global leaders are expressing the urgency to recalibrate education systems to the realities of the 21st century global economy. Whether they call it the "race to the top," "the education revolution," or "re-charting education," national leaders are striving to revolutionize the way they educate their citizenry in an effort to gain or retain national relevance in a hyper-competitive world.

England's Prime Minster Gordon Brown stated it clearly in his speech on *Education for the New Global Age*, "And it is not enough simply for us to learn from the best practice of other countries or to build on our own successes in recent years. The upheavals of the last few years are meaning that every country is having to re-chart their approach to education" (Brown, 2009).

In the United States President Obama stated that, "In an economy where knowledge is the most valuable commodity a person and a country have to offer, the best jobs will go to the best educated -- whether they live in the United States or India or China. In a world where countries that out-educate us today will out-compete us tomorrow, the future belongs to the nation that best educates its people. We know this" (Obama, 2009).

Indian Prime Minister Dr. Manmohan Singh provided global perspective on the magnitude of India's education system, stating that, "We have to improve the quality of teaching of science and mathematics at the school level. Countries like China and South Korea are far ahead of us in investing in science and technology. We need to do much more in this vital area if we have to keep

pace with the evolving global economy of the future" (Manmohan, 2006).

And, Australia's Prime Minister Kevin Rudd addressed the upheaval in education with aggressive reform, stating, "That's why we've begun the 'education revolution,' funding major new initiatives in early childhood education, computers and trades training centres in every secondary school, 630,000 new training places, thousands of new university scholarships and an upfront half billion dollar investment in our universities" (Rudd, 2008).

A global shift toward creativity and innovation: As Kao (2007) stated, "Today, things are vastly different. Innovation has become the new currency of global competition as one country after another races toward a new high ground where the capacity for innovation is viewed as a hallmark of national success" (p. 1). Countries that thrive in the 21st century will be those that foster innovation and subsequently attract globally-distributed research funding and venture capital from which economic growth will emerge (Friedman, 2005).

Responding to this shift, government officials from Australia, Canada, China, Singapore, and Sweden have created aggressive national innovation strategies that have been designed to capture and retain entire technological sectors, such as Beijing's bid to become the world's leaders in nanotechnology (Kao, 2007). Talent development and recruitment is at the forefront of all of these governmental strategies. As more countries enter the innovation race, talent becomes scarce and enticing talent, that is engaged in the process of innovation, from other locations becomes more difficult. Governments and businesses recognize that education and training that build capacity in innovation are key strategic elements for remaining economically competitive (Robinson 2001, p. 5).

Prime Minister Brown explained that, "Today what matters is who has the skills, the ideas, the insights, the creativity. And the countries that I believe will succeed in the future are those that will do more than just unlock some of the talents of some of their young people, the countries that will succeed will be those that strive to unlock all the talents of all of their people" (Brown, 2007).

President Obama agreed that, "It is about finally getting testing right, about developing thoughtful assessments that lead to better results; assessments that don't simply measure whether students can use a pencil to fill in a bubble, but whether they possess basic knowledge and essential skills like problem-solving and creative thinking, creativity and entrepreneurship…But we also know that today, our education system is falling short. We've talked about it for decades but we know that we have not made the progress we need to make. The United States, a country that has always led the way in innovation, is now being outpaced in math and science education" (Obama, 2009).

To remain competitive all countries are asking the same question, how do we improve our ability to innovate? Creative thinking and innovativeness are often enhanced when divergent thinkers or people with divergent intelligences and experiences have open conversations and work together to solve problems. It is at the intersections of intelligences, ideas, and experiences that innovation and creativity are nourished. The problem is that our current industrial education system neglects many intelligences and rewards individual performance over collaborative discovery, exploration, and problem solving (Pink, 2006; Robinson, 2001; Brown & Adler, 2008).

To nourish an innovative workforce we need learning ecosystems that can be customized for each learner, fostering their intelligences (strengths) and one that rewards collaborative design and problem solving over individual achievement (Pink, 2006; Robinson, 2001; Christensen, 2008). As Florida (2003) stated, "The creative process is social, not just individual, and thus new forms of organization are necessary" (p. 22).

Furthermore, Setvick (1996) indicated connective ecosystems help individual students store what they have learned into their permanent memory and fluid memory. Increasing student ability to store meaning through connections in their fluid memory can increase their ability to be innovative. Therefore, teaching students how

to use their fluid memory to increase their ability to critically and creatively analyze future problems is an important entrée into information-based societies.

The language arts classroom

In the old industrial education system, benchmarks and indicators were sufficient to encourage school-level improvements in subjects like language arts. However, one needs to move beyond promoting/demanding innovation from the local schools and teachers (via benchmarks), to engaging each individual learner to innovate their scholarship. This phenomenology examines an innovative use of streaming video, live-blogging, discussion-scoring chart, and discussion to create such a collaborative learning ecosystem.

Traditional language arts pedagogy relies heavily on the teacher to open doors to what is perceived as some singular, hidden meaning residing in the literary text (Meskill & Swan, 2009). What is needed is a classroom ecosystem that is open, that encourages open conversations and models critical thinking and creative analysis. We need to encourage innovative thought and individual thinking and discovery. Reflecting on what a language arts ecosystem should involve Meskill and Swan (2009) state that, "Traditional emphases on procedural problem-solving practices need to be supplemented with less confining, more creative approaches to dealing with complex phenomena" (p. 1).

"The language classroom is not a mechanical system. It is made up of individuals who are networked to the outside world, to each other, and to the events as they occur. They are constantly in the process of redefining these connections" (Kindt et al, 1999, 245). How can one leverage the students' existing networks, reinforcing their connections to their classroom literature? How can one increase the connections that they make to their studies? How can one model this increasingly important 21st century skill of using networks and connections for further understanding, meaning, and innovation?

Discussion methods in the classroom

Discussion as a central driver to inquiry has been in-and-out of vogue since the classical Greek philosopher Socrates instituted the Socratic Debate. This method of learning that emphasizes debate between individuals to stimulate critical thinking and problem solving is regaining emphasis in the classroom of the 21st century. A partnership for 21st century skills (U.S. Department of Education) concluded that, "Learning and innovation skills increasingly are being recognized as those that separate students who are prepared for a more complex life and work environments in the 21st century, and those who are not. A focus on creativity, critical thinking, communication, and collaboration is essential to prepare students for the future" (P21 Framework, 2009). It is clear that educators must find methods that promote these higher cognitive skills.

The discussion method (classroom method) should not be confused with recitation. Gall and Gillett (1980) made this distinction, "Another difference between the two methods is that recitation tends to focus on students' recall and 'reciting' of subject matter content. In contrast, discussion tends to focus on higher cognitive objectives. What, then, is the discussion method in teaching? It is a strategy for achieving instructional objectives that involves a group of persons, usually in the roles of moderator and participant, who communicate with each other using speaking, non-verbal, and listening processes" (p. 98).

Having a structure for the discussion is important for classroom success. In preparation for discussion-based instruction the teacher should provide students with specific objective and procedural guidelines for the session. Establishing this intent will increase student involvement in dialog and reduce the necessity of the instructor to intervene to keep the discussion moving forward and moving in the desired direction (Wolfe, 2009).

Structure of a traditional fishbowl activity

The fishbowl is one method for structuring discussions in larger classrooms. The technique has been used successfully to conduct large classes in the manner of small discussion-based seminars. The success of the technique depends heavily on the instructor's willingness

to remain removed from the center of the classroom and allow the students to lead the inquiry (Priles, 1993).

Although the students are given significant control during the fishbowl discussion, the following structure creates boundaries for the collaborative work.

Preparation

The students are assigned reading materials that will be discussed during the fishbowl. In preparation for the fishbowl they are required to prepare by reading the assigned literature and writing comments and questions on both content and form. These writings are used during the fishbowl to keep the discussion on track. Typically a student is selected to lead each fishbowl session and it is their responsibility to manage the questioning and keep the discussion moving in the predetermined positive direction (Priles, 1993).

Arrangement

The students are arranged into a circle-within-a-circle formation, something similar to an arena (Priles, 1993). In this arena setting, an optimized group (5-6 students), openly discusses their written questions while the majority of the class act as an audience in the outer circle. Figure 1 provides an overview of the fishbowl layout.

Interaction

Interaction between the two groups is encouraged. This interaction is facilitated by the placement of two additional "open" seats in the inner circle (see black seats in Figure 1). Spectators in the outer circle can enter these open seats and contribute to the discussion. After they have contributed they are encouraged to return to the outer circle so that other students can engage the open seat and contribute. As Priles (1993) stated, "During especially high-powered discussions, the two 'extra' seats become integral; in fact, they rarely remain vacant as students in the outer circle find themselves compelled to join in" (p. 1).

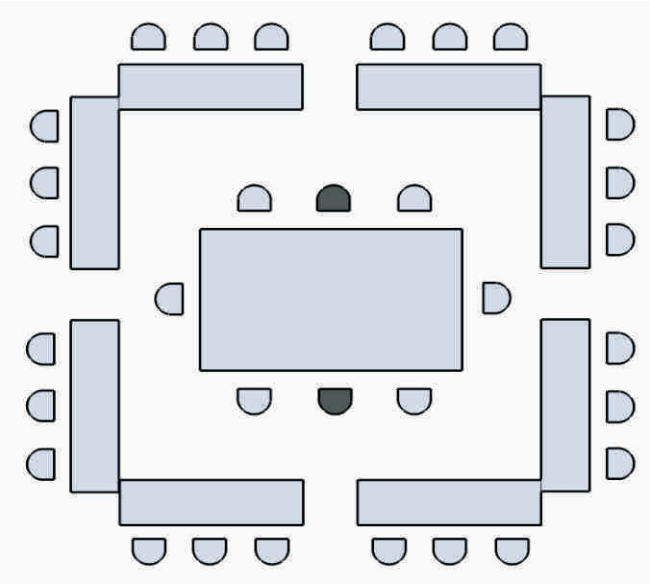

Figure 1. Traditional fishbowl classroom layout. Inner circle table with "open" seats in black.

Evaluation

During the fishbowl discussion the instructor's job is to utilize an assessment checklist to evaluate each of the student panelists. Criteria many include evaluation of content, involvement, language use, and speech articulation. The checklist may consist of an assessment rubric such as always / frequently / occasionally / rarely (Priles, 1993).

Structure of a multimedia fishbowl

The multimedia fishbowl is a modification of the traditional fishbowl activity that incorporates the use of technology. In this expanded configuration laptops are added to the outer circle, a projector (proxima style projector) and screen, and a web camera are added to enhance and expand the ecosystem.

Multimedia fishbowl configuration

Figure 2 provides an overview of the multimedia fishbowl layout. The modified layout arranges the outer circle into a u-shaped configuration that surrounds the inner circle discussion. Similar to the traditional fishbowl layout "open" seats (see black seats in Figure 2) are included in the inner circle so that students can join the conversation.

Laptops (live-blogging)

Several technologies are introduced into the arrangement. First, laptops are provided to each student in the outer circle (u-shape). These laptops are connected to the internet and students are directed to a classroom blog where they can leave comments about the discussion, this is known as live-blogging. Figure 3 provides a picture of a student live-blogging on a laptop

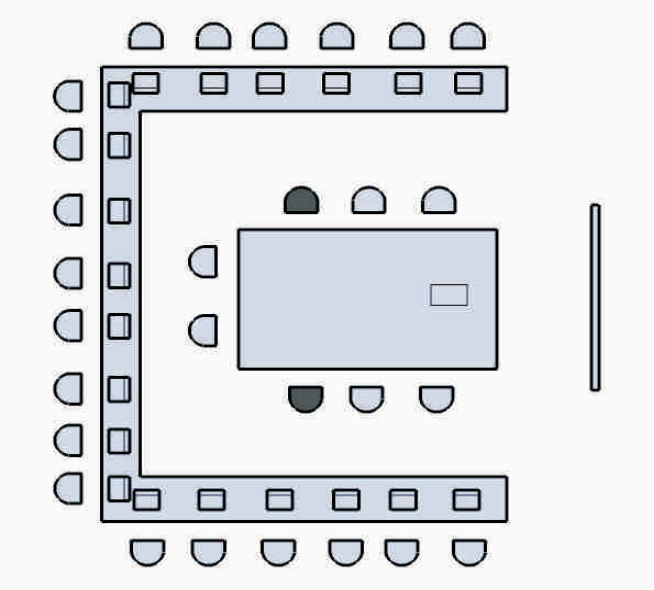

Figure 2. Multimedia fishbowl arrangement (layout). Inner circle table with "open" seats in black. Outer circle (u-shaped seating) with laptops for each student. Overhead projector screen on the right end of seating.

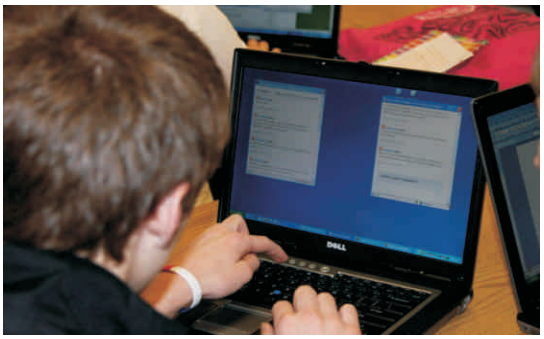

Figure 3. Student live-blogging from outer circle. Laptop with live-blogging comment screen.

in the outer circle. As shown in Figure 3 the student is accessing the class blog and is using the comment window to contribute to the ongoing discussion.

Projector and Screen (outside participants)

Second, a projector and screen is added to the end of the u-shaped arrangement (Figure 2). The projector is arranged so that all students can view the live-blogging feed on the screen. Figure 4 provides a picture of the projected image of the live-blogging content on the left and a remote video feed from an outside participant (outside the school) on the right side of the screen. In this case, the students were discussing the book "A Whole New Mind" and the outside participant was the author Daniel Pink.

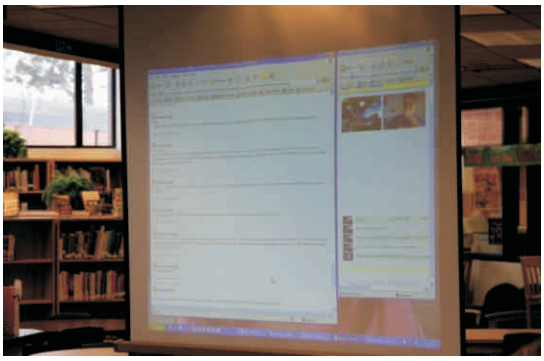

Figure 4. Overhead projector screen with live-blogging feed (left) and live video of Daniel Pink - remote participant (right).

Web camera

In addition, a web camera was added to the environment to allow remote participants to view the students and hear their discussion. Figure 5 provides a picture of the web camera mounted at the front of the room directed at the fishbowl classroom. In this picture the technology coordinator (Karl Fisch) is on the right and is helping to facilitate the connectivity to the author's computer and the live-blogging content. He is also acting as moderator to the live-blogging content making sure that what the students and outside collaborator live-blog posts are appropriate. As it is shown in Figure 5, the teacher to the left, is outside the fishbowl discussion. During the session she spent almost the entire class period removed from the activity. The students ran the discussion and the class during the session.

Phenomenology (Methods)

"In the most basic terms, qualitative research is a form of systematic empirical inquiry into meaning" (Shank, 2002,

Figure 5. Web camera directed at the fishbowl. Teacher (left) removed from both inner and outer circle allowing students to drive conversation and learning.

p. 5). This study was well suited to qualitative research and more specifically phenomenology, because phenomenology is a highly structured research process that transforms the lived experience into a textual expression that captures its essence (Richards & Morse, 2007).

The intent of this study was to understand the phenomenon of the multimedia fishbowl, not to generalize the findings to a larger population of students or teaching institutions. As Creswell (2005) stated, "Thus to best understand [the] phenomenon, the qualitative research purposefully or intentionally selects individuals" (p. 203). Furthermore, critical sampling is a strategy where the researcher focuses on the exceptional case or cases that allow the researcher to learn as much as possible about the event of interest (Creswell, 2005).

Study Participants (critical sample)

Two participants were selected for this study. Selection criteria included teachers who (i) had used the multimedia fishbowl within their classroom, (ii) had used the multimedia fishbowl within different classroom and with different students, (iii) were planning on continuing the use of the multimedia fishbowl within their classrooms. The technical co-ordinator at Arapahoe High School helped to identify these individuals and assisted in coordinating the classroom observations and interviews. Two teachers, were selected as subjects. Both teachers had used the multimedia fishbowl repeatedly over three to four years and they had used the methodology with a variety of students (age) and subject matter. Although other teachers experimented with the basic fishbowl concept, these teachers were the only two who had continuously used this innovative process and therefore had a complete understanding of both the strengths and weaknesses of this teaching approach.

Data Gathering

Multiple types of information were collected throughout this study. Student writing was collected from online blog postings (live-blogging), observations were conducted at Arapahoe High School, and interviews were conducted face-to-face and on the telephone with both teachers.

Online blog postings (student work)

As is described above, students were required to engage in discussion using the class blog. Following each fishbowl activity the postings were collected for analysis.

Observations

A protocol was used to record information while observing the multimedia fishbowl. Pictures were taken to record the layout of the classroom setting. Shank (2002) noted that, "…visual information is incredibly useful and important to all of us, and a careful visual record is more often than not a highly useful record…. On the negative side, however, is the realization that sometimes focusing on the visual array causes us to miss crucial information unfolding via our sensory modalities. Because we depend so much on our sense of sight, we often shortchange our other sensory modalities" (p. 22). To minimize these shortcomings field notes were kept, noting other sounds and sequence of events that occurred during each multimedia fishbowl activity.

Interviews

Face-to-face interviews were conducted and recorded. To understand the multimedia fishbowl process, and to make meaning from the teachers experiences, a short interview protocol was prepared. The protocol consisted of one lead interview question and three follow up questions. The lead question was, why did you decide to use the multimedia fishbowl process? The follow up questions included i) How do you describe the multimedia fishbowl process to others?, ii) What is it like to teach using the process?, iii) What advice would you give to other teachers (about using the multimedia fishbowl)? In addition, an interview guide was prepared. The guide was used to anticipate all the possible areas that may be covered in the interview. Chase (2003) suggested that an interview guide helps prepare the interviewer to be open to a wide variety of stories that the interviewees may tell. During the interviews notes were taken about the general posturing of the interviewees. For example, it was noted when the interviewees paused, or when they sighed or laughed during the interview. The recorded interview was transcribed and sent to the interviewees for "member

checking" to verify the accuracy of the recorded / transcribed account. The interview lasted one hour and 45 minutes.

Analysis

Following the interviews the recordings were transcribed. "Phenomenological analysis is a process of reading, reflection, and writing and rewriting that enables the researcher to transform the lived experience into a textural expression of the essence" (van Manen, 1990, p. 10). This researcher worked in conjunction with the study participants to write, review, and rewrite the descriptions in an effort to fully understand the fundamental nature of the multimedia fishbowl.

Results

It was clear that the multimedia fishbowl contributes to creating what is seen as a different classroom environment. Both teachers interviewed commented several times comparing their classrooms to the "traditional" classroom. Out of discussion several themes emerged that described the perceived differences between the fishbowl classroom and the traditional approach. These themes included student connection, peer-to-peer conversation (expansion and extension), classroom control / student empowerment, and evaluation of conversation (teacher role / responsibility).

Student connection

A major component of the multimedia fishbowl was how it allowed students to make connections and expose connections that otherwise would have gone unnoticed. The use of live-blogging and the connection to outside resources (e.g., experts, authors) afforded connections that went beyond what the traditional fishbowl process allowed. It was apparent that thinking about and enabling these connections was important to the teachers as they reflected on why the multimedia fishbowl is important in the classroom.

It was important to consider the potential connections that the students would make with a particular topic. For Teacher 1, topic selection was vital to the success of the multimedia fishbowl activity. In describing how she ensured success she stated, "I model what the outer circle should be doing so they understand how this can be at its best. And then pick a good interesting topic. A literature piece that has a little bit of controversy to it. Or enough connections." Choosing a topic that would afford the students the opportunity to make connections was considered to be extremely important.

Connections can come from topics that bridge easily to modern times, like Fahrenheit 451. It was clear that both the teachers realize that these types of connections make the fishbowl relevant and successful. But in order to make the fishbowl work and make connections surface you have to teach in a completely different way. Teacher 1 stated that,

> *You have to let go of your own agenda… when we teach Fahrenheit 451 we want to make sure that they concentrate on the symbolism of the salamander and the symbolism of 451 and we want to make sure we get across Bradbury's philosophy on this. Instead (in the fishbowl) it becomes let's see what they can gather out of that. And you know there are times they do not hit every single historical aspect of the novel but at the same time I think they have a greater connection to the novel because it was what they came up with and what they took away from that novel. And the connections that they made between their classmates and their learning. And I have seen more connections… I have seen my kids make better connections to their other classes because they were driving the conversation.*

This type of connection-making can be seen within the live-blog postings. Students were connecting the literature being discussed - in this case A Whole New Mind - to other subjects. For example, while live-blogging from the outer circle about the importance of the right-brain or left-brain to individual success (an overarching topic in A Whole New Mind) one student posted, "NO DOUBT ABOUT IT. History repeats itself over and over. Look at the renaissance. That was EXTREMELY right brained. Then we go to the 1700's. That was ALL science. That continued until late 1800's where inventions started to occur. Also right brained. Soon left brains will be valued again." In response another student posted, "Wow. That's a scary

thought. That is why it is so important to have 'a whole mind,' instead of having either one or the other side hyped up."

Furthermore, a student connected mathematics to the outside world and engineering, stating "Math is all about problem solving, not about solving one equation. Math in real life is messy. And boy, how it is. In schools, our math textbooks have boring, one answer questions. Engineers are NOT going to solve X+5=11. So we shouldn't teach it." Students rarely have the opportunity to share this type of connection-making in a traditional passive-learning environment. The active nature of the multimedia fishbowl allows for more peer-to-peer connections. It is critical that the students connect the content to their current understanding and the fishbowl enables this to happen.

Both teachers stressed the importance of connections to this way of teaching. They explained how their success relies on recognizing and capitalizing on connections. They reflected on how they are often asked how they were able to connect with the author of A Whole New Mind, Daniel Pink. "We say Dan Mass our CIO met him (Daniel Pink) at a conference. It is blind luck but it is not really blind luck because we are always looking for how can we make those connections happen for our students."

Peer-to-peer conversation (expansion and extension)

Conversation was a central theme of the multimedia fishbowl activity. Both teachers described how the structure of the fishbowl allowed for the expansion and extension of peer-to-peer conversation. Teacher 1 stated it clearly when she said, "Your job is to facilitate a discussion not dominate the conversation." The teacher's role was to find ways to extend, expand, and then evaluate the peer-to-peer conversations of the multimedia fishbowl.

Clear expectations for both the inner and outer circles were established prior to the fishbowl activity. For example, written guidelines state that, "Along with this select group [inner circle group], there will be 2-3 open chairs for any individuals wanting to participate in the discussion. If you decide to become involved in the discussion, you need to contribute at least five times in a meaningful way. Please refer to the discussion-scoring chart on relevant contributions that can be made. To enter into the discussion simply sit in an open chair. If an open chair is filled but you still want to enter in the discussion, simply tap on the shoulder of the occupant to remove him/her from the discussion. Also, any member of the inner circle may pose questions for discussion; this is not limited to just the presentation group. There will be no hand-raising in the discussion; instead, it will be an open format" (Moritz & Smith, 2009). A complete description of the multimedia fishbowl classroom decorum / expectations can be read in Appendix A.

Expansion of classroom conversation

The open chairs within the inner circle allowed students to join and thus expand the inner circle conversation. Teacher 1 noted that, "Within that group (inner circle) I have what's called 'open chairs,' places for kids that are thinking 'I so disagree… I want to jump into that conversation.' I think that this is the great part about having open chairs. And it ends up being standing-room only; the kids literally have to stand around the circle because they still have something to contribute."

Furthermore, both teachers described how prior to live-blogging they had students write (with pencil and paper) their thoughts. They described how the limitation of static-written text made them want to push the peer-to-peer conversation further. They wanted the students to see the insights of other students and build their understanding in conjunction with their peers.

Teacher 1 stated that, "What I used to do in the outer circle was… these kids would literally take out paper and write a response. Who got to see that response and what their thoughts and reactions were? Just the teacher. You know I just got to see what they took away… it was just their connections with the discussion. It was like they could do that in five minutes and that was their engagement piece. I just felt like there had to be more. There just had to be something more to this."

Teacher 1 state that, "And so… Karl Fisch (technology coordinator) and I were sitting and talking about it and we

started to come up with the idea of live-blogging. Literally taking a blog and turning it into a feature where you can carry on a separate conversation on the outside (outer circle) with all these kids because all my kids had laptops."

The addition of live-blogging to the fishbowl process expands the conversation in the classroom. In fact, the addition of the live-blogging created an explosion of conversations.

Both teachers agreed that, "In a typical high school English class you might see 20 conversations happening between teacher and student. I think that would be really good… you would feel like that was successful, you know when you had 20 points of contact. In fishbowl, measuring just the outer circle, the live-blogging… we typically have 238 conversations occurring. Look at the transformation. That is not even the inner circle conversations which you are probably having 50-60 there."

Extension of conversation

The addition of blogging extends the conversation beyond class time and makes the conversation available outside of the classroom. Both teachers agreed that, "It is something that we have done to use technology to take it to the next level. But it is something that can easily be done without technology and a lot of teachers see the power in the extension discussions even afterwards you may not have the laptops but you can still put the blog posts up for the students to go home and extend the conversation."

Teacher 2 stated that, "I think one thing too with the communication piece you asked - have they taught us? One thing they have taught us is how much they have to say. Too often in a traditional classroom the quiet kid would not speak up. Especially in our honors classes, where, there are so many kids that will monopolize the conversation. Now that I (students) can put my thoughts in a line and I can add to that blog at night when I have more to say. And that blog doesn't shut down and I can keep going and going. It really extends that conversation. That has really taught me - look at the classroom, the classroom is not limited to a small period of time. The boundaries have been extended forever." Furthermore, both teachers were in agreement that the activity extends even beyond students' compulsory school years into their college, careers, and future lives. "The biggest thing that I really like is that it has extended it. These conversations are archived forever. I always say, 'You guys can look back on your conversations that you had on Fahrenheit 451 when you are writing a college paper and reference back to insights that you had, or, relevant topics, or modern connections that you made then that may seen outdated.'"

Teacher 1 stated that, "Another thing that I think is cool is that even these kids applying to go to colleges - they can link to discussions that they have had. They can show their caliber of thought to universities. 'Look at what I was doing as a freshman in high school' compared to other students applying."

Classroom control and student empowerment

It was clear that student empowerment and classroom control were a focus of these teachers as they used the multimedia fishbowl activity. Empowering the students to make decisions about how they learned in the classroom and giving them control of what they discovered (learned) was critical to the success of this pedagogy.

Classroom control

Students were given control to change the methods used within the fishbowl to create conversations and connect their ideas. The students were asked such things as, "Is Blogger the right tool for learning here?"

Teacher 1 stated that, "including students in that conversation is a big part of what I learned about how to make fishbowl the best thing for each class. To structure it so that it is not always my way but we start off with sort of a loose scaffolding of what it should look like and then allow the students, through debriefing and reflection, to help them own it. You know, 'Would you like to use Blogger?' Giving them that control changes the fishbowl. It really helps them own what they think it should be like… but having them have a say in that really helps drive that conversation."

It was acknowledged repeatedly that this shift in

classroom control was difficult, maybe more difficult for the teachers. Both teachers agreed that it took considerable effort to let go of their agenda and allow the students to discover.

"And for us it is kind of like letting go control of our agenda… what we wanted - when we teach Fahrenheit 451 we wanted to make sure that they concentrate on the symbolism of the salamander and the symbolism of 451 and we want to make sure we get across Bradbury's philosophy on this. Instead it becomes, 'Let's see what they can gather out of that.'"

Furthermore, it was clear that the inability of teachers to relinquish this control, while using the fishbowl methodology, was related to failure of this pedagogy in other classrooms. It was observed that more traditional teachers that want to be the center of the classroom conversation have little appreciation or success with the fishbowl methods.

Student empowerment

The shift in classroom control was clearly empowering to students. Students embraced the ability to change the classroom environment in an effort to improve their ability to learn. It was clear that they became critics of the learning environment. They even suggested that the teacher intervene less, as they observed that those interventions were disruptive to the conversation and their learning.

Teacher 1 state that, "Well the one thing that they suggested (suggested change for the classroom) is that they would like less teacher intervention. I first got kicked out of a multimedia fishbowl because of what they (students) observed, and this is totally from the student interaction. When I would come into the inner circle - all points focused on me. It didn't become their discussion anymore, it became my discussion, and what I said was gospel."

Teacher 1 stated it clearly, "I think that is what fishbowl does more than anything. It empowers them to take charge of their own learning. It is not my way, it is not the other teacher's way, it is not the Language Arts Department way, it is their way. And then they realize that they have a voice and that voice has something really powerful to say."

Teacher 2 stated that, "Yes… I agree with that. Instead of the teacher as leader in that classroom it requires students to become leaders and own their learning."

Evaluation of conversation (teacher role / responsibility)

Because conversation plays a central role in the fishbowl process, grading student contributions through conversation becomes a central role for the teacher. A discussion scoring chart (Figure 6) is used to evaluate the contribution made by each student through conversation. During the fishbowl the teacher observes the students and scores their performance based on their active participation. Students can earn positive points in seven areas including: position taking, relevant commentary, using analogy, recognizing contributions, using supportive evidence, drawing others into the conversation, and asking clarifying questions. Furthermore, points can be subtracted from a student's score in five areas including: inattentiveness, interrupting, irrelevant comments, monopolizing conversations, and attacking another student.

Teacher 1 stated that, "To earn the points you have to make valid contributions. Why is an ' I agree' statement not a valid contribution? What does that add to the conversation? You need to have those discussions with your students."

Furthermore, Teacher 2 stated that, "Kids can get points for drawing others into the conversation. So if there is that 'quiet kid' that has to fulfill their discussion, the other kids

Discussion Scoring Chart:

Students will earn positive and negative points when they contribute the following:

Points:	Positive	Points:	Negative
(2)	Taking a position on a question	(-2)	Not paying attention or distracting others
(1)	Making a relevant comment		
(2)	Making an analogy	(-2)	Interrupting
(2)	Recognizing contradictions	(-1)	Irrelevant comment
(2)	Using supporting evidence or factual info.	(-3)	Monopolizing
(2)	Drawing another person into the conversation	(-3)	Personal attack
(2)	Asking a clarifying question or moving the discussion along		

Figure 6. Multimedia fishbowl discussion scoring chart. Both positive and negative points earned during multimedia fishbowl discussion.

that are a little more verbal if they draw them into the conversation and just say, 'Hey what do you think about this?' or 'Can you clarify?' It pulls them along a bit without saying 'You haven't said anything.'"

Teacher 1 added that the scoring guide also allows for negative points, points subtracted for behavior that hinders collaboration. She stated that, "negative things would be like disparaging remarks, like ' that no good,' or ` you are being smart,' or monopolizing the conversation. I always say, 'You guys have to understand.' I will show them the scoring chart. I will put my tally sheet out so they can walk by and see what they got. And I may say, 'You spoke twenty-some times… you need to be cognizant that you are not the sole discusser.'"

Teacher 2 agreed that certain students want to dominate conversations. "Yes, they want to monopolize they want to … the good thing about the scoring card is that if they monopolize a conversation they lose points. So if they are taking control they lose points."

Both teachers agreed that evaluating students on their contribution is time consuming. "As fun as it is, and as intellectually challenging that the multimedia fishbowl is, the grading is a nightmare sometimes. If you do two fishbowls a week that is two huge live-blogs, so I am taking 248 some odd comments that you are scoring on appropriateness, do they add to the conversations, those types of things. My senior-level classes, when they do a fishbowl, they post a follow-up question that the leaders do. So it is an extension of the conversation, there is another thing that you need to grade."

Discussion and Summary

The global economy is being driven by information and actionable knowledge or innovations. Success comes to those individuals that know how to access information, rapidly learn from it, and turn it into innovative outcomes. To succeed one need to rethink how to learn and how one can organize in this new era of information-abundance. One need to leverage the power of networks (connections in our minds and between learners) to rapidly learn and innovate. These are skills that can be learned, but are difficult to acquire in the traditional classroom that clearly communicates that knowledge is scarce (instructors own it) and that learners are to passively consume that information (Folkestad, 2009). One need new classroom ecosystems that communicate to learners that information is abundant, it is everywhere and often free, and that their job is to transform it into something meaningful, something constructive.

This phenomenology examined a classroom methodology known as the multimedia fishbowl, a modification of the traditional fishbowl technique. To understand this phenomenon this researcher conducted observations, interviews, and examined text and documents that supported the multimedia fishbowl process. The documents and transcribed texts were studied in an effort to understand the essence of this process and how it changed the nature of the classroom environment. It was clear from the studied texts that the multimedia fishbowl creates a classroom ecosystem that removes the instructor from the center of the learning, and sometimes removes them from the activity completely. It creates an environment that puts the learners at the center of the discovery. It can create a learning ecosystem that is vastly different than the traditional classroom.

Several themes emerged from the analysis. These themes included student connection, peer-to-peer conversation, classroom control / student empowerment, and evaluation of conversation (teacher role / responsibility). Each of these themes is an element in this new classroom ecosystem, an ecosystem that begins to support the 21st century learner. In an effort to summarize these emergent themes the authors have tied them to the *P21 Framework* of core subjects, learning and innovation, information, media / technology skills, and life and career skills. The *P21 Framework* was created in the United States and is focused on infusing 21st century skills into education. The *Framework* was created by a member board (members include several multinational corporations and educators) and it provides an interesting "reflective pool" for summarizing the results of this study.

Core Subjects

Language arts is designated as a core subject within the *P21 Framework*. Literature shows that language arts is not a linear system that lends itself to procedural problem-solving exercises. It is a complex subject where learning is accomplished and accelerated with less confined and more creative approaches to understand these complex textual-based phenomena. As is illustrated in this study, the multimedia fishbowl supports this type of learning by increasing student connections, expanding conversations, and shifting the classroom control to the learners.

Learning and Innovation skills

In order to excel in the more complex 21st century work environments, individuals need to increase their ability to learn and innovate (*P21 Framework*, 2009). The author have trademarked the term Edgility™, a combination of the words *edge* and *agility*, as a principle for 21st century learners. It directs them to leverage peer-to-peer learning-relationships and information exchanges that empower individuals to rapidly learn and innovate. He encouraged his students to work on increasing their learning and innovating Edgility™ in order to compete in the 21st century (Folkestad, 2009).

As Florida (2003) stated, "The creative process is social, not just individual, and thus new forms of organization are necessary" (p. 22). The multimedia fishbowl ecosystem increased student-to-student conversations, allowing them to elaborate, refine, and evaluate their ideas. Facilitated properly, the multimedia fishbowl increased traditional classroom conversations (typically around 20) to well over 200. Furthermore, it allowed students to explore their cognitive connections, connections that could help them create innovative solutions / ideas and helped them solidify their understanding into their long-term memory. The environment allowed students to express their diverse perspectives, and critically think about group input to generate unique and creative thoughts. Furthermore, it allowed them to solve problems through nonlinear connections made with other class discussions or content.

Information, media / technology skills

According to the *P21 Framework* (2009), we live in a technology and media-suffused environment. Characteristics of this environment include, "i) access to an abundance of information, ii) rapid changes in technology tools, and iii) the ability to collaborate and make individual contributions on an unprecedented scale." The multimedia fishbowl empowered students to take control of their learning by engaging in the use of new technologies that support their learning and ability to solve creative problems. As was illustrated, students drove the entire multimedia fishbowl process. They were encouraged to not only use the live-blogging tool to engage in peer-to-peer communication, but they were encouraged to critically evaluate the live-blogging tool itself. If the student found another tool that would help them use information more accurately and creatively they were encouraged to integrate that tool into the multimedia fishbowl. In working to improve the multimedia fishbowl, students were working to increase their information, communication, and technology (ICT) literacy.

Life and career skills

The global workplace demands that students have the ability to navigate more complex life and career skills. Students need to adapt to change, incorporate feedback into their thinking, and deal positively with praise, setbacks, and criticisms (*P21 Framework,* 2009). The traditional fishbowl enabled a more complex classroom by allowing outer-circle conversations to enter into the inner circle. This dynamic requires students to consider diverse ideas from outside the inner conversation and react appropriately. The multimedia fishbowl expanded these conversations, feedbacks, and potential criticisms further in the blogosphere. By incorporating outside interests (parents, guests) to view the live-blogging activity and comment on the students' ideas, the complexity of the environment is expanded. This complexity moves the students from an environment that may be fairly homogeneous (affluent suburban high school) to one that is as complex and diverse as the global environment that they will live and work.

Future of the multimedia fishbowl

The teachers interviewed suggested that they want to continue to expand the multimedia fishbowl to incorporate more complex and diverse conversations. Teacher 1 explained that she wants to improve the multimedia fishbowl by bringing in, "more authors the experts to extend the kids' personal learning networks. Now we meet with just one author. But maybe we have two to three authors or experts. Maybe when we are doing *Inherit the Wind* we bring in a professor of biology from a college. And maybe we bring in a pastor and we have those discussions. Not that we are trying to prove a point to these kids, you know here is creationism and here is evolution, but to get them to think on their own. If you can teach them that as a 14-15 year old to drive their own opinion from a wide varied of thoughts from other people that is a huge skill."

Teacher 1 continued her thought, "I would love for us to read *Fahrenheit 451* or *1984* and collaborate with a school in England, or with a school in Shanghai. Let's go collaborate with a classroom where the women aren't allowed to voice their opinion. Let's go collaborate with a classroom who has just gained freedom in their country. Imaging reading *Fahrenheit 451* where these kids have so many rights, privileges, and entitlements, and then converse with kids in Iraq where the same privileges are not extended. How do they understand that piece? I think that that's the power of 21st century learning and technology… is that you can have those relationships and those connections."

In summary, the multimedia fishbowl expanded classroom conversations beyond the inner circle discussions of the traditional fishbowl. Live-blogging in the outer circle created a dynamic, ongoing conversation that allowed students to voice their ideas and insights while not directly engaging in the inner circle. Furthermore, these conversations were not limited to classroom space or time. Conversations were extended to include outside experts and the discussions were often continued for several days as students would return to the blog to add insights that they had as a result of other events (e.g., other class discussions, sleep). The multimedia fishbowl provided students a place where they could reflect on the classroom content and make cognitive connections. In this space students were empowered to take charge of their learning by using new technologies to support their learning and increase their Edgility™.

Appendix A

Fishbowl

(Classroom Decorum - Expectations)

Presenters:

Throughout the reading of this play, the students will be responsible for leading the discussion. You will put yourselves into groups of no more than 3-4 people and will be assigned one act on which to facilitate a discussion. You will need to find critical analysis of this act, prepare a discussion outline to turn into the teacher on the day your group is presenting, and lead an open dialogue with the inner circle members. All presenters must participate. Your group will be graded on their preparation, analysis, participation, facilitation, and leadership. Remember, you need to cover the entire act in a relevant and purposeful manner. Don't focus on one subject so long that it becomes redundant and boring! Additionally, the presenters are in charge of creating a prompt for the outer circle members to blog a response to.

Discussers:

The inner circle is responsible for discussing the act along with the presenters. The inner circle groups have been decided by the computer and will consist of no more than 5 members. The inner circle members can only earn their daily points by participating in the discussion. Along with this select group, there will be 2-3 open chairs for any individuals wanting to participate in the discussion. If you decide to become involved in the discussion, you need to contribute at least 5 times in a meaningful way. Please refer to the Discussion Scoring Chart on relevant contributions that can be made. To enter into the discussion simply sit in an open chair. If an open chair is filled but you still want to enter in the discussion, simply tap on the shoulder of the occupant to remove him/her from the discussion. Also, any member of the inner circle may pose questions

for discussion; this is not limited to just the presentation group. There will be no hand-raising in the discussion; instead, it will be an open format. However, if members of the discussion group become disrespectful, points will be taken away. Please refer to the Discussion Scoring Chart for possible reasons for point deductions.

Outer Circle:

The members of the outer circle, who are not involved in the discussion, will still have to earn the daily points by blogging along with the class discussion in a meaningful and purposeful manner adding to the discussion yet at the same time allowed to stray from the conversation if appropriate to the piece of literature being studied.. The outer circle is expected to be attentive and focused If outer circle members distract from the discussion, points will be taken away from their daily grade.

If you miss class on a particular day, you will be responsible for coming in to make-up the discussion points within two days.

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ABOUT THE AUTHORS

James Folkestad is an Associate Professor at Colorado State University (CSU). He earned his Ph.D. from Texas A&M in Educational Human Resource Development (EHRD) in 1996 and has taught at CSU since 1997. He is currently teaching a course on educational technology within the teacher licensure program and is conducting research on creativity, collaboration, and collective action. He continues to expand his edge-based learning concepts through his website and blog called Edgility (www.edgility.net).

Anne Smith has been a language arts teacher for 11 years and has had the pleasure of having laptop computers in her classroom for the past three years. That experience alone has transformed her teaching as well as the learning in her classroom. Over the past four years she has been a part of an intense staff development process exploring what learning looks like, how kids learn best, as well as the latest and greatest in technology tools to assist in transforming her classroom into a 21st century learning environment where students are in-charge of their own learning.

Maura Moritz has been a language arts teacher at Arapahoe High School in Littleton, Colorado for 11 years. She holds a Masters degree in Information and Learning technologies from the University of Colorado-Denver. She is interested in pushing student-centered learning and enabling students through the use of technology.