

Implementing Participatory, Constructivist Learning Experiences Through Best Practices in Live Interactive Performance

Robert F. Kenny¹ and Jeffery Wirth
University of Central Florida, Orlando, FL, 32816

Abstract

Research has shown that quality teacher-student interactions far outweigh all other considerations to produce positive learning outcomes. Although this may be inherently obvious, few teacher preparation programs dedicate much time to training teachers how to create positive interactive, constructivist learning environments. Much can be learned about how to develop participatory learning skills in their students from a review of the best practices utilized by live interactive performers whose ultimate success is determined by the quality of the interactions with their audiences. The techniques described in this article represent a recollection over a ten-year period of the techniques and tactics utilized by interactive performers and an analysis of these strategies by a researcher trained in instructional design.

Keywords: Interactive teaching, teacher-student interactions, interactive performance, transactional learning, transformative learning.

Very few would argue that the value of establishing a constructivist, participatory classroom is that it is based on the premise that students learn better when they take responsibility and control of their own learning (Bruner, 1961; Jonassen, 1992; Jonassen, Mayes & McAleese, 1993; Piaget, 1950; Twomey Fosnot, 1989; Vygotsky, 1978). In spite of this obvious benefit, implementation and acceptance of constructivist principles have not been universal. Some have suggested, for example, that constructivist strategies are not valid when introducing new content because they place additional loads on cognition that sometimes makes them inappropriate (Kirschner, Sweller, & Clark, 2006). But the most consistent concern about constructivism relates to the difficulties faculty has had in getting their students to actively and consistently participate in classroom activities (Kim, 2005; Mayer, 2004). We agree with those who suggest that full participation requires a major paradigm shift. A cultural change needs to take place with regards to the source of expertise in the classroom (Gray, 1997; Kalyuga, Ayres, Chandler, & Sweller, 2003; Paas, 1992). Classroom instructors who wish to successfully implement participatory learning can benefit by reviewing the tenets of transactional and transformative learning.

In this article we present a series of proven techniques developed by successful interactive performers that we believe will help faculty members implement an inquiry-based, constructivist classroom. Grounded in academic theory, our approach is a synthesized

¹ Corresponding author's email: rkenny@mail.ucf.edu

strategy that borrows from pioneering efforts of the early IP practitioners to engineer social change. It is an approach whose soundness has been validated over a period of several years by digital media producers who have successfully utilized IP practices to develop successful interactive media and video games, by clinical psychologists who have been able to create more effective human-to-human relationships, and by human resource professionals who have improved human performance in their businesses (Wirth, Ingraham & Moshell, 2006). We suggest that they are the very same practices to which early proponents of transformative learning and the more recent iterations of transactional learning had subscribed.

Transactional Learning

Transactional and transformative learning share the principle that the teacher's role is to encourage learners to change the way they think about things. Transactional learning originated in Dewey's (1916) ideas on the transactional relationship between a teacher and his or her students and the role education played in perpetuating a democratic society. Freire (1970) and Mezirow (2000) furthered Dewey's ideas and contextualized them in terms of the kinds of change one wishes to create and on the need for teachers to become critically aware of how and why their student's assumptions can shape the way they perceive, understand, and feel. Transactional and transformative learning share Dewey's ideals that the most effective learning takes place when learners go beyond simple memorization of facts to become authentic learners who are ready to correctly process and internalize that information. Learning 'transactions' are generally triggered by some type of problem that is introduced and shared between learners and their teacher through the co-questioning of assumptions, beliefs and values, and consideration of differing points of view.

We suggest that attempts to implement participatory practices have failed because they tend to be more descriptive than prescriptive in nature. We also believe that many educators have falsely assumed that 'digital natives' to innately know how to act in participatory learning environments simply because they are predisposed to playing video games and contributing information to pervasive community-based Websites. We have been unable to find a consistent set of instructions in the literature that properly illustrates 'best practices' in participatory classroom behaviors. Meanwhile several instances of successful human-human interaction strategies can be found that describe successes by practitioners of clinical and developmental psychology, human performance professionals, video game producers, and live interactive entertainers. In order to successfully implement constructivist principals, educators need to learn how to engage learners in the same ways as do these individuals. Educators look in amazement as they observe their otherwise reluctant and non-engaged students spending hours in full immersion and engagement in front of computer screens (Nussbaumb et al., 2003; Standen, Brown, & Cromby, 2001). This is because game designers and producers have apparently learned how to successfully incorporate interactive transactions and transformative techniques that most instructors merely dream about in their own situations (Klimmt & Hartman, 2006; Reeves and Nast, 1996; Ryan & Desci, 2002).

A complete understanding of these human-human interaction skills is also what differentiates success from failure in improv and interactive theater. Improvisation dates back to the *commedia dell'arte*, which was formulated in Italy during the eighteenth century. Standard play formats would be customized according to current needs through the use of ad-libbed dialog (Mantzius, 1970). Interactive theater came along much later as a cumulative skill set based partially on improvisation. Interactive theater was originally manifested in the Theater of the Oppressed (TO). In TO, interactive dialogs between the actor and spectators were utilized to empower the latter to take action against the social ills associated with those living in impoverished areas of Brazil (Boal, 2002). Boal's ideas were partly based on those of Paulo Freire, who utilized similar techniques in educational settings to bring about attitudinal changes on the part of lower class students. Freire sought to overcome the dehumanizing relationship between teachers and students in which teachers looked upon their students as empty banks that should remain open to the 'deposits' made by their teacher (Mann, 1996).

Following the lead of Freire and Boal, and others, the Interactive Performance Lab (IPL) at the University of Central Florida has been developing, researching, disseminating, and applying richly interactive, live role-playing strategies to inform and enhance the creation of virtual worlds, simulations, video games, and general script development. The goal of the IPL has been to utilize interactive performance to increase its participants' capacity to play out in a story. Researchers at the IPL have developed their Interactive Performance techniques into an academic discipline in the Department of Digital Media. Interactive Performance (IP) combines elements of acting, improvisation, story, psychology, and digital media. In recent studies, the principles of interactive performance have been recently shown to be effective in fostering change in college students by changing their attitudes and pre-conceived notions about social issues, such as sexual discrimination, racism, and social classes (Agogino, Ng, & Trujillo, 2001; Burgoyne, 2004; Gressler, 2002).

Interactive performance and learning

In Interactive Performance the audience plays an active role in co-creating the improvised situation or storyline. The process involves the use of inter-actors who are trained in the skills of interacting with the audience actors and who create and/or elaborate the environments or settings in which the stories are told. They then integrate volunteer audience members (spect-actors), making them *participant protagonists* in their stories (Wirth, Ingraham & Moshell, 2006). It is the role of the inter-actor to keep the story moving and encourage and further integrate the spect-actor(s) through the use of dialog, body language, and an interactive technique known as *back-leading*. This process places the spect-actor, rather than the inter-actor, at the center of the experience. A well-trained inter-actor can make spect-actors become the driver of the stories without their even realizing it.

We suggest that IP can be successfully utilized to help develop participatory, transactional learning environments associated with constructivist learning. A successful constructivist classroom is one in which the instructor plays a role similar to that of the inter-

actor, and students play the role of the spect-actor. Like the spect-actor who collaborates with the inter-actor to create the entertainment experience, the instructor in a constructivist environment needs to be able to offer his or her students a similar opportunity in which they are invited to join as a collaborator in the creation of knowledge. The changing role of the teacher from being the *sage on the stage* to a *guide on the side* (McKenzie, 1998) is sometimes mistaken for being a premise for the teacher to delegate the entire teaching load onto students when, in fact, the best learning situations are actually derived from shared interactions. Like with interactive performing, a properly implemented interactive teaching approach combines the richness of rehearsed (i.e., planned) material, the spontaneity of improvisation, and the empowerment of participation.

Instructional Design Models

The authors suggest that for educators to achieve the emotional impact required for constructivist learning to take place, ownership of that learning needs to be equally shared by teachers and their students. The interactive teaching approach described in this article is the result of mixing various synergistic and appropriate educational theories and practices with those appropriate practices utilized by skillful inter-actors who perform live on stage. The suggested strategies are supported by at least four theoretical instructional design models: the ARCS Motivational Model, Self-Determination Theory, Total Physical Response, and Cognitive Coaching.

The ARCS Model developed by John Keller and his followers (Keller, 1983; 1998; Keller and Kopp, 1987) has been well documented in the literature as the seminal and foundational motivational theory in educational and training environments. The model is hierarchical in nature in that each step or category is dependent on the previous ones to be present. Once the instructor gains students' attention, for example, he or she must then make the content relevant to the learner as well as previous content so that the former will 'buy-in' (invest in belief creation). Once this happens, the instructor can then more easily issue some type of appropriate challenge and provides an avenue for success.

Self Determination Theory is based on the observation that there exists a huge disconnect between a belief in the natural curiosity of people to learn new things and the all-too common experience of apathy, alienation, and irresponsible behaviors in their classroom (Ryan & Deci, 2002). Motivation is generated by at least two social and environmental factors: competency and autonomy. These are closely aligned with the concepts of Challenge and Success in the ARCS model, as well as the principles of engagement found in improvisation and Interactive Performance (Johnstone, 1999; Wirth, 1994). Self Determination Theory has become a well-respected set of principles by which successful video game producers model the desired actions contained in their games.

Total Physical Response (TPR) was developed for learning foreign languages for which the learning experience seems more real (i.e., relevant) because students are making an active (i.e., physical) investment of their minds, bodies, and spirits (Kunihira & Asher, 1965; Asher, 2000b). Proficiency is advanced through conversations (i.e., transactions)

that take place between teacher and learner. Initially, Asher proposed TPR as a system in which some type of physical movement would be utilized to learn foreign languages. He later refined his thinking and evolved it into a concept of *brain-switching*, which relates a method for removing the fear of making mistakes and by applying right-brained tactics that rely on pattern recognition, visual and auditory inputs, and contextualized exemplars to make them more personalized (Asher, 2000a). These tactics can be directly compared to the offer-bending techniques that a skilled inter-actor learns in order to associate information to keep the story arc moving forward while on stage (Johnstone, 1999; Wirth, 1994).

Cognitive Coaching is a reflective teaching model originally developed by Arthur Costa and Robert Garmston (1989) and is derived by blending psychological aspects of cognitive science with the interpersonal characteristics found in human interactions. Cognitive Coaching is based on an assumption that learning requires learners to understand the problem being presented and then alter their thinking process to solve it. A problem or question is posed and alternatives are eliminated systematically through reflection to find the correct solutions.

Theory into Practice

As with a live, interactive performance a successful coaching experience occurs through an interactive dialog in which the spect-actor (student) and inter-actor (instructor) take turns in leading the classroom conversation towards predictions, further questions, summarizing and self-appraising (Wirth, 1994; Johnstone, 1979:1999). We have pared the list of known interactive performance techniques down to a smaller subset that are closely aligned with the teaching practices and theories of Keller (1983; 1998; Keller and Kopp, 1987), Desci & Ryan (2002), Costa & Garmston (1989), and Asher (Kunihira & Asher, 1965; 2000b). The elements of our model have been validated in dozens of workshops that have been conducted by Wirth (1994) for more than a decade as he traveled throughout the country, and more recently in sessions conducted by both authors for masters' level, in-service and pre-service teachers. The process of developing a final instructional model is iterative. The authors intend to conduct future workshops in which the elements of the model will be modified and adjusted as needed.

Assumptions

Before actually beginning with specific strategies, it is important to consider certain assumptions. The first is to understand that the atmosphere in the classroom is better served if it fosters the creation of a sense of play, an element common and central to successful interactive media, video games, and interactive theater. While one might think that the concept of play is rather nebulous, it has been studied to the point of being measured by specific metrics. Based on an interpretation of the findings presented in the P.E.N.S. Model developed by researchers who studied the motivational pull of video games (Ryan, Rigby & Przybylski, 2006), we believe that, if properly implemented, play can become an efficacious and central part of a well-designed, interactive classroom. Developing a sense of play in the classroom adds an emotional tag to the content being learned and

causes students to relate to it in ways that a traditional classroom lecture cannot. These emotional tags emit a feeling of empowerment because the content feels more real (i.e., relevant) on a personal level. Like the emotional involvement derived in an interactive bit performed on stage or a role playing game produced on a computer, this sense of play moves passive responses found in traditional classrooms to an “investment in the belief” in the content being delivered (Wirth, 1994, p.2). It is this investment that forms the basis of the learning transaction being sought in the constructivist classroom. The basis for a successful interactive learning experience, is one in which the concept of ‘knowledge’ becomes an inherent property of the learner who emotionally invests in the process and who is willing to make mistakes in order to learn.

The second assumption is that the instructor needs to be committed to creating a classroom environment in which lessons involve the co-creation of knowledge, knowing full well that the constructivist approach is less economical in terms of the amount or time it takes to implement. Constructivist strategies take considerable more time but are worthwhile if they are applied properly. Even though it takes a little longer to begin with, the time investment pays big dividends because it establishes an inquiry atmosphere and culture of learning in the classroom.

Last, it is important to realize that behavioral change is what is being managed and encouraged. Like in a good story, change is best accomplished when there is a disruption to the norm. Piaget (Wadsworth, 1978) describes this concept as a ‘disequilibrium’ in which the norm is interrupted to stimulate the cognitive powers of individuals due to their desire for consistency. The first step in the process is for the instructor to achieve some type of overt physical change in his or her behavior or the physical appearance of the classroom (like changing the desks around in the room, teaching from a different location, or forming learning circles, and so on). It is better to manage major changes in small, incremental steps, working towards the larger ones. In Interactive Performance parlance, this is known as the ‘ramping’. The inter-actor asks the spect-actor to engage in small increments using leading questions, paying attention to small changes in body language, facial expressions, and other clues. In educational terms, this is similar to Vygotsky’s (1978) zone of proximal development, or the gap between what learners can do and what they might do with if they receive help.

Getting a large number of people to accept change is best accomplished by first getting a small group to go along as a form of ‘social proof’. Once a few individuals begin to overtly buy into the proposed change, others will follow along until there is a majority. Any activity that starts out as a group exercise requires that the group members bring back to the whole class at least one new idea they have learned. This overt reflective activity can be accomplished by having one member from each group write on the board the most important thing they learned and then having the entire class determine if there are any common threads that arise by reading each group’s contribution.

Removing the fear of being wrong

Of utmost importance in creating a collaborative learning environment is to remove the stigma (and fear) associated with being wrong. We believe that the most common reason that students are afraid to raise their hands is because they are afraid to be wrong or do not wish to look foolish front of their peers. These feelings are fostered by years of operant conditioning and negative attributions associated with being wrong. The television show *Candid Camera* would not have worked if the participants knew they were being filmed. In the same light, many students do not like the spotlight being shone on them. The trick is to have students participate (i.e., invest in the belief) with the teacher playing the role of the inter-actor or improvisational performer who takes whatever is offered by the spect-actor (i.e., student) to further along the storyline (i.e., academic content). By interacting with the teacher in this manner, the learner begins to physically participate (i.e, invest) in the process, in manner similar to the Total Physical Response model described by Asher.

The first step in establishing a receptive learning environment is to help participants move past their fears so they might begin to ‘invest’ in the question. In this situation all answers are valid. When playing a video game a player/learner loses his or her fear of being wrong. The instructor needs to recreate this same fail-safe environment in which the students begin to invest in the belief, allowing him or her to craft whatever response is offered towards the desired outcome. In other words, students should be rewarded for taking chances rather than being punished. In other words, the instructor needs to determine the purpose for asking the question in the first place. In a constructivist classroom questions are used to stimulate dialog in which students learn from their mistakes. Maximum participation will not occur if too many students are afraid to raise their hands. This approach is rooted in the Freire’s ideas that break away from established social rules associated with being right or wrong and establishes the same sense of inquiry and play found in a child’s sandbox. In an imaginary world, all content is made relevant through the emotional tags associated with the storyline in which self-esteem is enhanced because a fear of making mistakes is removed. In the classroom, all responses to questions become an investment towards the desired outcome(s). An answer is examined and the instructor begins to adapt it and attach appropriate assumptions.

Methods to elicit participation

In an interactive performance, empowering the audience is key. If no one voluntarily makes an offer because they are afraid to appear foolish, it is up to the performer to provide a comfort zone by demonstrating that being wrong is harmless and not a source of discomfort. The performer may accomplish this by requesting questions for which he or she does not know the answer or perhaps intentionally making an incorrect response. The situation in the classroom is identical. The teacher models what being wrong means by being willing to take the risk of being incorrect. This one act changes the power structure in the classroom because the students become the ones with the knowledge. Once the instructor provides an incorrect answer, the group then begins to explore why it is wrong and begins to adapt the response towards a more correct one.

Another way to engage students is to solicit wrong answers. The instructor asks the students to provide answers to a question that they know (or suspect) is incorrect. This gives

students permission to be wrong. A ‘wrong’ answer becomes a ‘right’ one because a wrong answer was solicited. The instructor initially responds with correct answers and then begins, through light-hearted interchanges, to alternate between correct and incorrect answers. This builds the momentum towards full participation and provides some interesting moments.

A third tactic is to ask students to simply make guesses. Getting individuals to respond to this way is a bit more difficult but provides an alternative means to grant permission to be wrong. A ‘fault-free’ atmosphere of volunteering answers evolves and provides another means by which students invest in the discussion. Even in an entertainment setting, the process sometimes can become stalled. The successful interactive performer quickly learns many of the standard ways to ramp things up and move things along. One method that many performers use is to provide the audience member with a ‘lifeline’, in which he or she is offered an opportunity to call upon another individual to help them out. This concept of extending audience interaction has been popularized in many successful television game shows. The process works identically in the classroom. A struggling student with an answer is offered an opportunity to call upon a peer to help them answer the question. Involving other students increases the number of those engaged in the activity. The process works best when the student who is struggling restates the correct answer using his or her own words so that he or she embodies (i.e., acts out) the experience.

Bending the offer (i.e., answer)

Once students begin to invest in the dialog, the next step is to begin working with the answers that are provided and begin putting them to good use. Like the interactive performer, the instructor associates or ‘bends’ incorrect answers towards desired ones. In improvisation an *offer* is anything that is said or done. In the interactive classroom students’ answers to questions represent an offer. When students provide the offer, the instructor can then begin to build upon it and make use out of it by bending it. In an educational setting, bending an offered answer means to restate it or reinterpret it in a way that makes it a useful means to finding the desired one. In interactive performance, this situation is called a ‘peg’, a scenario in which something is offered and although seemingly incorrect, becomes the basis for further discovery.

For example, the instructor may ask “how much is two plus two” and a student responds with “five”. The instructor might speculate aloud under what circumstances five could possibly be correct. Instead of simply saying “No!”, he or she utilizes the answer provided to create a peg for further dialog. The instructor might ask, “Give me a way that two plus two could equal five”. Two plus two might equal five if two is a multiplier of a set. For example, if each set is worth two dollars and fifty cents, then two of these sets will equal five (dollars).

The value of this activity is twofold. First, it establishes a dialog of inquiry by setting up an exploration of alternative responses. Second, a teachable moment is created: in this case, the concept of sets is introduced. Learning how to bend offers is not easy, or can it be used in all cases. Just as Kirschner et al. (2006) argued, extended critical thinking in-

creases cognitive load and may not be appropriate during initial learning situations. On the other hand, conceptualizing alternative responses in this manner fits with what Keller and his followers had in mind when they spoke of issuing appropriate challenges and providing avenues for success (Keller, 1983; 1998; Keller & Kopp, 1987). A valid concern regarding the use of this tactic is that students might set incorrect answers in their minds because a clear line is not initially drawn between correct and incorrect responses. Conversely, the value of wrong answers in this scenario is that they serve as a mnemonic device to which to attach right ones. Students remember their responses because they generated them. Their responses become the figurative ‘Velcro’ to which correct answers are mentally attached.

Infusing relationships

Once the momentum of participation has been established, and the instructor becomes more self-assured that he or she can handle this type of extemporaneous environment, the next step is to utilize a tactic to catalyze the experience. The instructor creates physical and emotional ties with the subject matter by anthropomorphizing it. This provides an opportunity for students to begin acting out the human-like characteristics of the object or concept. It requires at least minimal knowledge about the topic by some of the student in the class. The instructor begins by interviewing a student, who has agreed to ‘become’ that object or concept. For example, in a science class the topic might be electrons. The instructor begins by asking the student to play the role of an electron with questions like “how do you feel” or “what do you do all day?”

Just like with an improvisational performance, it is important for the instructor to ask leading questions that cannot be answered with a simple ‘yes’ or ‘no’. Simple questions lead nowhere. In improv, the concept of one party making an offer that provides their partner with additional information so that he or she can decide on a direction for bending it or offering a peg. In the classroom situation, the instructor might offer a hint within the question. In the case of the humanized electron, a better question than “what do you do all day?” might be “what other (kinds of) electrons do you spin around all day?” The latter question provides a hint as to the correct response, which helps ramp up the thinking of the student. In this situation, the instructor begins to gradually attach emotional tags to future questions. For example, the instructor might wish to provide information that not all electrons are ‘friendly’ with each other and might ‘fight’. With a proper set-up and properly phrased questions, the interview technique can reap many dividends but requires practice to learn how to create the correct form of questions lest they lead to new misconceptions.

Group interactions

The activities described thus far are generally introduced to the class as a whole. It is important that they be iterated multiple times so that the concepts become recognized as the norm. Once a majority of the students begins to demonstrate their understanding of the flow and handling the interview process independently, the next step is to break the class into groups of three or four and have members ask each other questions. The role of the

interview should be passed on with everyone taking turns asking and responding. On a rotating basis, one person is tasked with keeping a journal of the questions and responses so that a record is maintained to keep the groups on task. The instructor moves among the groups to witness the process and provide summative feedback. While the steps outlined in these approaches are intended to encourage increased engagement, the rare situation may arise in which too many participate, resulting in frustration due to everyone wishing to participate at once. Group activities are the way to handle this situation. Often, using groups can cause the instructor to lose sight as to what is happening. The best policy might be to model these activities so each individual knows what is expected.

Handling disruptive behavior

A situation may occur when certain individuals display passive aggressive or more overt disruptive behaviors. An improv performer might encounter a heckler, who is bent on disrupting the flow of the performance. During interactive performances, spect-actors have been known to purposely or inadvertently respond in ways that undermine the flow of the dialog. These behaviors are referred to as 'blocking'. The reasons may vary but usually involve one partner wanting to be funny, wanting to usurp control, or simply getting stage fright. Like the beginning performer, the inexperienced interactive instructor needs to learn how to handle those displaying passive-aggressive behaviors and who are either reluctant participants or who play the role of a blocker who wishes to disrupt the flow of the classroom. The important thing to remember is to have patience and look upon these situations as opportunities. An interactive performer learns that even disruptive behavior can be looked upon as offers.

In some ways reluctant participants can be more difficult to handle than overtly aggressive individuals. Both behaviors are symptoms of fear and will manifest in different ways. Handling these situations correctly is an acid test for the interactive instructor and in its own way provides validation of the efficacy of all the tactics and strategies described so far. Usually, passive aggressive and disruptive behaviors are a reflection of a negative attribution resulting from several years of operant conditioning that these individuals learn to use to cover their fear of failure, personal or family problems, etc.

It is important to know that participation is more important than content at this point. Getting the individual to make any kind of *offer*, even one that is not 'on task' should not be confused with a lack of progress. Any step forward, no matter how small, indicates that the dialog is progressing. *Strokes* (i.e., positive reinforcements) should be returned with each offer that is accepted by the reluctant participant. A good stroke is not an empty one but one that includes a *peg*, a statement or question that leads to the next step in the dialog. The peg can be a simple restatement of what was just said, or it could include additional information. If, for example, in a history or social studies class and the dialog is about slavery and the reluctant student has finally begun to role-play, the instructor might ask "So how does it feel to be a slave?" The student might reply with one word –"lousy!" The instructor then reiterates the feeling and adds, "So, you feel poorly because your master whipped you today", or "life is pretty tough having to work all day in the sun... are you thirsty and tired?" The ramping process is simply beginning at a very small in-

crement. The goal is empowerment. What empowers the effective interactive teacher is finding ways to empower his or her students. Giving them confidence and hints as to where to go with the next part of the dialog is the easiest and most effective way to overcome reluctance to participate.

Incorporating a tag

In interactive performance, a *tag* is a “brief handle that helps the audience reflect on the story they have just seen” (Wirth, p. 68). Summarization and reflection are valid and meaningful activities in situations whose goal is to have its participants recall information at a later time. The tag is what brings structure to what otherwise seems like an unplanned, ad-libbed enterprise. For students in a mathematics or science class, the tag could take the form of a written journal or a group discussion, or a short review at the end of the class period of the progress made, conclusions discovered, or most significant thing learned. In a literature class, one could ask students to utilize their journals to create a fictionalized account of a dialog that could have taken place between themselves and a famous person using the same interview techniques modeled and practiced in class. That review/dialog could then be utilized as the *hook* (advanced organizer) during the introduction to the next class session. The tag should always loop back to how the activity got started so that students begin to understand the process.

Summary & Conclusions

The elements outlined in the development of this teaching approach were chosen based on the authors giving careful consideration to the activities utilized by successful interactive performers that were also judged to have the greatest impact on the constructivist classroom experience. The process of narrowing down the activities involved reflecting on the results of workshops delivered to pre-service and masters’ level teachers over a ten-year period. Participants in these sessions came from all academic disciplines and taught in both K-12 and higher education. While these techniques are not a panacea, many participants reported in follow-up questionnaires that they had been able to make significant strides in creating a culture of participatory learning in their classrooms. Diffusion required both students and their teachers to buy into them and practice their tenets.

While this teaching approach appears to share many of the same characteristics and principles as other instructional delivery methods, the difference lies in its implementation. The instructional landscape is very similar to that of a video game in many ways. Interactive teaching involves authentic role-playing between teachers and students in which a content storyline is co-developed. As with an interactive performance the story (i.e., knowledge goal) may be preset or created on the fly, but in either case, it becomes a tool or instrument for learning. Content is presented as a non-threatening challenge in which the fear of making mistakes is taken out of the equation. Issuing a challenge in this manner is a delicate balance of making demands on the intellect but at the same time ensuring that the avenues for success are always present and apparent to the learners. In interactive performance, lifelines are offered. In video games this is referred to as a *cheat*.

The authors have found that these activities are applicable in all academic disciplines. The interview technique, for example, has worked in science (in which the instructor interviewed students to find out how it feels to be an electron), in mathematics (under what circumstances two plus two can equal five), in foreign languages (using TPR techniques), and in literature and social studies/history (in which students learned the story invention process in order to create fictional accounts of historical events, etc.).

The next step is to formalize the model and begin collecting empirical data to determine long-term instructional effectiveness and impediments to its full adoption in teacher preparation programs.

References

- Agogino, A.M., Ng, E., & Trujillo, C. (2001). Using interactive theater to enhance classroom climate. *Proceedings of the WEPAN/NAMEPA*. Alexandria VA, April 21-24.
- Asher, J. J. (2000a). *Learning another language through actions* (6th ed). Los Gatos, CA: Sky Oaks Productions.
- Asher, J. J. (2000b). *Brainswitching: Learning on the right side of the brain*, (2nd Ed). Los Gatos, CA: Sky Oaks Productions.
- Boal, A. (2002). *Games for actors and non-actors*, (2nd ed). Translated by Adrian Jackson. New York: Routledge.
- Bruner, J. S. (1961). The act of discovery. *Harvard Educational Review*, 31(1), 21–32.
- Burgoyne, S. (2004). Engaging the whole student: Interactive theatre in the classroom. *Toward the Best in Academy*, a publication of the Professional Organizational Development Network in Higher Education, 15(5). Retrieved January 11, 2008: <http://oregonstate.edu/ctl/articles/packet1/Engaging%20the%20whole%20student.htm>.
- Costa, A., & Garmston, R. (1989). *The art of cognitive coaching: Supervision for intelligent teaching*. Sacramento, California: The Institute for Intelligent Behavior.
- Dewey, J. (1916). *Democracy and education: An introduction to the philosophy of education*. New York: Simon & Schuster.
- Freire, P. (1970). *Pedagogy of the oppressed*. London: Continuum Publishing.
- Gray, A. (1997). *Constructivist teaching and learning*. Saskatchewan, CA: SSTA Research Centre Report. Retrieved January 2, 2008, from <http://saskschoolboards.ca/research/instruction/97-07.htm>.
- Gressler, T.H. (2002). *Theatre as the essential liberal art in the American university*. Lewiston NY: Mellen Press.
- Johnstone, K. (1979). *Impro: Improvisation and the theatre*. New York: Theatre Arts Books.
- Johnstone, K. (1999). *Impro for Storytellers*. New York: Routledge/Theatre Arts Books.
- Jonassen, D. H. (1992). Evaluating Constructivistic Learning. In *Constructivism and the Technology of Instruction: A Conversation*, eds. T Duffy and D. Jonassen. Hillsdale, NJ: Lawrence Erlbaum.
- Jonassen D., Mayes T., & McAleese R., (1993). A manifesto for a constructivist approach to uses of technology in higher education. In T. M. Duffy, J. Lowyck, D. H. Jonassen and T. M. Welsh (eds) *Designing environments for constructive learning*. Springer-Verlag.

- Kalyuga, S., Ayres, P., Chandler, P., & Sweller, J. (2003). The expertise reversal effect. *Educational Psychologist*, 38(1), 23–31.
- Keller, J. M. (1983). Motivational design of instruction. In Charles. M. Reigeluth (ed.), *Instructional design theories and models: An overview of their current status*. New York: Lawrence Erlbaum, 383-434.
- Keller, J. M. (1998). Using the ARCS process in CBI and distance education. In Michael Theall (ed.), *Motivation in teaching and learning: New directions for teaching and learning*. San Francisco: Jossey-Bass.
- Keller, J. M. & Kopp, T. W. (1987). Application of the ARCS model to motivational design. In Charles. M. Reigeluth (ed.), *Instructional theories in action: Lessons illustrating selected theories*. New York: Lawrence Erlbaum, 289 - 320.
- Kelly, G. A. (1991). *The psychology of personal constructs. Vol I: A theory of personality*. New York: Routledge.
- Kim, J. S. (2005). The effects of a constructivist teaching approach on student academic achievement, self-concept, and learning strategies. *Asia Pacific Education Review*, 6(1), 7-19.
- Kirschner, P. A., Sweller, J., and Clark, R. E. (2006) Why minimal guidance during instruction does not work: an analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist*, 41 (2) 75-86.
- Klimmt, C., & Hartmann, T. (2006). Effectance, self-efficacy and motivation to play video games. In *Playing Video Games: Motives, Responses, and Consequences*, P. Vorderer & J. Bryant (eds). New York: Lawrence Erlbaum Associates.
- Kunihira, S. & Asher, J. J. (1965). The strategy of the Total Physical Response: An application to learning Japanese. *International Review of Applied Linguistics*, 3(4).
- Mann, B. (1996). The pedagogical and political concepts of Mahatma Gandhi and Paulo Freire. In: B. Claußen (Ed.), *International Studies in Political Socialization and Education*. Hamburg.
- Mantzius, Karl. (1970). *A history of theatrical art in ancient and modern times*. Peter Smith.
- Mayer, R. (2004). Should there be a three-strikes rule against pure discovery learning? The case for guided methods of instruction. *American Psychologist*, 59(1), 14-19.
- McKenzie, J. (1998). The wired classroom. *From Now On Educational Technology Journal*, 7(6), March. Retrieved February 3, 2009, from <http://fno.org/mar98/flotilla2.html>.
- Mezirow, J. (2000). *Learning as transformation: Critical perspectives on a theory in progress*. San Francisco: Jossey Bass.
- Nussbaumb, M., Cumsillea, P., Marianov, V., Correea, M., Floresa, P., Graua, V., Lagosa, F., Lópeza, X., Lópeza, V., Rodriguez, P., and Salinas, M. (2003). Beyond Nintendo: design and assessment of educational video games for first and second grade students. *Computers & Education*, 40(1), 71-94.
- Paas, F. (1992). Training strategies for attaining transfer of problem-solving skill in statistics: A cognitive-load approach. *Journal of Educational Psychology*, 84, 429–434.
- Piaget, J. (1950). *The psychology of intelligence*. New York: Routledge.

- Reeves, B. & Nast, C. (1996). *The media equation: How people treat computers, television, and new media like real people and places*. New York: Cambridge University Press.
- Ryan, R. M & Deci, E. L. (2002). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78.
- Ryan, R. M, Rigby, S., & Przybylski, A. (2006). The motivational pull of video games: A self-determination theory approach. *Motivation and Emotion*, 30(4), 344-360.
- Standen, P. J., Brown, D.J., & Cromby, J. J. (2001). The effective use of virtual environments in the education and rehabilitation of students with intellectual disabilities. *British Journal of Educational Technology* 32(3), 289–299.
- Twomey Fostnot, C. (1989). *Enquiring teachers, enquiring learners: A constructivist approach for teaching*. New York: Teachers College Press.
- Vygotsky, L.S. (1978). *Mind and society: The development of higher mental processes*. Cambridge, MA: Harvard University Press.
- Wadsworth, B. (1978). *Piaget for the Classroom Teacher*. NY: Longman.
- Wirth, J. (1994). *Interactive acting: Acting, improvisation, and interacting for audience participatory theatre*. Fall Creek, OR: Fall Creek Publishing.
- Wirth, J., Ingraham, K., & Moshell, J. M. (2006). Digital media and environmental interactive performance. Paper presented at the iDMAa+IMS Conference 2006 (International Digital Media and Arts Association), Oxford, OH, April 6-8, 2006. Retrieved January 2, 2009 from: www.units.muohio.edu/codeconference/schedule/Conference%20Schedule%20for%20Web.pdf.