

The Use of Animated Case Studies as a Tool to Influence Pre-service Teachers Preparedness in Classroom Management

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Abstract

This project is an effort to provide support for teacher education and classroom management that is more comfortable for students in this generation that are digital natives and have used software to enhance the reinforcement of their classroom materials. The authors have endeavored to add more support for classroom management training by also providing online computer-based training to compliment formal traditional training materials that are provided through lecture and reading materials. We have developed Spectrum Educational tool as a set of animated classroom management scenarios that depict action, activities, and actual classroom scenes. The cohort class was presented with this tool and were given a questionnaire to assess user satisfaction with the aesthetics of this application and potential educational benefit. The cohort positively reported their high user satisfaction and the application's benefit to their critical thinking based on their interaction with the animated educational tool.

Keywords. Classroom Management, Pre-service teacher training, Online Educational Environments, Animated Simulations, Prototype, Usability, User Study, Novice Teacher

1. Introduction

Teaching in the classroom is a very challenging process. To be qualified to teach in the classroom, teachers are expected to pursue a degree in the education subject area and a certificate from their state to the that they have been approved to teach that particular subject. Apart from this, they need practice to groom their instructional skills and skills to manage the classroom. Teachers go through an extensive training process as a part of teacher training preparation. During this training, they are taught various classroom management techniques and practices. The preparation often times includes lesson plans planning, developing the course content for lectures, creating illustrations that engage students to participate in discussions, role-plays, and etc. All of this preparation provides support for teachers to be effective in classroom teaching but what is done to ensure that they can succeed in managing the classroom.

Effective teachers manage and organize the classroom, in the beginning of the year, according to student's needs and preferences to create an optimistic and warm learning environment for all the students and enhance learning.

Emmer (1980, 2003) states “effective teachers take time in the beginning of the year and especially on the first day of school to establish classroom management, classroom organization, and expectations for student behavior”.

According to Sokal et al. (2003), classroom management seems to be a high priority for novice and experience teachers. New teachers rarely learn classroom management in this era of higher educational standards and increased testing. In the eyes of the school principals and experienced teachers, the ability to manage classroom behavior is an essential skill (Brophy & McCaslin, 1992).

Many first year teachers do not demonstrate confidence in this area. Romano (2008) reported that beginning teachers believed that more preparation for classroom management would help increase preparedness to teach and alleviate the struggles experienced during the first year of teaching. Research has shown that beginning teachers resign during the first three years of teaching (Fleener, 2001; Roulston, Legette, & Womack, 2005). Among some of the causes of these early resignations is not being able to handle their classroom behavior issues.

Pre-Service Teachers interviewed in their final year of teacher preparation claim that they leave the university feeling inadequately prepared for professional practice and often uncertain about what will confront them when they arrive at schools (Cambourne, Kiggins, and Ferry, 2003; Armour and Booth, 1999). Schools that employ recent graduates support such claims and further assert that most recent graduates are often unaware of how classroom cultures operate and find it difficult to transfer what they’ve studied at university into effective classroom practice. They also feel that they do not receive adequate classroom management training prior to beginning their teaching careers. They feel unprepared for the demands of managing student behaviors in their classrooms.

Many colleges of education train teachers in management by using classroom models that usually include theories, learning approaches or models of management. Evertson (2008) and Manning (2012) two leading writers of classroom management in their texts support models and approaches for instructing pre-service teachers to prepare for managing their classrooms. These models and approaches range from beliefs about the role of teachers and students within classrooms and societies purpose of schooling. The texts present a wealth of information and activities that supposedly prepare teachers to develop and apply a personal classroom management philosophy. Using the models approach, Manning and Bucher present a thorough discussion of theories, models, and philosophies of classroom management, tackle the growing problems of school violence and bullying (including the “safe school” movement and cyber-bullying); and give thoughtful discussion to diversity and classroom management but do not provide any opportunities for interaction with students to apply these theories or approaches. Countless argue — particularly proponents of the nontraditional pathways through which teacher candidates enter classrooms with little preparation — that classroom management can only truly be learned through experience. Much is suggested that experiences help in supporting pre-service and first-year teachers to have the capacity to achieve a well-managed classroom but most time this well-managed classroom is developed only through trial and error from years of teaching experience.

We as researchers have observed that Pre-service teachers have not been given much time to engage in experiences that lead to managing classroom behavior. Wong (2016) states that the most common mistake is that teachers don't do classroom management. They present lessons, and if something goes wrong, they discipline. Classroom management is not discipline. You manage a store. You don't discipline a store. You manage a team. You don't discipline a team. You manage a classroom. You don't discipline a classroom. Wong defines classroom management as the practices and procedures that allow teachers to teach and students to learn. As a methods teacher, I have had many pre-service teachers in the field coming back to class and reporting that the teachers are yelling at the students, micromanaging the class behavior, having students write lines, not listening and even teachers bullying students. All of which are ineffective and does not provide pre-service teachers an opportunity to experience effective management strategies. They end up experiencing strategies that do not work within the classroom and most of the time their nerves are being tested as to ways to solve the issues.

As the Methods teacher for classroom management and my colleague, Computer software teacher, we decided to conduct research as to whether pre-service teachers would be interested using animated case studies to help them in studying and discussing effective management strategies. This would be an educational tool designed by the computer software instructor’s students in the College of Engineering. My task would be to provide the necessary solution to each animated case along with the questions based on management strategies.

This tool will be known as an educational tool that presents an animation of class behavior of real life situations from the classroom to view, interact and discuss in the preparation of Pre-Service Teacher's thinking and solving management issues in the class.

2. Background

The animated experiences can be created through simulations that mirror the features of the complex classroom environment. Harper et al. (2000) claim that it is feasible to create communication tools that apply to classroom simulations. This is accomplished by allowing users to view the effects of their decisions from multiple perspectives. The structure of the devised simulation incorporates feedback and advice, specifically through devices such as a thinking space plus the opportunity to repeat a lesson and explore alternative decisions. Usually, this is not feasible, nor practical in the traditional modes of classroom. Harper et al. (2000) claim that it is feasible to create communication tools that apply to classroom simulations by allowing users to view the effects of their decisions from multiple perspectives. The structure of the devised simulation incorporates feedback and advice, specifically through devices such as a thinking space (creative work-space that allows for creativity and innovation) plus the opportunity to repeat a lesson and explore alternative decisions. The researchers of this study sought to provide teachers with an animation technique, where animated case study simulations were created to support typical classroom experiences thus training teachers to think about what would be the best solution for correcting the behavior. Thus pre-service teachers were better able to interact with these detailed experiences and theory from the classroom helps to assess how to proceed before they have been provided any actual classroom lab experience.

3. Simulation Rationale

Researchers have found that the motivation of the teacher should be taken into account in developing animations (simulations) for pre-service teachers; hence in doing this there is a promotion towards teacher effective professional growth. Simulations as learning environments have a long history of use in education and training (Grabinger, 1996). In the last ten years simulations have become increasingly popular for creating realistic digital environments that closely replicate the world and the workplace. The development in virtual reality and simulation engines have led to the release of many popular simulation games, such as The Sims series that includes SimEarth, SimCity and the Sims. By manipulating these types of simulated environments users learn how to manage complex environments and the consequences of the decisions they take by being situated within these virtual environments.

Therefore the use of simulators has proved to be effective for training and teaching. Simulation is a technique for practice and learning that can be applied to many different disciplines and trainees. It is a technique (not a technology) to replace and amplify real experiences with guided ones, often "immersive" in nature, that evoke or replicate substantial aspects of the real world in a fully interactive fashion. Airlines require pilots to log simulator hours. Electrical engineers conduct simulations on a daily basis to check load requirements. The Pentagon simulates potential war practice conflicts. Medical students learn on plastic patients that are programmed to exhibit all manner of symptoms in rapid succession. Business schools have a Wall Street trading room, complete with the ability to simulate any market event. Health educators use entertainment style games, simulations, and social networking tools to construct effective learning environments in the classroom and online, Kaufman and Lauve (2010). Simulation has also been shown to be a reliable tool for assessing learners and for teaching topics such as teamwork and communication. Therefore it would only seem appropriate for educators to simulate classroom environments to support the training of pre-service and first-year teachers to meet various challenges of the classroom.

3.1 Classroom Model

Many classroom behavior strategies are based on theories, approaches or models. In teacher education programs classroom management is taught as a course that utilizes strategies from textbooks, videos and some observations in lab or field placements. In many instances, pre-service teachers only get a chance in certain instances to observe the teacher using effective management strategies. Often time pre-service teachers observe teachers that only discipline students rather than managing the classroom (Wong, 2016).

Pre-Service Teachers need experiences that will allow them to manage challenging behavior. This is a serious concern, particularly the extent to which teachers know how to (a) examine the function of the behavior, (b) develop appropriate interventions for children displaying those behaviors, and (c) understand their own role in the escalation or de-escalation of the behaviors (Butler & Monda-Amaya, 2016).

The researchers of this study were interested in whether pre-service teachers would benefit from being exposed to a broader variety of animated teaching scenarios that they normally would not encounter and whether they would like to be trained using some type of online learning environment. Schools that employ recent pre-service teacher graduates support such claims that most recent graduates are often unaware of how classroom cultures operate. They find it difficult to transfer what they have studied in their teacher education classes into effective classroom practice. We felt that if we created a tool utilizing an animated case study scenario, this would help PST's transfer their strategies and receive some type of experience similar to the classroom. These novice teachers would be able to use their prior knowledge to explore the problem, react to the problem and eventually solve the problem.

Hirca conducted a study using an animated case study scenario based on the 5E model to enhance Pre-service teachers' awareness of electrical safety. It was found to be effective in teaching first aid and helping pre-service teachers acquire and retain technical skills about the electric shock (Hirca 2012). In another study by Hoban, McDonald, and Ferry it was found that elementary pre-service teachers improved their science knowledge when they created their own animations. We wanted to investigate whether our PST's given a similar tool of examples of classroom management scenarios of appropriate classroom management techniques would find the animated scenarios as helpful as a curricula aid.

3.2 Case Development

This case development was part of an assignment where students from two cohorts (X and Y) were given the following assignment:

A CASE STUDY OF A CLASSROOM MANAGEMENT ISSUE

Purpose:

To learn more about a case in your classroom on the issue of classroom management and discipline, and related educational research that can help your understanding and potential intervention strategies

Introduction:

*A **case study** in teacher education is the study of one particular case, person(s), situation, or issue in the classroom that is important for us to better understand because of its complexity, the need for attention, and/or usefulness to help improve knowledge and practice. Case studies of real classroom situations and difficulties have the potential for eliciting deep reflection, thought, and dialogue that can lead to a change in practice and beliefs about teaching and learning. Classroom cases typically have no simple answers or solutions, thus requiring additional attention and study.*

Assignment:

*You will choose a particular 'real' classroom case that centers on the issue of classroom management and discipline in your methods placement that you think needs additional attention for some change or better outcome. You can NOT choose any case that involves a student who is classified as special education or with a 504 Plan – e.g., ADD, visual disability, behavior disorder, other. You will make your choice in consultation with your classroom teacher, so this should **NOT** be a situation where you think the classroom teacher is the direct cause of the issue or problem. The steps you will take to complete this project are:*

- 1. Identify and describe the case for study – define and describe and the issue or difficulty it poses using as much detail and examples as possible without identifying any school or person(s) by real names – Use pseudonyms to protect anonymity and confidentiality.***
- 2. Search for related educational articles, practitioner, and research-based, that shed some light and understanding on this it or related issue or problem. Use the **ERIC search** database of our library to locate the best educational articles that are research-based. Reference your source findings using American Psychological Association (APA) format.***
- 3. Summarize in your own words what you have learned from each article***
- 4. Write up your case analysis based on your research and further thinking of your case.***

Both cohorts (X and Y) submitted the assignment. The assignments were reviewed by the first researcher, Education Methods Instructor who decided to use cohort X cases because they provided a variety of real live situations that had occurred in the field experience classroom. Cohort X assignments were then given to the second researcher Computer Software Engineer for the purpose of selecting the case that would be more visually appealing. Both Researchers chose 3-5 case studies for the computer students in the second researcher's computer class to review and use as a basis to develop the animated case studies. The computer students completed the case studies scenario 1, 2, and 3. These cases were created as animation for Spectrum Educational Tool. The tool was then given to cohort (Y) for evaluation. After viewing the scenarios in the classroom with researcher 1 and 2. Open-ended survey questions were distributed to cohort Y for discussion.

4. Method

The spectrum educational tool is a learning environment for pre-service teachers. The application was created for use in multiple environments (i.e. supported on multiple platform and browsers). The experiment began with Cohort Y's 23 students accessing the online Spectrum Educational tool. These students were given an overview and rationale for this experimental activity. The pre-service teacher views the application and selects an educational case study and then reviews that case. Every case study gives the pre-service teacher the opportunity to review various classroom situations. At the end of the case, they are asked to reflect on the case and make a decision in classroom management. This gives the students the opportunity to prepare for various classroom environments that they could face while teaching. This is an example of the flow of a case for viewing the animated study. *The primary user will Primary Actor* will access the prototypical system and navigate and review different case studies. *The PreConditions are that* the student used either a desktop/laptop/mobile device with Internet connectivity. After the user completes the case studies, they gain knowledge in classroom management and enrich their exposure to positive classroom teaching episodes to strengthen their practical educational preparation. Some of the scenarios of students that are the following: Apathetic Students, Grouped or Not Grouped Students, Stalking Students, Questioning Student, Nostalgic Student, Emotionally Neglected Student, etc. An example scenario of the "Stalking Student" is as follows: "Ms. Smith is a new teacher and to get to know her students better she ask them about their weekend every Monday. She has a talkative student named Jim that always tells the class, way too much information; because of Jim's interruptions and monopolization of the dialog, she might have to change her Monday routine. This "Stalking Student" can disrupt the class, by derailing class progress by stalking (i.e. the practice of disrupting the teacher by monopolizing class time, see figure one.)

With the "Questioning Student", a teacher is teaching the solar system to her students. Student Jim asks many questions to the teacher and this questioning student can be a disaster to classroom management and figure 2 is an example of this scenario.

The "Bullying Student Scenario is as follows: At school lunch duty, teachers help to monitor the activities of students on the playground. One day on your shift right before the bell is to ring to end the lunch recess, a student from your class comes up and tells you that Jon (another student from your class) has been throwing rocks, at both the building and in the general direction of other students. As you walk over to where Jon is you, you see he now has a big rock in his hand. You first ask Jon to put down the rock and he refuses to comply by stating "You can't make me" and figure three is an example of this scenario.

The student viewers of the animated scenarios have an opportunity to view the animations or potential classroom situations and can interact with the animation to convey their understanding of how to handle this scenario. After the students interact with the animation and complete the reflection questions, they are asked to complete survey open-ended questionnaire that describes their experiences with the prototype system.

5. Results

Education is the first level of influence in all disciplines. Animation can be an exciting educational medium. It provides a training environment that is rich and responsive to educational training. It involves a transfer of practical experiences that facilitates constructivist-learning activities. The students in this study reported the importance of critically thinking about the animated case studies. They felt that overall the case studies were useful in solving problems. The pre-service teachers also thought that they were appealing to the visual learner, were beneficial, and gave additional support to clarify more problems that were presented in the case studies and this can be seen as a thematic representation of student responses in figure four.

Table one shows how pre-service teachers (cohort Y) viewed the usefulness of the animated cases. Most pre-service teachers shared that they felt the cases were useful, problem solvers, good for the visual learner, and promoted critical thinking. Some pre-service teachers felt that based on their learning styles the animations were not useful and that they would rather read the cases and provide their own solution.

“I think it is useful in teaching classroom management.”

“I think having a visual is helpful in solving the problem.”

“I think that after having the lab experience the virtual classroom would be a very beneficial activity.”

“I think that the animation would help give a better visual of the problem.”

“I think that having an animation for the case studies help in solving the problem.”

“It is helpful in giving a better understanding of what is happening in the case.”

“It helped me to think more critically about solving the problems.”

“It clarifies what is going on in the scenario.”

“It would be extremely helpful in classroom management. It would give us an opportunity to learn and experience what is going to happen in the classroom.”

“Yes, because I got to see these cases happening instead of just reading the cases.”

5.1 Significance of the Study

This research addresses a gap in the research on educational simulations and specifically focuses on their potential to develop learners' understanding of complex situations. The key feature of an educational simulation is that it makes use of a model to represent a process, event or phenomena that have some learning significance. This dynamic interaction between practicing a simulated classroom can reflect experiences of the true nature of many classrooms. The animated simulation is designed to improve pre-service teacher understanding of how students react in the classroom and based on various classroom situations that are played out through an animated event. The animated simulations combine four main categories of teacher learning as described by research: technical (skill emphasis) inquiry based (process emphasis); collaboration; and reflection. It is designed to allow users to fully participate or to be an observer from the boundary engaging in what Lave and Wenger (1991) call "legitimate peripheral participation".

It develops critical thinking, support sampling a method of teaching, and it makes abstract models more assessable.

Studies into the complex learning situations presented in simulations by researchers such as the Cognition and Technology Group at Vanderbilt (1990), Gee (2000), Jonassen, (1997), Reigeluth and Schwartz (1989) have identified various overlapping learning principles that share four common features. First, they involved socially shared intellectual work that is organized to achieve a task. Second, they contain elements of the traditional apprenticeship process (described by Lave, 1991) that encourage student observation and comment, make explicit much of the know-how acquired, and permit the participation of the relatively unskilled players. Third, they are organized around strategies needed to acquire a particular body of knowledge. Fourth, the process of using a simulation is focused on the individual but makes use of a learning group to support decisions and provide reflection. This emphasizes inquiry, skill development, collaboration, and reflection (Tan, Turgeon, & Jonassen, 2001).

So why is it important to use this technology in teacher training? The animated case study classroom experience allows teachers-in-training to perfect their skills without working with any real students. For veteran teachers, it provides more practice for new knowledge. Practice then in a somewhat virtual classroom allows many teachers to hone in and refine their expertise or try out new techniques. Teachers in training learn to ask students better, open-ended questions. They learn to allow enough time for students to react in a more positive way and above all they are able to make better decisions about what is best for the situation.

The initial years of a teacher education program are critical for pre-service teachers to develop fundamental understandings about their future work as teachers. Other means of providing various sorts of experiences through a personal experience with classroom-based teaching episodes are needed. We believe that one approach is to make use of a form of simulation.

Fortunately, there is a clear body of knowledge that, if taught and practiced, could help lessen the steepness of the new teacher's learning curve. This knowledge speaks to the most effective approaches to classroom organization and techniques for interaction with students, developed over centuries of teaching and confirmed by research conducted over the last half century.

Nearly most teacher preparation programs include some kind of instruction on classroom management. It is likely that the same is true for the teacher preparation programs housed in over 1,450 institutions nationwide. And yet, despite classroom management's apparent pervasiveness in preparation coursework, something is not working. Classroom management continues to be one of the greatest challenges new teachers face. Surveys repeatedly document that novice teachers struggle in this area, and their school district supervisors concur. Using simulations (animations) can provide the user the opportunity to see the consequences of the complex decisions teachers make in managing learning environments. In particular, a simulation has the potential to engage the user in making decisions about student behavior, classroom organization and learning decisions upon which the Pre-Service Teacher can impact student-learning outcomes.

Teacher preparation is an involved process and supports the future success of teachers in the classroom. The K-12 educator completes a degree in education, state certification and national certification in a particular subject area.

Teachers' classroom preparation consists of a minimum of four years of training in educational theory and instructional practice. The educational practicum is structured for pre-service teachers as the first opportunity to practice their actual classroom management. The students in this study were introduced to over a dozen scenarios of classroom management issues presented as animated situations in a virtual classroom.

6. Conclusions

The majority of students reported that this software inspired them to reflect on the classroom activities and to think about potential problems. Spectrum Educational Tool presented the students with animations that allowed them to actually "see" a visual representation of class situations and give students opportunities to make classroom management decisions. From our thematic review of this software activity, we received many positive reviews from our student users. The feedback that we have received will be used to help improve this prototype for our final version of the software, which will be distributed to a larger audience in the near future.

This study reports the introduction of an animated classroom management software coined "Spectrum Education Tool" that will support pre-service teacher training and development. The students in this study were introduced to over a dozen scenarios of classroom management with issues presented as animated situations in a virtual classroom. The majority of students reported that this software inspired them to reflect on the classroom activities and to think about potential problems. It is interesting that five out twenty-three pre-service teachers felt that they would do better reading the cases and analyzing the information for themselves. They did not see the usefulness of the Spectrum Educational Tool. The eighteen pre-service teachers who agreed that tool was beneficial in use, problem-solving, helpfulness and thinking felt that the animations allowed them to actually "see" a visual representation of classroom situations and provided them opportunities to make more informed classroom management decisions. The researchers are planning to create more animated case studies and to provide support in other media to make it more widely available in a Spectrum Educational App.

Figure 1. Stalking Student Animation



Table 1: Usefulness of Animation of Cases

	Helpful	Problem Solution	Visual Learner	Useful	Critical Thinking	Animation Useful	Not Useful	Rather Read
Cohort Y	10	12	18	18	23	20	5	5

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