

# **The Construction of Simulations as an Instructional Activity for Graduate Students in an Education Leadership Program**

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## **Abstract**

Leading, facilitating, and making decisions is central to school leadership positions. Decision-making simulations provide graduate students a vehicle for increasing their practice and fine-tuning leadership skills with guided support from college faculty. This action research study uses a case study method to reveal the perspectives of school practitioners when reviewing decision-making simulations constructed by graduate students in a principal preparation program. The findings from the study are used to shape the instructors' own growth in designing instructional activities that provide relevancy and meaning to graduate student coursework.

*Keywords:* simulations, decision-making, principal preparation

## **Introduction**

University preparation programs are frequently criticized for failing to link theoretical concepts to practical application (Bottoms & O'Neil, 2001) in the training of principals. In the 2011 revised Educational Leadership Constituent Council (ELCC) standards it is stated that "The preparation of school leaders requires overt connections and bridging experiences between research and practice" (NCATE, 2011, p. 6). The ELCC makes it clear that the job of preparation programs is to develop in candidates a set of knowledge and skills that are demonstrated, practiced, and assessed during the graduate student's college experience. The development of leadership skills, practiced, and assessed within courses should occur continuously in a student's academic program. The culminating internship at the conclusion of a student's program should not be the first time leadership skills are performed.

The professor desired to develop and implement instructional activities into her courses that would simulate real life situations a principal faces in a school setting. The instructional activities needed to embody the principles of authentic learning that she had come to know in her responsibilities as an instructional leader for the school district. Making learning relevant was one of those principles. In addition, the researcher knew that a learner's ability to reflect on his learning, talk about it, and come up with new ways of thinking about it leads to the development of deep knowledge (Newman, & Wehlage, 1993). The professor sought to design instructional activities using technology that would put students in the driver's seat. In order to accomplish this goal, the professor sought a partnership with the secondary researcher for her expertise in educational technology.

## Conceptual Framework

Meaningful instruction links the learning in the classroom to aspects of the world in which the student will participate (Hunter, 1994). This study was conceptualized using the authors' framework for learning and simulations. The uses of simulations in a variety of instructional settings have been found to engage and motivate learners (Ebner & Druckman, 2012). Common themes link the theoretical concept with a practical application in the simulation. Although the student's experience in the simulation is brief, the participant can role-play a real life situation in order to make meaningful connections. When students were asked to create their own text-based simulation Ebner and Druckman (2012) found that students experienced enhanced short-term learning, deeper understanding of the concepts presented, long-term retention of the concepts, and higher degrees of motivation and engagement among participants.

Numerous models of decision-making provide steps to inform and guide a leader in a variety of contexts. The Orient, Observe, Decide, Act (OODA) model developed by a Navy pilot is a linear process that includes four-stages of action (Boyd, 1976). It begins with observations of the problem, gathering feedback from varied sources, and the unfolding circumstances and interactions within the environment. The second stage is an orientation of the problem in the context of culture, experience, and new information. All of the information is analyzed and then synthesized toward a solution. Once the decision is made in the third stage, the decision is implemented at stage four. School leaders make numerous decisions within a day that range in magnitude and priority. Depending on the initial assessment of the problem a leader chooses a process that has been internalized from practice and can be applied to a given situation. Simulations can mirror different decision-making models allowing the participant to become familiar with a given situation and the potential outcomes of using this decision-making process.

## Technology Tool

The accessibility of technology offers the ability to present a school environment that places the student in a scenario requiring decisions and consequences. *SimWriter Simplicity*, a software tool offering a template design and scaffolding for decision-making provides the technology needed for simulations. In addition, online accessibility of the software allows users to work from home or in a small group setting.

The simulations used in this study were text-based. *SimWriter Simplicity* allows any developer to write and display a scenario, house resource documents, provide pathways to decision points, and list outcome options. Any decision option selected by a user leads to an action or reaction in the scenario stemming from the option chosen. Each option can result in a new dilemma and consequently more decision-making choices. The number of times a set of options is connected to a new dilemma is dependent on the level of complexity of the initial issue presented in the scenario.

## Previous Experiences

A pilot study by the researchers in 2012 examined the perceptions of graduate students in an educational leadership program in two summer courses. The graduate

students constructed online, content-related decision-making simulations as a course requirement. A pre and post survey was administered to students to determine their perception of the course and the development of online simulations as transferrable skills to their jobs as future principals. Findings indicated students liked creating the simulations and connected this experience with job-like skills. As an instructional strategy, simulations might become a vehicle for allowing the trial and error practice of leadership skills using real life examples and decision-making strategies (Staub & Bravender, 2012). The researchers still questioned if the construction of simulations yielded sufficient results as an instructional strategy.

In 2013, the researchers repeated the same instructional activity using a peer apprenticeship model. Students created simulations and decision trees leading to solutions of the same problem using the *SimWriter Simplicity* tool. This time, however, a second group of students taking the same course were asked to use the previously constructed simulations as part of their course experience. Both groups of students responded to a case study as a pre and post course assessment of leadership behaviors. Findings from this study indicated that students who constructed their simulations appeared to demonstrate more individual leadership behaviors when responding to the same case study (Staub & Bravender, 2014).

Following the implementation of the instructional activities in 2013, the researchers questioned the extent to which the simulations mirrored the experiences of school leaders. In both experiences, graduate students were engaged in school problems and making decisions regarding the problem. Was the problem relevant for today's schools? Were the decisions appropriate? As these students were not yet principals, they may or may not have been using the most logical actions and appropriate sequences of a school leader. The researchers needed a way to validate that the simulations, as an instructional activity, could provide a relevant context for decision-making for future principals.

## **Methodology**

The research question for this study was, can the development of simulations as an instructional activity for graduate students in education leadership programs provide relevant context for decision-making as it relates to the job of principal?

This action research study used a case study model to examine the perspectives of experienced practitioners in the field. The practitioners analyzed text-based, online simulations constructed by graduate students enrolled in an educational leadership preparation program. The design was derived from the findings of two previous experiences working with graduate students as they used or created leadership simulations (Staub & Bravender, 2012, 2014). The researchers reviewed the previous study findings and determined validation from practitioners was needed to assess the relevancy of simulations as an instructional activity.

Once the study was designed, there was a call to superintendents and principals to participate in a workshop. The design required participants to review specific materials prior to the workshop. On the day of the workshop, two debriefing sessions were held as well as an evaluation and analysis session of student constructed, online decision-making simulations.

## Call for Participation

Initially, an invitation to participate was sent to selected superintendents and principals in either role. In the email invitation, the prospective participants were asked if they would be interested in examining simulations that would ultimately be used to help future principals think through decisions they may experience in their roles as school leaders. Participants were told that in order to create a simulation, as close to real life as possible to benefit future principals, the simulations would need to be evaluated and revised. If they chose to participate they would be given pre-workshop materials, lunch, and a small stipend. Two former superintendents joined the team as well as one former and one current school principal.

## Pre-workshop activities

After acceptance, the participants were provided access to two 30-minute online simulations and an article to read. The article discussed virtual worlds and how simulations have been progressing as an important development tool for programs (Guthrie, Phelps, & Downey, 2011). The simulations initially provided to the participants were developed by educational professionals with the assistance of a team using an advanced version of software called *SimWriter Professional*. One simulation revolved around the role of a new superintendent in the first month of the job. The other simulation explored the decision-making process in coaching a hesitant teacher.

## The Workshop Day

The workshop day was divided into three sections: 1. Initial reflection and discussion, 2. Simulation evaluation and revision, 3. Final debriefing. The researchers began by describing their two previous experiences with educational leadership graduate students constructing simulations. This provided the practitioners with an understanding of some classroom activities using simulations and specific ways they have been used in leader preparation courses. A second topic included in the reflection session was the practitioners' experience using the simulations and the article they read in preparation for the workshop.

The simulation evaluation and revision session split the practitioners into role alike groups. Superintendents were paired together in one group, and principals were in the second group. Each group was given a handout with the expected outcomes. They were to complete the evaluation of at least one simulation, and if time allowed, they could move onto a second simulation. The evaluation process included two components. The first was to review the simulation and determine the realistic nature of the simulation and make revisions for improvement. The second part was to evaluate and revise each of the decision points. This particular task was designed to assess if the experiences and decisions were scaffolded and presented in a realistic context. The workshop concluded with a final debriefing session to evaluate the workday and the processes used to analyze simulations in order to shape simulation work in the future.

Time was spent explaining the setting of the scenarios from which the groups could choose. They had choices that involved leaders and food allergies, teachers avoiding directed tasks, community relations, as well as exploring changes to district

schedules. A corresponding packet was provided with each simulation that included the website for the actual simulation. It also included a printed version of the simulation decision-making tree and all of the content that could be encountered while moving through the simulation.

Step one of the simulation evaluation and revision phase was for each team to critique a simulation scenario. Groups were directed to first walk through the simulation to get an idea of what was designed. Each group proceeded a second time through the same simulation using a more critical eye and an experienced practitioner perspective. They were asked to take a look at the scenario written for the simulation and consider some of the following questions. Did this seem like a realistic problem faced by school principals? Was additional information needed to make the simulation more realistic? Would artifacts be useful in helping the student think about the school and the decisions that will need to be made? If yes, what would those artifacts look like? Was there one set of decision points that reflect recognized leadership practices?

Step two tasked the groups with revising the scenarios as needed. They were to take time to improve the simulation with edits and additions from their experiences as principals and superintendents. They could look for artifacts from the Internet or from their schools that would add more detail to the simulation experience.

In order to understand step three, the revision process, definitions of major terms were provided. The groups were to determine if the catalysts presented are realistic. Each group was asked to revise the catalysts and decision options as needed.

Pathway (P)- The steps in the process that are sequenced.

Catalyst (C)- The interruption to the pathway where a new decision will have to be made.

Decision Options (D)- Three to four choices presented after a catalyst has been presented. Each choice is awarded a good (G), mediocre (M), or bad (B) score, which is not viewed by the participant until the end of the simulation.

Feedback (F)- The outcome of each of the decision options presented.

The groups were to determine if any one pathway reflected leadership practices and/or effective leadership skills. If not, the groups were told to create a new pathway that did reflect leadership practices. In addition, each group was requested to take notes as they worked in order to provide feedback of the process they were using to evaluate the simulation and improve future workshop sessions.

## **Findings**

The workshop included two debriefing sessions (Initial reflection and discussion and the Final debriefing) as well as the evaluation of student created simulations. The debriefing sessions were video taped so that they could be reviewed and analyzed for any themes proposed by the practitioners. The researchers also took notes during the workshop. The initial debriefing session allowed the groups to explore the use of simulations prior to the actual process of evaluating simulations for realism. The second session allowed practitioners to reflect on the decision-making ability of the graduate students who were responsible for constructing the online simulations. The findings from each piece of the workshop provided further insight into the decision-making processes of school leaders.

## **Initial Reflection and Discussion**

The initial reflection and discussion session lasted about one hour. Upon review of the video and notes taken by the researchers, it was clear that all of the practitioners deemed the use of simulations in a leadership preparation program as a valuable tool. One participant noted, “I think they’re awesome because there is no way in an internship students can get exposed to a multitude of these experiences.” Another practitioner noted that it would be extremely beneficial to use real life scenarios that are derived from headlines in the news. It was expressed by three practitioners that if done accurately, simulations might assist graduate students in developing the decision-making skills needed prior to employment in those often-ambiguous leadership roles.

The practitioners expressed that an effective tool for intercollegiate collaboration would be to build some repository of created simulations. They were unsure of who should own, or house, these simulations in a repository, but all participants agreed that one should be created and shared with universities. Professors could access the simulations and align them to appropriate course material.

One other key segment of the initial reflection and discussion section was connected to student internship experiences. All of the participants were aware of current internship requirements and practices in educational leader preparation programs. Every participant felt that the simulations would be a valuable accompaniment to the internship process. The simulations might present a safe place to “practice” real life situations prior to exposure rather than talking about what one might do in a situation later. One participant stated, “Just the process of making a decision and then looking at what the consequences can be is the key, is the heart of the simulation to me, because until you actually have to take responsibility for a decision and then see how it plays out, you don’t quite get the same experience as when you’re just talking about something.” Another participant noted that simulations could be an effective tool to help the student understand the vast amount of scenarios an educational leader might face in a single day, let alone an entire school year.

## **Simulation Evaluation and Revision**

The groups were prompted to discuss the roles of leaders as they moved through the decision-making steps in the online simulations. This portion of the workshop was also recorded on video for later review. One example of the process occurred when a group was tasked with analyzing the role of a principal who had to make decisions related to peanut allergies. The group noted that some the decisions presented seemed rash, and they were made too quickly without enough information. Other decisions incorporated too much information from stakeholders and complicated some of the decision points. One group of participants explored a simulation about a teacher hesitant to follow an IEP. What stood out to this group was how the students assigned job responsibilities to a particular leader. The practitioners specifically pointed to a special education director who might be more or less involved in this IEP process depending on the type of district where the director was employed. Practitioners recorded notes throughout all the simulations particularly when there was confusion about the choices the leader had to make. A common theme among the practitioners’

notes was that the solutions presented to a given problem were often short-term solutions when the issue called for a focus on a long-term solution.

Frequently the practitioners noted that decisions deemed “bad” by the leadership students who created the simulations were often considered the “good” decision by the practitioners. One participant noted that, “often the answer our group felt was the best was listed in the simulation as the worst choice the simulation user could make at that given time.” This process prompted some practitioners to keep the actual decisions provided by the graduate students who created the simulations and simply reorder the list of decision options within a created scenario. In other cases, the practitioners may have gone back to add more detail to the tasks leading up to the decision point.

One key item that came up when looking at the relevancy of the simulations was to revisit the internship requirement. In the initial reflection and discussion the practitioners talked about this connection as being quite important. Once the practitioners were able to run through all of the simulations created by graduate students they discussed whether these simulations could function as a tool to foster mentoring during the internship rather than prior to the internship.

### Final Debriefing

Key topics were derived from the final debriefing session after all groups had completed the evaluation and revision component. The group of practitioners came up with a list of topics they felt should be covered if a simulation repository was developed. Those topics are listed in Table 1 below.

Table 1  
Topics of Importance Expressed as Possible Future Scenarios

*Meeting with Union President	Crisis Management	Testing Procedures
MEAP/ Test Scores	School Closure	Not following an Individual Education Plan (IEP)
Board Meeting Preparation	Fighting	Response to Intervention
*Dealing with the Press	Cyber bullying	Bring Your Own Device
*Parents	Athletics	Consistency of policy
*Curriculum & Instructional Teams	Cheer leading/Band	Student Recognition
Safety	Secretary Role	Residency
*PTO	Dress Code	Special Education & Inclusion
*Boosters	Drugs & Staff	Child Protective Services
*BLT Meeting	Drugs & Students	Stranger Danger
Budget Development	In House Tragedy	Rogue Teacher
Technology Planning	Grade Appeal	Understanding Culture
	Law Enforcement	Community Stakeholders
	Custody	

\*Initial principal contact meetings

They were categorized as general topics of importance. The practitioners also flagged

stakeholder groups as initial contacts where a principal would need to treat the situation differently when approaching the group for the first time. The practitioners viewed the level of difficulty and location of a problem as playing a central role in how graduate students should approach a simulation. The level of difficulty should be addressed at the beginning of the simulation with more detailed background of the problem. It was expressed that locations for the online simulations should be in a variety of educational settings like urban, rural, suburban, virtual, elementary, middle, and secondary levels.

In addition to all of the content-focused suggestions for improvement, the team of practitioners suggested that a template be developed for future educational leadership simulations. This would be especially helpful when creating a large repository of simulations so that the simulations would have a consistent look and feel.

The team of practitioners expressed that the simulations should include an audio and video component instead of it being all text-based. Audio would provide tone of voice, which could make a difference in decision-making during higher stress situations such as crisis management or even dealing with parent-teacher organizations. Preference for use of video or animated avatars was unanimous. Written text from the video or the avatar should be displayed on the screen at the same time in order to benefit both visual and auditory learners. One criticism from the practitioners was that the naming of characters after celebrities or using a humorous connection is a distraction to the simulation. While the humorous character, e.g. Mrs. Cheeseburger can provide levity; it most likely distracts the user from the actual task at hand. The recommendation was to focus on the traits of the characters and keep the name and look of each character in the simulation quite bland.

The simulations themselves offered feedback to the user in various ways. One simulation offered feedback slides following each decision point as the user moved through the simulation. One simulation only provided feedback in the end. Another option for providing feedback in the design of one simulation occurred only when the user selected an incorrect response. In this case the user was informed of the reason the choice was not appropriate. If the user made a good choice, he or she moved on to the next set of issues/decisions in the simulation. All student created simulations had a feedback slide at the end reporting cumulative scores matched to each of the learning outcomes.

The amount of feedback came up numerous times in the final debriefing stage. After much discussion, the practitioners concluded that the frequency of feedback was much more important than the amount of feedback in a simulation specifically created for a future principal. The practitioners all agreed that feedback should come with every single decision within the simulation no matter how correct or incorrect the decision might have been. In addition, the practitioners felt that a cumulative feedback slide at the end was an important part of the process.

### **Action Plan**

The debriefing sessions were rich experiences for both the researchers and the practitioners at the workshop. It was clear that the construction of simulations was perceived as a valuable experience for students but needed refinement. The practitioners identified priority topics for simulations that can now be matched to course content and used as a bank of choices for students before beginning their work. Simulations might



be embedded in coursework or in conjunction with internship or peer apprenticeship models. As noted numerous times, the idea of having a simulation repository needs to be explored and as recommended by the practitioners, categorized in some way. The practitioners' experience and recommendations led the researchers to further develop their work with simulations.

### **Classroom Instructional Activity**

The process of students constructing their own scenarios and determining the decisions that need to be made engaged students at a deep level of learning. This supports the goal of the professor to provide students with instructional activities that are relevant to the tasks expected of a principal in the first year. What became clear for the researchers in the workshop was that the scenarios students selected to develop might not be considered high priority items in the principal's job given the multitude of responsibilities. Students also did not appear to have sufficient background to recognize all of the aspects of an issue that may impact the decision-making around their selected scenario. To address these concerns, a topic bank can be provided to students to focus on priority issues of a principal. The assignment can be scaffolded using smaller chunks of data. For example, instead of a template for decision-making that includes multiple options, the template could minimize the options so students can focus in on some of the more obvious paths in making a decision. Once the simulation is completed, guided inquiry can lead the student to think more deeply about the problem and investigate what actual principals would do in this same situation.

### **Use in Educational Leadership Programs**

A common question that surfaced in the study was how would simulations benefit a principal preparation program? Criticisms of university principal preparation programs indicate that there is a weak connection between theory and practice (Bottoms & O'Neil, 2001). The practitioners involved in this workshop had a positive view that the process of building or experiencing a simulation would be extremely valuable to future educational leaders.

The clear difference between the expert and what the novice was able to bring to the same decision-making process was evident. As leading, facilitating, and making decisions (ELCC, 2011) are central to administrative positions and school leadership, this study revealed potential limitations novices would bring to the principal role their first year on the job. Consensus among the practitioners indicated that allowing students to go through the process of creating a simulation was a richer experience than just walking through the simulation itself. It makes sense to design a structure for the instructional activity of constructing simulations.

In preparation for the assignment, students should be exposed to: resource documents describing simulations, a group discussion about suitable scenarios, leadership standards (ELCC and/or state level leadership standards), and guest principals describing their own work. Debriefing sessions must be a mandatory component. The instructor should provide at least two sessions. One after reading through the materials and being exposed to a sample simulation and the second session occurs after the simulation is completed. Following the instructor's discussion with the student, the

student meets with a practicing principal. This step allows for contextualization of the simulation with the varying activities principals experience in a given day. Lastly, connecting the simulations to leadership standards reinforces the priority given to them by the ELCC for leadership preparation programs. Students not only understand the leadership standards, but they work through the decision-making process with those standards in mind. It additionally helps the instructor to connect the simulation to the overall course design and outcomes.

### **Integrate with Internship Experiences**

The usefulness of simulations in other disciplines is evident, but more research on the role of decision-making specifically in educational institutions should be amassed. A peer apprenticeship model provides graduate students in a leadership preparation program internship experiences that are enhanced by peer interactions and faculty mentoring (Staub & Bravender, 2014). Key questions from the practitioners were raised as to how the experience of participating in simulations might be used in conjunction with internship and apprenticeship processes. A recommendation is to include completed simulations as a component of the principal internship in order to reduce the actual number of hours a student spends in the internship. This is certainly important, as graduate students are working professionals with limited amounts of time available to participate in daily principal, decision-making tasks.

However, it was also clear that more information should be examined as to which groups within the university could provide the most ideal contextualization for the simulations. The practitioners presented questions about the complexity involved in the many decision-making processes by an educational leader. Is this a place to incorporate community and content partners? Could universities have these simulations validated by outside stakeholders to make a more authentic real-world situation for the participant? Simulations might provide more realistic experiences if they followed a timeline that a principal would follow in a school year. With further study, these questions could be explored.

### **Intercollegiate Benefits**

The pool of practitioners was a limitation in this research study. Although their extensive leadership backgrounds and level of feedback were quite detailed, this study could benefit from a larger number of practitioners in the future. A question about the placement of simulations within a leadership preparation program was raised a number of times. Could simulations replace standard performance assessments? Looking at the suggestions from the practitioners it is clear that the simulations must be categorized in some way. There are endless possibilities, but what would be most helpful to professors at universities? Levels could be associated with types of simulations students would use such as dividing them into big picture vs. detail situations. They could be arranged by standards connected to end-of-course assessments versus end-of-program assessments.

The researchers reviewed all of the suggested topics from the practitioners, suggestions on how to classify simulations, and what theoretical classifications seemed to appear most important. This resulted in the researchers developing the Simulation Classification Model (SCM) noted in Table 2 below.

Table 2  
Simulation Classification Model (SCM)

	Level of Leadership			
	Best practice	Scenario	Catalyst	Adaptive
Category	Culture/Vision	Culture/Vision	Culture/Vision	Culture/Vision
	Ethics/Law	Ethics/Law	Ethics/Law	Ethics/Law
	School	School	School	School
	Improvement Management	Improvement Management	Improvement Management	Improvement Management

It was determined that the list of possible future scenarios provided by the practitioners at the simulation workshop could be separated into the four categories of Culture/Vision, Ethics/Law, School Improvement, and Management. When considering that the practitioners expressed that level of detail, or difficulty needed to be acknowledged, it was determined that four levels of leadership could be used. Those levels were identified as Best Practice, Scenario, Catalyst, and Adaptive. Best practice being represented as accepted protocols and procedures for areas identified in the ELCC standards. Scenario is the context of the situation at a given school. The catalyst is the issue that drives the need for decision-making. Adaptive representing integrated experiences using analysis, synthesis, and evaluation to use as adaptive solutions to problems.

### Conclusion

The development and use of simulations provide benefits to graduate students in a leadership program. Novices are exposed to potential job scenarios and opportunities to practice solutions to the situations presented. The on-demand thinking ability that so often comes with the job of principal prior to employment is enhanced. It is clear that accessibility to technology and online simulations is a way to present internship experiences that are similar to school environments, placing the candidate in a scenario requiring decisions and consequences. Online access allows users to work from home or in a small group setting. Having the perspectives of school practitioners to review decisions made by novices in the online simulations was extremely worthwhile. They provided insight into the possible gaps in the decision-making processes of novice leaders.

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