Exploring the Experience of Students Who Take on Alternative Viewpoints Within a Role-Based Simulation

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Abstract: We seek to understand the experience of undergraduate students who participated in a technology-supported, role-based simulation as part of a large undergraduate course on video games and learning. Students took on the role of an admissions reviewer for one of six universities to make decisions about who to admit from a pool of ten fictitious applicants. Students used information about their affiliated institution (e.g., admission rates, admission stances, and institutional mission statements) and details from a "private" biography (e.g., life story, biases) to inform decisions about who to admit. We analyzed survey responses (n=60) and semi-structured interviews (n=7) of students who participated in the simulation. We report on students' perceptions of role-playing and focus on how they negotiated internal conflicts that arose when their personal viewpoints did not align with those of the roles they embodied. Six themes emerged that fall under 3 categories: experiencing, understanding, and decision-making.

Introduction

As educators seek to create authentic experiences that create opportunities for students to engage in a problem or scenario that is relevant and potentially transferable to future endeavors, many are turning to role-based simulations. In role-based simulations, participants act out the role of a fictional or non-fictional character who is embedded in a specific context or situation (Cook, Dow, & Hammer, 2017; Lean, Moizer, Towler, & Abbey, 2006). A foreseeable challenge for instruction is that when students take on an identity-based role, they may experience internal conflicts when the role that they are playing is not well-aligned with their personal experiences or values (Lee & Hoadley, 2007). This raises a potential instructional dilemma for educators who seek to immerse students in rich scenarios that model complex phenomena or issues. On the one hand, students may feel uncomfortable taking on a role that conflicts with their own personally held beliefs and thus instructors may be reluctant to ask students to assume these roles. On the other hand, it may be important for students to take on these roles in order to maintain the integrity of the simulation; without a breadth of viewpoints represented, it is hard for the simulation to function as a learning tool to achieve desired outcomes. As educators are increasingly adopting active learning approaches in their classrooms (Cassidy, Charles, & Slotta, 2019), it is important for researchers to explore students' experience of taking on identity-based roles within a simulation in order to understand how learners may be impacted by the experience.

Research questions

In this case study (Yin, 2017), we seek to understand the experience of undergraduate students who participated in a technology-supported, role-based simulation as part of a large undergraduate course on video games and learning. Students took on the role of an admissions reviewer for one of six universities who made decisions about who to admit from a pool of ten fictitious applicants. We examine how students negotiated internal conflicts that arose when their personal viewpoints aligned and did not align with those of the roles they embodied in a role-based simulation.

1. How did students' personal viewpoints and experiences contribute to their experience within a role-based simulation about the admissions process?
2. How did students negotiate (mis)alignment or conflict between their personal viewpoints and experiences with those they were asked to play?

Theoretical foundations

Games, serious games, and simulations

According to Abt (1970), the basic definition of a game is "an activity among two or more independent decision-makers seeking to achieve their objectives in some limiting context" (p. 9). Abt (1970) states that *serious games* have "an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement" (p. 9). The goals of serious games tend to focus on training users on a particular skill set and have seen success in military, industry, and business (Raybourn, Deagle, Mendini, & Heneghan, 2005). Serious games

can create problem solving opportunities within dynamically changing environments (Raybourn et al., 2005). Within serious games, participants can anticipate and experience the effects or consequences of action in an ill-defined problem space (Raybourn et al., 2005). Serious *educational* games have similar qualities, but they also allow instructors to target specific learning goals and attempt to connect educational content with real-world scenarios (Annetta, 2010). Simulations are a form of serious games that allow participants to be active agents within a scenario and take actions consequential to the activity (Wright-Maley, 2015). Simulations allow students to engage in life-like scenarios that might otherwise be too costly or dangerous to reproduce and implement. In simulations that are enacted within learning contexts, learners can assume active roles through which phenomena are revealed (Wright-Maley, 2015). As Colella (2000) articulated, "Participants' internal conditions or responses to the simulation are not treated as separate from their inquiry of the simulation… on the contrary, in a very real sense, they *are* the simulation." In a role-based simulation, participants can take on well-defined, identity-based roles and follow a set of rules specific to the context of the situation that allow them to advance towards a specific role or desired outcome (Cook et al., 2017). Classroom role-based simulations have been used in a variety of educational settings, including social studies (Matthew, Gast, & Broscoe, 2019), environmental studies (Paschall & Wüstenhagen, 2012), and engineering (Arastoopour, Chesler, & Shaffer, 2014).

Epistemic games

From a theoretical perspective, we position our role-based simulation in the category of epistemic games, because it offers novices a way to participate in practices of expert knowledge workers, with required skills and resources embedded within the tools participants use in the simulation (Shaffer, 2004, 2006). Epistemic games give participants the opportunity to learn the "knowledge, skills, and values" of a professional community by simulating a professional environment or activity (Bagley & Shaffer, 2009, p. 39). The idea is that as students interact within the simulation environment, they engage in ways of knowing that prepare them for interaction within the real world.

In epistemic games, the epistemic frame of the knowledge community is composed of five emerging levels of expertise: i) skills, ii) knowledge, iii) identity, iv) values, and v) epistemology (Rupp, Gusha, Misleavy, and Shaffer, 2010). Skills are the actions people take within the community; knowledge is the information and agreements that the community shares; identity is the way that participants within the community sees themselves; values are the beliefs that the community holds; and epistemology is the way of knowing that the community finds authentic and legitimate. As participants become fluent in operating within this epistemic frame, they are able to perceive and interpret the salient features of an environment and use related problem solving approaches effectively within new environments.

Identity

Annetta (2010) offers a framework for the design of serious educational games which consists of six nested "I's": identity, immersion, interactivity, increasing complexity, informed teaching, and instructional. At the core of the framework is "identity," which is the way that the game captures "the player's mind and trick[s] him/her into believing he or she is a unique individual within the environment" (p. 106). The next "I," immersion, is tied to participants' engagement and motivation to make progress towards the goal of the game. Annetta (2010) contends that players experience a heightened sense of immersion when they can express their identity within the game.

Simulation design

The role-based simulation was enacted in one 80-minute session of a course focused on video games and learning offered at a Midwestern research institution. The course operated as a "meet together" where graduate students (n=5) designed a technology-enhanced simulation activity about the college admissions process for undergraduate students (n=60) in the course. The instructor (first author) adopted a co-design method with the graduate students, where students inform the design of a curriculum or activity, drawing on their own unique perspectives of teaching and learning (Bovill, Cook-Sather, & Felten, 2011). This co-creation method is witnessing increasing traction within higher education settings and is seen as having positive benefits for students, such as the development of curricula that is more engaging and relatable than it might be if it were developed by an instructor on their own (Bovill et al., 2011). The instructor also chose to adopt this approach because it allowed the graduate students to have a differentiated and elevated experience within the "meet together" course format.

Graduate students were tasked with designing a role-based simulation that would serve as an object of inquiry within the course on video games and learning. Together, the instructor and the students co-designed the learning outcomes for the simulation itself. As a result of participating in the role-based simulation, learners will be able to:

- Evaluate the pedagogical value of asking learners to participate in a role-based simulation
- Recognize the benefits and challenges associated with participating in a role-based simulation
- Identify the types of learning goals that role-based simulations can most effectively target

Topic rationale

Students chose the topic of college admissions because they felt it would be relatable to undergraduate students who had relatively recently gone through the admissions process themselves. They felt that students would see the activity as relevant and would thus be motivated to participate. The instructor was amenable to this choice of topic because it opened the door to discussions about diversity, equity, and inclusion within higher education (c.f., Matthew et al., 2019), which was one of the learning goals for the course. Although learning about the admissions process itself was not a course goal, the instructor believed that by participating in this activity students would experience a workplace task that features decision making in a context that involves many intersecting and possibly competing dimensions. In the case of college admissions, students might believe that decision making is based solely on individual effort and ability, without understanding the complexity of the factors involved (i.e., the interplay between college admissions criteria and human factors). The instructor believed that by immersing students in an activity that counter widely-held notions of a purely objective and merit-based college admissions process, students would begin to understand the complexity of the task. Such tasks are similar to many other work tasks that require that humans use their judgement to operationalize a set of criteria (e.g., reviewing proposals, completing annual performance evaluations). Thus, we establish that the activity falls within category of epistemic games (Shaffer, 2006).

The learning goals of the simulation itself, therefore, relate to the epistemic goals of the simulation. As a result of participating in a role-based simulation about the college admissions process, learners will be able to:

- Recognize the complexity and variability of the admissions process at the institution level and across multiple institutions
- Explain how an institution's admission stance factor into admissions decisions
- Describe the experience of making decisions about fictitious college applicants informed by pre-defined roles

Instructional technology

Designing and running a simulation is a highly complex endeavor, one that places heavy demands on the instructor. While an instructor could devise and implement a simulation activity with pen and paper alone — or even with a combination of cloud-based applications, such as spreadsheets and shared documents — the use of a well-suited learning tool has the potential to lessen instructional demands and ensure that the simulation runs smoothly. While relatively few technological solutions currently exist for this purpose, there is growing interest in developing tools to aid in the organization and enactment of role-based simulations (Cook et al., 2017).

The instructor chose to use ViewPoint, a web-based authoring tool, to create and run the simulation (Authors, 2019). ViewPoint is content agnostic and supports large-scale simulations that occur synchronously, asynchronously, or in a hybrid mode. Within ViewPoint, instructors can assign participants to roles and groups, create a timeline of events, queue content and messages, and include supplemental resources and materials. Instructors can also create branching timelines that are dependent on the outcome of simulation events (e.g., results of a poll or vote). In ViewPoint, participants can edit their role's public-facing profile description, browse other participants' role profiles, send and receive private messages, view external links, check and post updates in a public newsfeed, and view a timeline of past, current, and planned events in the simulation. For instructors and researchers, ViewPoint also acts as an index to relevant information, such as role descriptions, group descriptions, timeline progression, and simulation outcomes (see Figure 1).

Figure 1. Left: ViewPoint interface showing where learners can view role description, groups and roles, and newsfeed. Right: Private messaging functionality of ViewPoint.

The graduate student designers developed all necessary materials, such as statements on admissions criteria for each university, ten hypothetical applications (which included family income, standardized test scores, secondary education history, and a brief essay), and personal profiles for each reviewer. A project manager (also a graduate student) authored the simulation in ViewPoint by (1) creating roles and associated profiles (the reviewers), (2) assigning roles to groups (the universities), (3) constructing the timeline, and (4) queuing messages, links, newsfeed stories, and resources which were mapped to specific points along the timeline.

Roles within simulation

Students were assigned a persona and asked to review applications using that persona. Each persona (n=9) came with a backstory that covered personal life, education, and occupation. Additionally, some personas (n=4) came with a bias and a mission statement (see Table 1 for an overview of all personas).

Table 1: Overview of persona characteristics

Reviewer	Background	Bias	Mission
Director	Admissions Director	None	Fairly review applicants
Reviewer 1	Retired Professor	None	Fairly review applicants
Reviewer 2	Medical Doctor	None	Fairly review applicants
Reviewer 4	Consultant	Elite students	Only elite students
Reviewer 5	Communications Specialist	Athletes	Accept athletes despite low grades
Reviewer 6	Lawyer	Underprivileged students	Accept students from underprivileged backgrounds
Reviewer 7	Art museum curator	Art students	Accept art students

These biases and mission statements informed participants which applicants their persona preferred (see Table 2 for an example).

Table 2: A sample of an admissions reviewer persona

Occupation	Curator in Art Museum
Background	Growing up, you always wanted to be a painter. Following these aspirations, you attended the University of Chicago to study fine art. Two years after graduation, you decided to shelve your dreams of becoming a professional painter, and you began working as a curator for a local art gallery. After a decade of working with different galleries around Chicago, you decided that reviewing college applications was a reasonable way to earn an extra income. When you review applications, you sincerely try to pick the most qualified applicants. However, when an applicant shows a particular aptitude for the fine arts, you can't help but feel empathetic for this particular application.
Bias	Art students
Mission	Accept talented artists. Convince your peers of the necessity of having creative genius in the incoming class

Activity design

The simulation activity began the night before the regularly scheduled class session when students received an email offer letter requesting that they accept a university admissions position. Upon accepting their offer letter, students were immediately informed of their position title and details of their persona through the “role view” in ViewPoint. If they were offered the position of “admissions reviewer,” their role was to review college applications and make application recommendations. If their position was “admissions director,” they were responsible for making application recommendations and facilitating group discussion with their team of admissions reviewers.

When students arrived to class, they were divided into groups based on their university affiliation (see Figure 2). When all of the students were seated with their respective universities, they began a five-minute introduction meeting. This meeting gave students an opportunity to introduce themselves using their new personas, and it allowed them to review their university’s admissions policies. After the introduction meeting, students individually reviewed 10 premade applications for 20 minutes. During this phase of the simulation, admissions reviewers selected which college applicants they wanted to recommend for admission, and they emailed their selection to their admissions director. Once the admissions directors received the recommendations from the admissions reviewers, the students were given 20 minutes to review their decisions, and arrive at a final list of admissions decisions. After the simulation concluded, the instructor revealed the final decisions for each

university and the instructor facilitated a whole class discussion where students reflected on the experience.

Figure 2. Left: Students in role of admissions reviewers. Right: Name cards for one institution.

Participants

The participants were enrolled in the video games and learning class (n=60) at a School of Education in a Midwestern university and included undergraduate students from a variety of majors and disciplines on campus.

Data collection

We collected data from two sources: a post-simulation reflection survey and semi-structured interviews. The post-simulation survey was administered online and was completed by the simulation participants. The survey consisted of four questions that asked students to reflect on their personal experience with the simulation and how specific design elements affected their motivation and engagement with the simulation. The semi-structured interviews were conducted with seven simulation participants; each interview lasted between 20 and 40 minutes. The semi-structured interviews covered five overarching themes: taking on a role, the design of the simulation, interaction with others in the simulation, features of ViewPoint, and perspective taking. These three questions were among several others included in the interview protocol:

- Can you identify any previous personal experience(s) that may have also informed how you played out your role? In what ways?
- Given that the tool that we used to enact the simulation is called "ViewPoint", do you have further thoughts on how the experience might have allowed you to take on a new perspective?

Approach to analysis

The online survey responses were collected and uploaded into cloud-based software for qualitative analysis. The semi-structured interviews were recorded, transcribed, and uploaded into the same cloud-based software, which allows for collaborative coding by multiple users. Two coders used an inductive approach to data analysis, which involved "detailed readings of raw data to derive concepts, themes, or a model through interpretations made from raw data by an evaluator or a researcher" (Thomas, 2006, p. 238). Following the coding process outlined by Creswell (2015), the coders 1) read through the surveys and interviews 2) divided the text into discrete segments of information or "excerpts" that seemed to address the research questions (n=111), 3) created descriptive labels or codes to describe related segments, 4) worked through an iterative process of grouping segments and refining labels to reduce redundancy and 5) and derived themes or major ideas from groups of codes (n=6).

Findings

Based on the surveys and interviews coded, six unique themes emerged from the data. Collectively, these themes represent the interplay between self and role and the simulation decisions that resulted from this interplay (see Table 2 for an overview).

Table 2: Summary of codes

Experiencing	
Experiencing "the other" point of view	While portraying their role in the simulation, participants felt they had gained new insights about how someone in that situation (reviewer) would feel.
Experiencing a new identity	While portraying their persona in the simulation, participants felt that they could see through the lens of a new sociocultural identity.
Understanding	
Negotiating one's self with their role	While participants were considering their personal beliefs and those of their assigned role, they attempted to reconcile beliefs that they felt were opposing.

Finding common ground between one's self and the role	While participants were considering their personal beliefs and the beliefs of their assigned role, they found significant overlap between themselves and their persona.
Decision-making	
Factoring in role's viewpoint into decision-making	When making a decision in the simulation, the participant ignored their personal views, and incorporated their persona's beliefs into the decision.
Factoring in one's own viewpoint into decision-making	When making a decision in the simulation, the participant ignored their persona, and incorporated their own personal beliefs into the decision.

Experiencing

Experiencing "the other" point of view

Students described how their experience within the simulation allowed them to experience "the other" side of the college admissions process. Students commented on how they enjoyed the "novelty" factor of being able to take on this perspective, because it showed them a side of the college admissions process that they would not otherwise be able to see. Students expressed an appreciation for the complexity of the task and an understanding of why the review process is so time-consuming. They discussed how difficult it must be for admissions reviewers to make acceptance decisions: "I realized how nerve-wracking it is for reviewers to review applications for universities." Students also expressed a new understanding of the variability of the process and how the "human factor" impacted outcomes: "I think it depends on what mood they're in, and how they're feeling." This had a positive angle too, because it allowed students to see that the process was not entirely automated and that a human was involved: "It's nice to remind myself that the [agents] who accepted me were people, like they live and breathe."

Experiencing a new identity

Students remarked that the activity design required them to take on the responsibility of assuming the background and biases associated with their role in order to make the simulation function smoothly. Students commented that the experience required that they "step out of [their] own mind" and put themselves into a "different headspace." One student expressed that they felt more at ease with their assigned role when they could relate to the values of the persona they were playing. In one case, a student expressed "relief" that they had been assigned to a role that valued academic achievement. Even though they could not relate to the gender identity of the role or the specific personal circumstances of the role, they did identify with the viewpoint that academic excellence should be rewarded. "It made my decision process a lot easier because the viewpoints that my character had pretty much aligned with mine." However, even though they expressed relief at being assigned a role that aligned with their own values, they did note that it could have been productive to have been assigned a role that was incongruent with their own views: "I would argue that it's got to be uncomfortable to really learn something."

Understanding

Negotiating one's self within the role

Students described how they experienced an interplay and negotiation between their personal beliefs and the beliefs held by their role. When personal beliefs differed greatly from their assigned role, this could create an internal conflict that was difficult for the students to navigate. While some students enjoyed navigating the tensions between self and role, others felt like it made it difficult to participate in the simulation. According to one student: "It was hard for me to engage with the simulation because the profile I was given was so different from me, and therefore I personally didn't want to admit many of the students that my character would want to promote." Another student, however, mentioned that they enjoyed getting to "take on a different perspective."

Finding common ground between one's self and the role

Students described finding common ground and feeling a sense of empathy with the roles they were asked to take on and the applicants they had to review for admissions. While playing admissions reviewers, some students reported feeling empathetic towards the applicants because it was something they had recently experienced in their personal lives. According to one student: "I found that it was easy to empathize with students who were applying to schools because it's something that I've gone through before." Others were able to build common ground with their roles as admissions reviewers because of shared interests. When one student was asked to take on a role that valued the arts, they felt their personal experience playing violin helped them connect: "I already value the arts and so it was pretty easy for me to relate that [role] to my life." Some students felt that because their role did not have a bias, they were able to align more fully with their role. According to one student: "Obviously

I kind of align with my role more so because I didn't really have any biases going in and neither did my role."

Decision-making

Factoring in role's viewpoint into decision making

When attempting to make an admissions decision, some students put their personal beliefs aside and relied on their roles to inform their decision making. In some instances, the role became an obligation to act a certain way. For instance, when playing a role that was biased towards art applicants, a student recounts: "I would usually look at their grades first. And then, if they were low, I would just ignore them. Except for Jamie, because that was the art one, so I had to argue for that." At times, using a role to inform decisions lead to uncomfortable moments between peers, as students were unsure about their peers' true beliefs. According to one student: "I was trying to defend my choices based on my role. And I remember people, like other people on the table, kind of giving me a look, or being like that's a weird reason to pick that person." These uncomfortable moments could have been mitigated after the simulation, when students revealed the roles and biases they were adopting.

Factoring in one's own viewpoint into decision-making

Students described how they were not always able to operationalize the viewpoint of the role assigned into their role-play. Some students were given a more neutral role, one that did not include a particular bias. Students in this category commented on how this allowed them to factor their own viewpoint into the decision-making process: "I was able to be more or less myself." Others felt that their own interests and passions were not represented in the role they were assigned, so they fell back on their own view of what was important to prioritize in a candidate (i.e., high grades). One student remarked how they broke character when they searched for evidence of social achievements, such as involvement in teams and clubs, because that was personally important to them.

Students also described how they observed that their peers did not always embody the role that they were assigned. Some surmised that other participants seemed unwilling to follow through on the biases that they were assigned through their role because participants were quick to back down when challenged. Students also guessed that other participants in their group might not have taken on the biases they were assigned, because they felt that others made arguments based on their personal points of view. "I didn't feel like anybody else was taking on a persona, unless they were and they're really good at acting. I did feel a little foolish in a way."

Discussion

Our findings show that the roles that students embodied impacted how they chose to engage with the goals of the simulation. In some cases, the assigned roles allowed students to enact their own points of view, and in other cases students were at conflict with their role and their own viewpoint. This congruence or incongruence between role and reality played out in interesting ways. Some students reported that they found commonalities with their own experiences and their role's backstory, which helped them to connect and portray the role more effectively. In contrast, some students needed to negotiate internal conflicts that arose when their personal viewpoints did not align with those of the roles they embodied. Others stated that it was difficult for them to fully engage with their role, because they felt a disconnect with their own identity (Annetta, 2010). Students also revealed that through the experience they gained new perspectives and appreciation for the complexity of the task of reviewing applications. This task of making decisions according to a set of established criteria while factoring in human judgement is similar to other complex professional tasks, such as making judgments about proposals or job candidates. Students' interaction within the simulation environment allowed them to engage in ways of knowing and doing that have the potential to prepare them for similar real world endeavors (Shaffer, 2006).

Matthew et al. (2019) describe a role-based, admissions activity that is intended to stimulate discussions of affirmative action and racial disparities within the college review process. They focus on how students approached the review process with their own perspectives and viewpoints (i.e., without stepping into a predefined role) and report on the outcome of their decision making. By contrast the students in the case study we report on here were asked to take on a role that was pre-defined and assigned to them. This design choice may have limited the extent to which participants could embody aspects of their own identity, which has the potential of limiting their immersion in the simulation (Annetta, 2010). In our case, we wanted to introduce some artificial conflict into the design, in order to open the door to discussion about diversity, equity, and inclusion within higher education, which was one of the learning goals for the course. However, this design choice meant that there was sometimes a mismatch between a students' own views and those of their role, which impacted their experience and decision-making.

If educators choose to enact role-based simulations within their classrooms, it is important for them to understand how students may experience playing out a role that has been assigned to them. Yet, in order for a

role-based simulation to function as a complex scenario, it is often necessary for a range of viewpoints, ideas, and perspectives to be represented. This reality may necessitate that instructors confront the dilemma of asking students to take on roles or personas that are unfamiliar or potentially uncomfortable. As researchers and educators, we need to explore more deeply how we can better prepare students to take on these kind of roles, so that they are able to more confidently and comfortably engage and interact within role-based simulations. This work can be extended in the future to other settings and tools for implementing various kinds of simulations.

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