What Every Social Studies Teacher Should Know about Simulations

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Abstract

Simulations are of growing interest within the social studies in terms of research and practice. Although the findings of early research were unfavorable to simulations in terms of student learning, recent research has revealed new and interesting findings related to different domains of student learning that earlier research did not. In light of these conceptual and practical findings, it is important that teachers be granted access to the growth of knowledge in this burgeoning area of inquiry. To date, few scholars have disseminated to teachers the findings of existing research about simulations as it pertains to student learning, and to practitioners' planning and practice. In this article, I provide an account of research on simulation that will be helpful to teachers. The paper includes five critical areas that seek to help teachers better understand what simulations are, their affordances and challenges, as well as suggestions relating to the implications for teachers' curricular planning and implementation of simulations in their classrooms.

Introduction

Simulations and other related activities have seen a surge of interest in recent years. Researchers are finding new and innovative ways to explore how teachers are using simulations and what students are learning from their participation in simulations in their social studies classes. Recent research in the United States reveals that simulations and role-plays are commonly used by a majority of social studies teachers, and that those teachers who used simulations and role-plays were significantly more likely to value critical thinking over content acquisition than their peers who rarely or never used these activities (Stephens, Feinberg, & Zack, 2013). Further, teachers' use of simulations and role-plays were positively related to an emphasis on democratic skills (Stephens, Feinberg, & Zack, 2013). What is compelling about their findings is that the use of simulations parallels two critical components of 21st century skills—critical thinking and democratic skills—that have become central to the focus of educational innovation in recent years (e.g., Bellanca & Brandt, 2010; Trilling & Fadel, 2009).

Still, simulations remain a bit of a mystery to us. As a profession we are only just starting to uncover their potential, and in many cases their use remains a gimmick rather than a vehicle of deep student learning (Dack, van Hover, & Hicks, in press). At the same time, while there is a lot of learning ahead for the field, there have been some interesting and important findings that may be useful for teachers in terms of their thinking, planning, and practice with simulations. In this paper I propose to offer a brief guide to thinking about how the theory and research on simulations can help us to develop more robust uses for these tools in social studies classrooms. In the first two sections, I emphasize two key facets of theory and research with simulations meant to support our understanding of these tools and what may be the most appropriate uses for them in the social studies classroom. In the last three sections, I outline three facets of practice

that may help teachers to implement and run simulations more effectively: the importance of weaving simulations and other forms of teaching together; the role of control in simulations; and how to prepare and support diverse students to successfully navigate simulations.

A Theory of Social Simulations

Why we need a theory of simulations, or what counts as a simulation?

Simulations are not new to the social studies, so as teachers we are familiar with the idea, but that familiarity has led to a lot of confusion (Wright-Maley, 2015a). In part this is because we all assume that we are talking about the same thing when we say "simulation." This assumption is problematic.

I found as I talked with potential candidates for my dissertation study on teachers' beliefs and practices around simulations that when I asked what they thought a simulation is, I did not receive a common response. Rather, teachers tended to lump simulations together with a variety of other activities: it's a role-play; it's a game; it's a model; it's a re-enactment; it's a play; it's a demonstration (Wright-Maley, 2015a). The fact is that we have not been operating with the same activity in mind, and we don't have the same ideas about what counts as a simulation. This makes it difficult for teachers to talk about using simulations in social studies classrooms. Let's imagine for a moment that you have created a simulation that works marvelously to teach students about how the legislative process works, they're engaged as legislators, lobbyists, and citizens trying to pass legislation. Through this activity they've learned not only how the process works, but have also developed a nuanced understanding and can articulate the complexities of legislators' lives in ways they never could before (e.g., Ganzler, 2010).

Your colleague tried to demonstrate the same process, using students to act it out for the class, while their peers watched. She put a lot of effort into the activity—writing out cue cards, finding props, directing students to act in certain ways—her students seemed to like it but their test scores did not improve enough to warrant all the extra work. When you bump into her you tell her that your simulation on legislation went so well and that she should try doing a simulation like it. She lets you know that she's already tried a legislation simulation. It was a lot of work and didn't work for her, but she's glad it worked for you. You leave wondering why it didn't work for her when it worked so well for you. Oh well, different strokes.

In my experience these exchanges are altogether too common among social studies teachers. *Simulation* is a term used much too loosely, and without a common understanding about what a simulation is, it is difficult for teachers to work with one another to strengthen their practices and their ideas about how to make social studies simulations effective tools for learning the critical skills that our students need. Therefore, even while teachers may refer to different kinds of activities—games, role-plays, models, and re-enactments as simulations, these tools actually have very specific and different purposes. This lack of convention may be partly responsible for why some teachers and teacher educators believe simulations have little value for social studies students (Fogo, 2014; Thieman & Carano, 2013).

Until recently, simulations haven't been exposed to the same rigorous analytical and theoretical framing and evaluation that other concepts like citizenship (e.g., Westheimer & Kahne, 2004) or historical thinking (e.g., Levesque, 2008) have. If we are going to understand simulations and their potential, we have to be clear about what this concept means; it is

important to be clear when we talk about what a simulation is, because simulations are a very specific kind of activity.

What is a simulation? They are "pedagogically mediated activities used to reflect the dynamism of real life events, processes, or phenomena, in which students participate as active agents whose actions are consequential to the outcome of the activity" (Wright-Maley, 2015a, p. 8). In other words, activities are really only simulations if students are active, and the decisions they make during the simulation create a yet-to-be-determined outcome that nevertheless represents a real process, event, or dynamic. At the same time, there must be a reason—framed and guided by the teacher—for using the simulation such that it informs students' understanding of the simulation's real-life equivalent. Let us unpack that: When evaluating an activity that claims to be a simulation, there are several questions you can ask to help determine the answer.

Does this activity represent a real-life process, event, or phenomenon? In order for a simulation to be meaningful, it must somehow illuminate the real world; it must simulate what is happening outside of the classroom. So if it does not represent a real-life process, event, or phenomenon, then it is not a simulation. For example, Model U.N. represents a real institution and the process by which decisions are made within this organization. So, too, does an assembly line simulation, which asks students to compare between artisan and industrial models of production. In contrast, putting historical actors from the French Revolution on trial in a modern courtroom does not have verisimilitude—approximation—to real life processes, events, or phenomena of the historical time in question.

Do the actions of my students have the chance to alter the conclusion of the activity? We must also ask whether students have the latitude to make decisions that will help to determine the outcome of the simulation. This dynamic aspect of simulations might be their most quintessential component. The consequential outcomes proceeding from real life events are rarely, if ever, predetermined; individuals involved in these events are autonomous, and react sometimes in unpredictable ways. If our activity is going to be a simulation, our students must be able to act autonomously to make decisions that lead to potentially unexpected outcomes. For example, in a Darfur Peace Conference simulation I observed, some regional representatives ended up declaring war on Sudan, even though this contradicted their explicit goal of finding a peaceful solution to the crisis; this led to learning about the failure of parties to negotiate effectively (Wright-Maley, 2015b). In contrast, performing the musical *1776*, may teach about the events surrounding the signing of the Declaration of Independence, but it fails to give students the latitude to act autonomously, or make decisions that are not already dictated by the script.

Are my students actively involved in this activity, or are they passive observers? If students are not involved in the activity, but instead mere observers, then it is not a simulation; it is theatre. In much in the same way that going to the movies is not a simulation of being a superhero, watching others participate in an activity does not simulate the phenomena for the students. Watched activities situate students as passive recipients of knowledge rather than as embodied and embodying participants living out the phenomenal experience. Without such participatory action, students are not able to bridge actual experience with theoretical or intellectual knowledge (see Geurts, Duke, & Vermeulen, 2007). Students must be engaged in the process as it unfolds—just as individuals are in the real world—in order to fully appreciate how the culmination of many individual actions can lead to specific (if often different) outcomes. To be sure, they only experience the simulation through the lens of their own experiences, but this is also representative of the real world.

Am I able to use this activity to teach something specific and meaningful about the phenomenon or process it is meant to represent? Simulations are too time-consuming to be used as a gimmick. At their best, they can illuminate important understandings that are not possible to convey, or are not conveyed as powerfully, by other means. For example, a teacher can explain why collusion is difficult to orchestrate within oligopolies and also why an oligopoly does not function in the same way as a monopoly. But the OPEC simulation reveals that despite their best efforts, collusion is difficult to manufacture and maintain. Likewise, a teacher can try to convey the fear people feel during epidemics, but a plague simulation can embody the sense of impending doom even within the safety of the classroom. But simulations that do not have a clear pedagogical aim are often, as Dack, van Hover, and Hicks (in press) noted, purposeless (at best) and miseducative (at worst). They noted that teachers' use of historical simulations had an identifiable pedagogical aim only some of the time.

Moreover, it is not enough to have a purpose for using simulation, but to have a purpose that is appropriate to the function of simulations (i.e., the illumination of processes underlying events and other phenomena). As Dack, van Hover, and Hicks (in press) reported in their research when teachers did have a purpose their simulations were often used to illustrate actual events rather than the processes that shaped them. As such these activities were frequently derailed by students' dynamic choices and detracted from student learning by illustrating historical misconceptions in a majority of the cases where these experiential activities were used. This highlights that if the activity does not serve to highlight a process or phenomena, then it fails to simulate that reality, and thereby fails to be a simulation. As such, our purposes for using simulation must be aligned with what these activities are suitably able to accomplish.

Using this definition. By asking the above questions teachers can help themselves determine whether the activity in question is a simulation, and would function to achieve the purposes of simulations. This definition is necessary because the purposes of simulations, role plays, models, and games in a classroom environment are different, and so, too, are the reasons why we might choose to implement them in our classrooms. Furthermore, knowing what a simulation is, and what its appropriate uses are helps us to figure out how best to use them.

Now that we have a working definition for simulations and have determined the circumstances for which it is appropriate to use simulations, we can start to make sense of what we know about simulations and their impact on student learning. Renewed research into teachers' practices with simulations is just beginning anew, but findings in recent years are beginning to create a clearer picture of what some of the intrinsic strengths and weaknesses of simulations are that build upon some of the seminal research of decades past.

What are the affordances and challenges associated with simulations?

Like any pedagogical tool, simulations have strengths and weaknesses. They can be powerful activities when our goals align well with what simulations afford, but can also fall flat, or prove to be a waste of time when we use them inappropriately or for ends they are not meant to serve. Below, I provide a snapshot of some of the research findings around simulations in social studies research that can help teachers to see where these strengths lay and facilitate their decisions about how best to use them. In Table 1, I have included some key findings relating to the topics I will discuss in this section. The reader should be aware that this is not an exhaustive list, and also includes some additional sources not discussed in greater detail below.

Table 1
Key findings relating to simulations' affordances and challenges

Source(s)	Finding	Affordance or Challenge
Bredemeier & Greenblat (1981); Corbeil & Laveault (2011); Druckman (1995); Pierfy (1977); Randel, et al. (1992)	Simulations are no more effective than other approaches to learning related to the accumulation of factual knowledge, but requires more time.	Challenge
Barton & Levstik (2013); Dack, van Hover, & Hicks (In Press); McCall (2012); Schweber (2003); Totten (2000); Totten & Feinberg (1995)	Simulation risk being miseducative, leading to shallow historical learning, or trivializing the past if not used carefully	Challenge
Blaga (1978)	Simulations are time consuming	Challenge
Haney, Banks, & Zimbardo, 1973); Milgrim (1963); Wright-Maley (2014a)	Some simulations may risk psychological harm to students	Challenge
Gilley (2004); Glavin (2008); Schweber (2003); Wright-Maley (2015b)	Simulations require teachers to shift roles and address content and process flexibly in response to shifting simulation dynamics	Challenge
Parker, et al. (2011)	Using simulation without sufficient background content and process knowledge can "leave students floundering" (p. 552)	Challenge
Pierfy (1977); Pate & Meteja (1979)	Simulations can lead to better content retention over time	Affordance
Parker, et al. (2011)	Simulations can contribute to increased achievement both in terms of standardized exams and deeper conceptual learning.	Affordance
Johnson, Boyer, & Brown (2011)	Simulations can lead to significant gains in understanding about the phenomena being simulated.	Affordance
Corbeil & Laveault (2011)	Students learn about issues in non-linear ways, enabling them to recognize the complexity of concepts in tangible ways	Affordance
Colella, (2000); Parker, et al. (2011); Niv-Solomon, et al. (2011); Stephens, Feinberg, & Zack (2013); Williams & Williams, (2007)	Simulations can facilitate the development of critical and systematic ways of thinking and problem solving, as well as foster democratic skills	Affordance
Bredemeier & Greenblat (1981); Ganzler (2010); Gehlbach, et al. (2008); Gehlbach (2011); Ioannou et al. (2009), Yukhymenko, (2011)	Simulations can lead to increased engagement with specific content,, social studies as a whole, and in related domains such as the political process.	Affordance
Cherryholmes (1966); Dunleavy, Dede, & Mitchell (2009); Wright-Maley (2015b)	Simulations appear to reduce rather than exacerbate discipline problems	Affordance
Ben-Peretz (2003); Byrnes' & Kiger (1990); Else (2006); Ganzler (2010); Maitles & McKelvie (2010); Schweber (2003)	Simulations can foster perspective recognition, empathy, and care for others	Affordance
Gehlbach et al. (2008); Johnson et al. (2011); Lay and Smaric (2006)	Simulations can lead to more realistic understandings for participants of their actual levels of knowledge and competency.	Affordance
(Ciciora, 2009)	Simulations can provide students with opportunities to grapple with "difficult knowledge"	Affordance

Engagement

We have known for decades that simulations help engage students (Bredemeier & Greenblat, 1981; Dunleavy, Dede, & Mitchell, 2008; Gehlbach, Brown, Ioannou, Boyer, Hudson, Niv-Soloman, et al., 2008; Yukhymenko, 2011) and that engagement is at least one reason why simulations are used (Dack, van Hover, & Hicks, in press). But as I argued in the previous section, student engagement on its own is not a sufficiently compelling reason for using

simulations. Engagement may, however, be an entry point into content that promotes learning (see Parker et al., 2011). For example, one compelling finding revealed in early research on simulations, is that the use of simulations may cue students ability to remember lessons from simulations over a period of time that extends beyond the memories held by peers who did not experience the simulation (Green, 1980; Pierfy, 1977). These memories tend to be enduring, outlasting many other memories of schooling long past (Alleman & Brophy, 1994). Although student engagement may lead to a longer period of remembering, we have to keep in mind what it is students are most (and least) likely to remember from having participated in these simulations.

Rote content learning

Research into rote content acquisition resulting from simulations proves to be quite damning for this strategy. Decades of research illustrate that simulations are a poor choice for filling students with content knowledge, at least when compared to lectures or book learning (Bredemeier & Greenblat, 1981; Cherryholmes, 1966; Corbeil & Laveault, 2008; Pierfy, 1977; Randel, Morris, Wetzel, & Whitehill, 1992). Given simulations' central purpose for illuminating dynamic processes that underlie events (see Wright-Maley, 2015a) it is easy to see why their use could fail to help students recall dates, statistics, events, and other content information that are traditionally focused on in student assessments (e.g., tests). If this is your purpose for using simulations, they are being misapplied.

The focus of simulations' apparent weaknesses for the acquisition of rote content knowledge with when compared to their peers who did not participate in simulations led scholars in the past to dismiss simulations as an overly cumbersome way to teach social studies—which is still, unfortunately, what many social studies classrooms emphasize (see Russell, 2010). But, as the social studies is becoming more process driven—albeit slowly—the emphasis on rote content knowledge has given way in small part to other forms of knowledge development for which simulations appear to be well-suited.

Content for use in complex thinking

In particular, simulations appear to be helpful in fostering the kinds of skills and capacities such as critical and creative thinking, problem solving, adapting to changing circumstances, and collaboration and communication. These skills form the basis of what has come to be called *21st century skills* (see Bellanca & Brandt, 2010). The changing demands of the social studies for a more powerful practice within the discipline is one in which teaching and learning are less about content acquisition, and more about what students can do with the content (NCSS, 2008). One great example of this focus on learning with simulations is the recent award-winning research conducted by Walter Parker and his associates (2011, 2013) that demonstrated that embedding simulations as a centerpiece within units can actually significantly increase student performance on standardized tests. They set out to test the theory that by engaging students first with the challenge that simulations provide, that students would be able to make better use of the unit's content. Parker and his team developed simulations and the curricula around them to be used in AP Civics classrooms, where the simulation would be used to engage students in complex thinking around particular units throughout the course. For example, the first simulation—used to engage students in learning about "constitutional underpinnings" (p. 538)—

was a simulation called "*A Government for Xlandia*, [where] students are members of a UN task force advising a new nation just emerging from a long dictatorship about the various forms and features of constitutional democracy" (p. 541). Parker and associates (2011) looked at performance data from the AP test as well as those from a pre-/post-test of their own design that they refer to as a "Complex Scenario Deep Learning Assessment" (p. 545). What these researchers found that the academic performance of the simulations group outperformed their peers in the control group at the same high performing school, and the simulations group at a lower-performing school performed in line with the control group (which constituted a significant change from the pre-intervention findings). The findings of this study point to the conclusion that simulations can help students to develop their capacity to think through complex problems and more expertly use content towards those ends. They can even contribute to higher standardized test scores (DiCamillo & Gradwell, 2012; Parker et al., 2011, 2013)

Soft skills development

Although it would seem to be enough to suggest that using simulations helped improve students thinking and learning as well as their performance on tests such as the AP Civics test, there appears to be additional benefits that contribute to the development of soft skills, which scholars define as "personality traits, goals, motivations, and preferences that are valued in the labor market, in school, and in many other domains" (Heckman & Kautz, 2012, p. 451). According Heckman and Katz (2012), who reviewed the scholarship on soft skills, concluded that these skills, "predict success in life…[and] causally produce that success," (p. 451). They conclude further that efforts to improve soft skills have "an important place in a portfolio of public policies to foster human development" (p. 464) in which education surely plays and important role.

Research on simulations helps to reveal some of the ways that simulations serve not only to boost achievement, but also have the potential to foster students' pro-social and soft skills: increasing students' willingness to engage in the political process (Ganzler, 2010); developing student empathy for their peers and for people who have had to suffer under and struggle against circumstances of discrimination and oppression (Byrnes & Kiger, 1990; Else, 2006; Maitles & McKelvie, 2010); altering students' sense of self-efficacy in ways that more accurately reflect their actual present abilities (Gehlbach, et al., 2008; Johnson, Boyer, & Brown, 2011); and learning how to collaborate and communicate to achieve their goals (Niv-Solomon, et al., 2011; Williams & Williams, 2007). Although these outcomes do not show up on tests of knowledge, it is clear that these are important life skills that contribute to the goals of 21st century learning (Bellanca & Brandt, 2010). Moreover, the active nature of simulations asks students to engage flexibly, adapting to circumstances within a context of "in situ practice" that abstract learning simply cannot provide (Kirkwood-Tucker, 2004). This kind of practice also lends itself to questions of morality. But as I will describe in the following section, simulations uses for these purposes hold the potential to be both liberating and also fraught with pitfalls.

The moral dimension

The use of simulations poses a moral quandary: Is it right to use simulations to address issues of a deeply moral nature, such as those addressing discrimination and oppression—the domain of "complex and tragic historical episodes of the human experience" (Wright-Maley,

2014a, p. 19) such as the Holocaust and slavery? Some scholars have argued that there is no place for simulations of this type in social studies classrooms because they trivialize and misrepresent the past (e.g., Totten, 2000; Totten & Feinberg, 1995). How after all could students pretend that their simulated experience gives them any relevant insight into the horrors and depravities of the past? Even more concerning, such simulations also have the potential to be psychologically harmful to if teachers are not careful about how they implement them. This was certainly the case of the slavery simulation that led to a human rights complaint in Hartford, CT (see Wright-Maley, 2014a) where students were not sure whether what they were experiencing was real or a simulation.

Schweber (2003) likewise started from this point of departure, she argued that "to simulate [the Holocaust] experientially might be to reduce it *ad absurdum* to kitsch" (p. 140) and represented "the conflation of contradictory genres, in a sense—the tragedy of the Holocaust itself and any nontragic representation of it—which becomes aesthetically and morally 'vulgar'" (p. 141). But as she came to evaluate students' understanding of the Holocaust, she came to recognize that students, such as one named Calypso, may have missed out on some of the historical details, but demonstrated a "moral learning" that "dwarfed her informational gap," learning "about Jewish victimization, if not in all its historical complexity, at least in meaningful, moral depth" (p. 180). I argue that there remains value in simulations of this kind when they are used with caution and care by adept teachers (Wright-Maley, 2014a).

Similarly, Else's (2006) and Byrnes' and Kiger's (1990) work around the (in)famous blue-eyes/brown-eyes simulation reveals both deeply problematic and yet significant counter-discriminatory outcomes from this activity. The tension at the heart of this particular simulation and the quandary it presents is whether the potential for harm in putting people in the position of an oppressor is outweighed by the clear and profound ways in which being the victim and victimizer in this simulation may lead to significant reductions in discriminatory attitudes in the real world. This is difficult to answer; it is a quandary in which one value is pitted against another. In some cases, such as the Milgrim (1963) and Stanford Prison (Haney, Banks, & Zimbardo, 1973) experiments demonstrate, these trade-offs are clearly imbalanced toward harm, but other like the brown-eyes/blue-eyes simulation are less clear. We must, of course, concern ourselves with our students well-being above all else. At the same time, we must not confuse psychological harm with emotional stress. Such stress, in supportive environments may help provide students ways of processing difficult knowledge (Ciciora, 2009), while at the same time enabling the development of empathy (Ben-Peretz, 2003) on the part of students for humans with whom they are unlikely to share either time or space (see also Wright-Maley, 2014a).

In my own experience, simulations that do not pit students against each other are much less ethically fraught than those that do. One of the lessons that Milgram's (1963) and Zimbardo's (1963) works reveal is that the realization that "I" have the innate capacity to harm others is deeply scarring and psychologically harmful. As such, I suggest that teachers avoid structuring simulations in this way. I have found from my own practice as a high school teacher, where I developed my own totalitarian simulation, that setting up a dynamic where I, as the teacher, am the locus of oppression—much in the same way that Ms. Bess was in Schweber's (2003) case study—which allows students the permission to act in response to evil, rather than being forced to embody it. Payne, Hoffman, and DeJulio (2015) offered yet another alternative structure in which the "controller" that embodies the morally dubious position of power is an imaginary construct with whom students interact.

Summary

Like all pedagogical tools, simulations have their strengths and weaknesses. Most importantly, simulations provide students with engaging and memorable circumstances that enable them to: think critically; act and react to dynamic circumstances; develop both academic and soft skills; and consider the moral dimensions of human experience palpably and meaningfully. At the same time, simulations are not effective for producing gains in rote knowledge, and they have the potential to do psychological harm or be miseducative if they are poorly conceived or implemented carelessly. Simulations have great potential, but teachers must also put a lot of thought in how to execute these simulations effectively to bring that potential into reality. In the following three sections, I address three areas of interest from which teachers may draw important lessons regarding the implementation of simulations in their classrooms.

How can I plan for getting the most out of using simulations for learning?

The research of Walter Parker and his associates (2011, 2013) demonstrated that even in courses where content coverage is of central concern (AP Government classes in this case), the use of simulations as the centerpiece of each unit led to significant increases in students' AP test scores compared to the control group (discussed earlier). The key here is that the simulations were integrated with other forms of teaching and learning.

Facilitating this process

It seems that students may be most successful when they have adequate background knowledge to draw upon during the simulation and when the simulation can act as a touchstone for students to return to over time in order to make sense of further learning. In this way, simulations may serve as an intermediary activity that helps students to link explicit (content) knowledge to tacit (experiential) knowledge (Geurts, Duke, & Vermeulen, 2007). In other words, they act as the glue that holds the content together for students. For example, in government courses, students need to understand how the legislature and legislative processes function (explicit knowledge) before they can engage effectively in a legislative simulation that is reflective of those functions and processes. At the same time, following the simulation, students need to be able to use their experience as legislators, lobbyists, aides, etc. (tacit knowledge) to make meaning of other aspects of knowledge about the history or proceedings of the legislature (knowledge synthesis).

There may be, however, cases where students participating in a simulation prior to conversations about highly politicized issues may lead to more productive engagement (although that requires a simulation that does not require specialized knowledge that will be developed later in the lesson sequence). This priming may help to circumvent dogmatic or ideological positions because the primary mode of engagement is experiential, not conceptual. If the experience precedes students' intellectual engagement with the topic, it may be possible for students' experiences to trump their preconceptions. Several examples of using simulations in this way exist. For example DiCamillo (2015) and Wright-Maley (2013) both describe simulations that prime students to discuss issues that are tainted by preexisting ideological positions: immigration policy and economic inequality, respectively.

It is starting to become clear, however, that the more central the simulation is to the core learning outcomes of the unit in which it is used, the more useful it becomes in generating meaningful learning (Parker et al., 2011; 2013). That is to say, simulations should not be thought of as one-off activities used to generate interest, but rather as catalysts for deeper and more richly textured learning experiences grounded in a larger curricular context. Even while teachers sometimes recognize this potential, it is my experience that many of them shy away from simulations because they worry about the apparent chaos that simulations tend to engender; teachers are concerned that they'll lose control over their class if they use simulations. In the next section, I provide some insight into the ways in which teachers may create space for dynamism without feeling as though their classes are out of control.

How do I control the simulation?

The answer to this question may surprise most teachers: Your goal should be to control the simulation as little as necessary and as subtly as possible. Simulations are dynamic and "chaordic"—chaos within an ordered system (Leigh & Spindler, 2004); simply put, teacher-control can—and often does—interfere with this core attribute. The more the teacher interferes with the natural flow of the activity by trying control it, the more likely it is to fail to live up to its potential.

In my own research found that when teachers tried to limit student participation (e.g., no you can't do that) within the simulation or impose actions upon students (e.g., you must do it this way), their simulations fell apart (Wright-Maley, 2015b). I refer to this form of interference as "hard control." Interjecting in these ways interrupts students' flow, bringing them out of the micro-world created by the simulation, and back into the world of the classroom. As Nakamura and Csikszentmihalyi (2002) point out, students' attention needs to remain focused within the activity to reach a level of optimum experience, and students' complete, attentive immersion in the experience is ultimately the purpose of the simulation.

This is not to say that the teacher does not have a role to play or should not have any directive role in the simulation. On the contrary, I contend that teachers have a responsibility to make sure students know exactly how the simulation works, what is expected of them during the simulations, and what their goals are within the simulation (referred to as organizational control). I also found that teachers who use "soft control" within simulations to help ensure their effectiveness, know that students' decision making can be *nudged* by insinuating ideas that may change the way they think about the scenario or the options in front of them. Teachers can also reboot a simulation when student decision-making has led them to fail in their objectives, instead of trying to make sure they don't fail to do so in the first place (Wright-Maley, 2015b).

To be certain, a teacher is responsible for keeping their students safe and making sure that the simulation does not spin out of control to wreak havoc on students or the classroom; this is true of any classroom activity. Nevertheless, a well-organized simulation in a well-informed class of students provides a lot of latitude for dynamism. Ultimately, the teacher's role is to make sure that learning happens as a result of the simulation, not to micromanage how students act and react within the simulation (Wright-Maley, 2015b).

This conclusion can come across as Pollyannaish to teachers of students with low levels of academic proficiency, who may feel like the use of soft control specifically, or simulations generally, just would not work for their students. As someone who spent my teaching career working with both high- and exceedingly low-performing students, I understand the reticence

and apprehension teachers may feel. In the next section, I will illustrate how simulation may actually serve low-performing students better than traditional forms of teaching. At the same time, I will illustrate how two teachers prepare different kinds of students to participate in simulations. The variable needs of the students require differentiated approaches to scaffolding. It is this scaffolding that makes it possible to use simulations with all students, not just high achieving ones.

But can simulations work with *my* students?

I have heard many teachers express that simulations sound great in theory, but would "never work with my students." Teachers can feel uncomfortable using them with their students who they perceive to lack the academic skills or behavioral dispositions they believe to be prerequisites for such activities. Such thinking is mistaken.

DiCamillo and Gradwell (2013) discuss this "myth" in detail, pointing out that the teachers in their case study successfully integrated multiple simulations into their curriculum for a lower-performing class in which approximately a quarter of their students were in special education. One of the teachers in my own study—Josh Pollan—taught both honours-level and remedial-level courses of the same subject. In those courses, he used the same simulations, and found that his students were receptive to, and benefited from, these activities. Students at all levels of academic ability benefited from the opportunity to apply their knowledge in practice, to deepen their critical thinking skills, and link their lived experiences to academic learning (Wright-Maley, 2014b; see also Parker, et al., 2011; Geurts, Duke, & Vermeulen, 2007). Further, it may be—as Freire (1970) brought to light—that more academically challenged students may perform more expertly in the activities most similar to life itself, which can serve to bridge these lived experiences to abstract, academic thinking and learning that may be more challenging for low-performing students. Interestingly, I found that behavioural problems with these students actually decreased during the simulation when compared to the content lesson preceding it (Wright-Maley, 2014b). I am not alone in this conclusion (see Cherryholmes, 1966; Dunleavy, Dede, & Mitchell, 2009).

It is very important, however, to consider the needs of your students as you implement your simulations. There are different, albeit equally successful, ways of approaching simulations (Wright-Maley, 2014b). For teachers with more academically inclined students, they might spend time teaching their students the processes, practicing the procedures they will use with students (such as in a model U.N.), and then letting students run the process with little interference. This is how Rosalie Green ran her international relations course (Wright-Maley, 2014b, 2015b).

With less academically inclined students who may lack confidence in their abilities, the teacher must take a more hands-on role in supporting students through the process of the simulation in a step-by-step manner, while also supporting students' autonomous decision making. For example, in my paper, I described how Josh Pollan walked students through the stages of a democratic town hall meeting, helping a student to be confident as an elected representative while talking to her constituents—the rest of the class (Wright-Maley, 2014b). This approach might be akin to a live action choose-your-own adventure, where students have a great deal of structure and support, but still get to make the decisions that lead to unexpected outcomes, and thus opportunities for empowerment and reflection. In diverse classes, teachers may also blend these two approaches so that the more confident students are left to their devices,

while the teacher actively supports struggling or special needs students. In his senior elective course, Pollan initiated his simulation in a similar way to Green's typical approach, allowing his more capable students participate in the bronze-age market simulation without much interference from him. Meanwhile, he dedicated his time to one high needs student, treating her as an apprentice; he taught her over the course of three rounds how to trade independently (Wright-Maley, 2014b). Although both approaches varied in the types of scaffolding that he used, both were effective for supporting students who might not typically be given the opportunity to participate in simulations.

My work with teachers across a range of courses has demonstrated for me that it is the failure of the approach to simulations that may not be appropriate or sufficient for certain students (e.g., insufficient or ineffective structures of support) that is the primary source of the simulations' failure to be an effective learning tool. With the right scaffolding, simulations can be, and are, used for the benefit all students.

Conclusion

It is clear that not every activity we call a simulation is, in fact, a simulation. Rather, simulations constitute a very specific strategy to teach about real life events, processes, and phenomena, in a dynamic fashion. This realization has implications for how we use simulations in our classrooms. Teachers should be careful to plan their teaching such that simulations support and build upon material taught in other lessons. Moreover, their purposes for using simulations must extend beyond the acquisition of content knowledge to the use of that knowledge to understand complex phenomena and processes. Further, teachers should understand that simulations can benefit all students, but that how we prepare them to engage in these activities and how we manage simulations while they are in motion is consequential for our students' experiences, and ultimately, their learning.

It is vitally important for our society that students have opportunities to develop their: critical thinking skills; abilities to act in situ; understanding of how/when to work together or compete; communication of ideas in convincing ways; capacities to engage in democratic processes; as well as other skills and forms of knowledge not easily developed through transmission-teaching. This is not a new idea, but one borne out of the progressive era. John Dewey (1997/1938) believed firmly that education should more closely resemble the lives that our students will live. Simulations are one way that we can approach this reality, certainly to a much greater degree than more traditional pedagogies. Thus, it is essential that teachers become capable of integrating and orchestrating simulations effectively. In this paper I have attempted to provide a glimpse into this nascent body of research to provide the basis for the first important steps that teachers can take to bolster their understanding of simulations, and to improve or expand upon their practices in their social studies classrooms.

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