Learning to *Become* Citizens by Enacting Governorship in the Statecraft Curriculum: An Evaluation of Learning Outcomes

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ABSTRACT

Citizenship education is especially important in developing nations where establishing a vital sense of statehood, belonging, and common purpose amongst citizens, presents political leaders with significant challenges. In this paper, we report on the enactment of an innovative citizenship education learning program based on the Statecraft X curriculum. We hold that it is essential for student learning to be engaged in and studied performatively, in the everyday context of students' situated action and participation in discursive practices. Consequently, the curriculum involves school students using a 24/7 mobile learning game played on Apple iPhones—*Statecraft X*—to enact governorship in a game world Velar. In addition, students construct their ideal but fictional world Bellalonia via the "play of imagination" as part of a Play-between-Worlds curriculum model. Empirical findings show evidence that
(a) dispositional shifts on several values and beliefs related to governance and citizenship were significantly "better" for intervention group students compared to control group students, and (b) intervention group students demonstrated significantly improved learning gains, compared to control group students, in respect of a summative essay writing task on governance and citizenship, evaluated on the criteria of relevance, perspective, and voice.

Keywords: Becoming; Citizenship; Dialogism; Game-based Learning; Identity; Inquiry; Performance; Statecraft X

INTRODUCTION

Citizenship education is especially important in developing nations where establishing a vital sense of statehood, belonging, and common purpose amongst citizens, presents political leaders with significant challenges. In school systems, education administrators recognize the importance of nurturing students to develop into responsible and active citizens. In Singapore, citizenship education is enacted via the Social Studies curriculum. What constitutes a "good" social studies curriculum, however, remains strongly contested. Barr, Barth, and Shermis (1977) note that "[t]he content of social studies is a smorgasbord of this and that from everywhere; it is as confusing and vague as is the goal of citizenship, for not only do social studies educators have conflicting ideas as to how to create a 'good' citizen, they cannot even agree on the meaning of the term" (p. 2). Distilling from different historical emphases in the teaching of social studies, the authors propose three key approaches: (1) social studies as

citizenship transmission, (2) social studies taught as social science, and (3) social studies taught as reflective inquiry. These approaches are based on distinct and competing philosophical and ideological positions. The first approach is driven by the desire to transmit to students a conception of an ideal society and of what it means to be an ideal citizen. Mainstream values tend to be equated with internalization of social norms and acceptance. This approach is most widely practiced by teachers. The second approach, social studies taught as social science, focuses on teaching students the methods used by social scientists in their professional practice and the techniques by which these scientists construct new knowledge. The third approach, reflective inquiry, views citizenship as best promoted through a process of inquiry where knowledge is derived from what citizens need to know to make decisions and to solve problems through participation in citizenship. Reflective inquiry seeks to develop skills related to literacy, including the ability to "read between the lines," to be aware of, able to locate, and able to use information from multiple sources, being able to sense and identify problems, learning how to frame hypotheses and to select and interpret data, being able to identify value conflicts, and knowing how to weigh and assess value claims (Barr, et al., 1977).

Given the different approaches to designing a Social Studies curriculum, we first interrogated and clarified our own philosophical position, together with its implied value system. The goal was to determine a fitting approach to designing an innovative social studies curriculum that can be localized to fit the Singapore context and that would provide a high likelihood of being able to achieve the desired student learning outcomes related to Social Studies established by the Ministry of Education. We observed that while the Social Studies curriculum included objectives related to knowledge, skills, and values, widespread local practice indicated that the teaching of Social Studies emphasized knowledge, or content acquisition, at the expense of values education. Barr et al criticize this emphasis on the grounds that focusing on content leads to unending discussions about what content ought and ought not to be considered a legitimate part of social studies, when the focus ought to be on learning goals instead.

In the next section of the paper, therefore, we first problematize curriculum design in the context of 21st century learning. We then provide a short literature review to position our work in relation to existing efforts in social studies and game-based learning. Following this, we explicate the conceptual ideas that underlie our learning design and follow this with an articulation of the design of the specific curriculum that serves as the basis of our learning intervention and of the game itself. We then present the research method, data analysis, and results of our reported study, drawing a comparison between the learning outcomes of an intervention group and a control group. After discussing our findings, the paper concludes by considering implications for practice, policy, and research, and the direction of future research.

PROBLEMATIZATION: DESIGNING AN INNOVATIVE SOCIAL STUDIES LEARNING PROGRAM FOR 21ST CENTURY LEARNING

Based on their synthesis and analysis of the field, Barr, Barth, and Shermis (1977) define the Social Studies as "an integration of experience and knowledge concerning human relations for the purpose of citizenship education" (p. 69). They identify four learning objectives required for effective citizenship: (1) knowledge, (2) skills necessary to process information, (3) values and beliefs, and (4) social participation. How a teacher goes about realizing these objectives

depends on the approach he or she chooses to adopt: an inherently value-laden choice. From the perspective of social studies as citizenship transmission, the goal is to inculcate "right values" as a framework for making decisions in life. From that of social studies taught as social science, the goal is to promote decision-making based on mastery of social science concepts, processes, and problems. From the perspective of social studies taught as reflective inquiry, the goal is for students to learn citizenship via a process of inquiry where decision-making is structured through a reflective inquiry process directed toward identifying problems and responding to conflicts by means of testing insight.

With regard to curriculum requirements in Singapore schools, the expressed aims of the Social Studies curriculum for the Ordinary Level General Certificate of Education (Ministry of Education, 2008) are for students to:

- understand issues that affect socio-economic development, governance, and the future of Singapore
- learn from experiences of other countries to build and sustain a politically viable, socially cohesive, and economically vibrant Singapore
- develop thinking and process skills essential for lifelong and independent learning
- have a deep sense of shared destiny and national identity
- develop into citizens who have empathy toward others and who will participate responsibly and sensibly in a multi-ethnic, multi-cultural, and multi-religious society
- develop into responsible citizens with a global perspective

To achieve the above goals, the curriculum expresses desired learning outcomes in terms of three areas: (1) knowledge and understanding, (2) skills and processes, including information literacy and critical inquiry skills, and (3) values and attitudes. In assessing the state of art with respect to teaching practice in Singapore schools, there was general consensus that ample effort was being directed to achieving the first two desired outcomes because they are more readily assessable in the classroom. The learning outcome related to values and attitudes appeared to be in need of strengthening as teachers find it difficult to grapple with this objective.

Given the above context, we chose, as researchers working in conjunction with our teacher collaborators, to focus special effort on strengthening the values component of the stated learning objectives. Reinforced by our personal values relating to the efficacy of learning by inquiry, we adopted the third approach proposed by Barr, Barth, and Shermis; namely, social studies taught as reflective inquiry. With respect to knowledge objectives, our goal was that students would be able to construct their understanding through personally tested insight. Concerning skill objectives, we wanted students to wrestle with meaning making in and through the learning process, as they sought, as individuals and in groups, to make sense of potentially unclear, confusing, and conflict-laden situations. Concerning values objectives, we wished to design a learning process in which students would be able to identify, interrogate, and clarify their personal values; we did not wish to indoctrinate them with (our own) values. We consider dealing with values to be an inherent part of engaging in inquiry processes. The values that students take away from the learning experience are derived from the learning process, and they are end products of that process. Concerning participation, an aspect not explicitly targeted in the local curriculum, we adopt the Deweyan perspective of schools as microcosms of conditions that prevail in the outside world, but with some mitigation of its

gross imperfections. Based on Dewey's thinking, students ought not only to undergo a participatory experience; they must also evaluate the meaning of that experience.

Our approach to educational research is located within the philosophy of pragmatism (Baert, 2005; Biesta & Burbules, 2003; Elkjaer, 2009; Garrison, 1994). The foregoing problematization is motivated first and foremost by the desire to enhance the quality of learning that students are given access to in social studies. The goal is to make a real, that is, a practical, difference in students' lives through the learning experiences that we offer them. Emanating from the thinking of Charles Sanders Peirce, William James, and John Dewey, pragmatism seeks to clarify the contents of hypotheses by tracing their practical consequences (Hookway, 2008).

Our work is oriented toward educational computer and video games (Gee, 2007) in relation to new media and cyberculture (Nayar, 2010). It is also oriented to the development of new literacies (Coiro, Knobel, Lankshear, & Leu, 2008) in the context of 21st century learning (NCREL, 2003) and students' personal gaming lives (Selfe & Hawisher, 2007). Given this context, we sought to identify relevant extant work that would help us establish the state-of-art in this field. The literature review in the next section details what we found.

LITERATURE REVIEW

A search of extant literature related to the use of computer and video games for learning of the kind that Gee (2007) addresses reveals a clear preponderance of games related to science, technology, and mathematics (STEM). Significant related work in this field includes participatory simulations and augmented reality games. Klopfer (2008), for instance, experimented with *Palmagotchi*, a Tamagotchi-inspired game played on wireless PDAs, which helps students learn about ecology, evolution, and genetics. Squire and Klopfer (2007) studied the use of *Environmental Detectives*, an augmented reality simulation game, to immerse students in the role of scientists conducting investigations related to environmental engineering. In addition, Squire and Jan (2007) used *Mad City Mystery*, another augmented reality game, to help students develop scientific argumentation skills. While these games helped to establish and advance the field of game-based learning, they lack the fidelity of game play experience associated with commercial off-the-shelf (COTS) games that Gee expressed interested in. In general, COTS games are characterized by rich and complex problem solving, deep personal investment in role playing, extended game narratives, and sophisticated use of graphics. Consequently, they entail a substantial number of hours to complete playing. Most games that have recently been used for education, however, might be better characterized as serious games (Abt, 2002; Aldrich, 2009; Michael & Chen, 2006). They are oriented toward educating (in a traditional, school-centric sense), training, and informing.

While there is also significant work related to the River City project (Dieterle & Clarke, 2008; Ketelhut, 2006; River City Project Harvard University) and the Quest Atlantis project (Barab, et al., 2007; Quest Atlantis Project Indiana University), both projects are oriented to science education. They both also use technology from ActiveWorlds, Inc. with which to construct their virtual worlds and are positioned within the genre of multi-user virtual environments (MUVEs). Being web-hosted, the experience of using these MUVEs bears great similarity to the user experience in the online virtual world *Second Life*. More recent work with Quest Atlantis is positioned in terms of transformational play and games (Barab, Gresalfi, Dodge, & Ingram-Goble, 2010; Barab, et al., 2009). While foregrounding

intentionality, legitimacy, and consequentiality, the focus is on teaching water quality concepts and using multi-user virtual worlds to support academic content learning. Findings from this work indicate "students were clearly engaged, participated in rich scientific discourse, submitted quality work, and learned science content" (Barab, Sadler, Heiselt, Hickey, & Zuiker, 2010, p. 387).

In the domain of social studies, the only relevant research we have been able to identify that makes connection to citizenship education is that of Lim (2008). This work was based on the use of the Quest Atlantis MUVE. Grade five students were positioned as global citizens solving problems, or quests, in the virtual environment. However, the quests were designed for students to learn mathematics, English, and science, not citizenship *per se*. Consequently, the citizenship aspect of the learning experience was peripheral, not core. The stated purpose of adopting Quest Atlantis was to increase learner engagement and academic motivation in the said subject areas. The author reports that a larger percentage of students showed engagement in their learning toward the end of the research intervention. In addition, students' intrinsic and extrinsic motivation increased. In relation to citizenship, the author concludes that global citizenship can be successfully used as a context for meaningful learning in schools. In sum, this research was not designed for citizenship education in the context of a Social Studies curriculum. In general, then, there appears to be little research on game-based learning that is located specifically within the discipline of Social Studies.

DESIGN FOR LEARNING
Given the paucity of relevant prior research relating to game-based learning for social studies and citizenship education, we sought to identify and clarify our theoretical frames of reference within which our learning design could proceed. In this section, we describe two conceptual frameworks that have guided our design efforts.

First, at the most general level of consideration, we appropriated and extended Collen's (2003) framework for a general methodology of human inquiry as a conceptual tool for undertaking research on human learning. This orientation toward inquiry is consonant with the stance of social studies taught as reflective inquiry discussed previously. It is also consistent with the positions adopted by Postman and Weingartner (1969) and Dewey (1938/1991) in their view of learning as requiring student engagement in inquiry. We represent our framework in Figure 1.

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Ontos, or ontology, is the study of human being, human existence, and of what is. *Logos*, referring to epistemology, is the study of human knowing, what can be known, and what constitutes human knowledge. *Praxis*, or praxiology, is the study of action, the practices of human beings, and of what we (as humans) do. To understand human learning authentically in all its situated complexity, we hold that it is vital for learning to be engaged in and studied performatively, in the context of humans in situated action and participating in discursive practices (Austin, 1975; Barad, 2003; Chee, 2010a; Clancey, 1997; Dewey, 1938/2008; Gergen, 1999). In taking this position, we deliberately regard learning outcomes where students can only talk *about* citizenship, without the ability to engage in the *practice* of active

and responsible citizenship, as weak. A performative framing, subsuming *ontos*, *logos*, and *praxis*, emphasizes that human knowing is inseparable from human doing and human being. In addition, the components of the framework are necessarily subsumed within a context of axiology, the study of human values. Knowing, doing, and being are inherently value-laden activities (Ferré, 1996, 1998; Putnam, 2002). Learning to *become* a citizen entails making value-laden choices (Chee, Loke, & Tan, 2009).

Being and values are central to the construction of personal identity, an important orientation in our work. According to Hostetler (2005), Dewey considered the virtues of force of character, judgment, and responsiveness essential: "Students need to be willing to stand for something, while using good judgment about when and how to do so and being willing and able to activate their "force" and judgment because they are sensitive to the people and events about them that call for a response" (p. 17). Importantly, Dewey avoided essentializing traits as objects possessed by people. As a pragmatist, Dewey viewed traits such as "respect" or "virtue" as shown in action that takes place against the backdrop of complex situations.

Second, at the level of learning design, we draw upon the Performance–Play–Dialog (PPD) model of game-based learning (Chee, 2007, 2010a) to conceptualize how student learning might take place when using a 24/7 mobile game. This model is shown in Figure 2. The player (represented as a large icon of a person in the center) plays the game in an intermittent manner over a continuous period of time. Our normative intervention period for the research enaction is three weeks. The game runs continuously in the "game cloud" that the player is continually immersed in, despite the fact that explicit attention to executing game moves takes place on a periodic, intermittent basis. Whenever the player re-connects to the game, she projects her identity into the game space (depicted by the arrow emanating from the player and pointing to the right); this represents her projective identity into the space of game play, as explained by Gee (2007). This projection of self into the game world creates a sense of embodiment and of being embedded in the virtual world of the game. The player's experience is transactional in that user actions in the game world create couplings with the mechanics of the game. These are perceived by the player as feedback to her actions emanating from the game world. During the research period, students in the intervention group continue to meet face-to-face in class for their regular Social Studies lessons. During this time, they engage in teacher-facilitated dialogic conversations and negotiations of meaning (Bakhtin, 1981; Linell, 2009). These conversations help students to distill key themes, ideas, and lessons related to most recently experienced game play. Teachers are provided with a Web-based administrator tool that allows them to monitor major developments in the game so that they can be fully aware of significant game play events around which the classroom dialog can focus.

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Over the course of the intervention period, the goal is that students will learn not only to inquire and make sense of game events in relation to governorship, citizenship, and the Social Studies curriculum, but that they will also learn to *become* and to *be* good citizens. In short, they learn to enact citizenship in a developmental manner. Through performing citizenship, they deepen their understanding of citizenship. Through this process, they construct their self-identity as a citizen. The construct of performance, as used here is drawn from performance

theory (Bell, 2008; Carlson, 2004) and performance studies (Schechner, 2006). Central to the idea of performance is engagement in patterned behavior. However, a ritualized pattern of behavior constitutes a performance only if there is a self consciousness, on the part of the person, of the doing and re-doing of a pattern of activity. This self consciousness gives rise to a double consciousness: a person's self awareness of an actual behavior being enacted that is compared with an ideal intended behavior. Thus, a double consciousness allows the development of reflexivity and the ability of a learner to hold her own actions and behaviors up to personal scrutiny. This reflexive awareness of oneself learning to be a citizen by becoming through performance is aligned with Thomas and Brown's (2007) observation that immersive virtual and game environments provide a unique affordance that allows learning to focus on "learning to be" through game play rather than "learning about" subject content. The real test of the effectiveness of "learning to be" a citizen becomes apparent only at some future time. This test usually takes place long after the student has ceased to play the game, when some real world situation requires a concrete citizen response; such as how to respond when unexpectedly coming face-to-face with a group of rioters (as suggested by the top right corner of Figure 2). Would the student, for example, behave as a responsible citizen by doing what he can to cool tensions and reduce conflict, or might he incite the rioters to violence by further provoking them? Given the here-and-now context of enacting an innovative curriculum in school, assessment is directed at judging how well students can articulate choices they make in the curricular spaces of play and dailog and to what extent they provide compelling justifications for the said choices.

In the next section of the paper, we address the design of the Statecraft X curriculum and outline *Statecraft X* game play. We then proceed to report on an empirical investigation that compares the learning outcomes of an intervention group of students that enacted the Statecraft X curriculum and a control group that studied the topic "principles of governance" based on traditional classroom teaching.

DESIGN OF THE STATECRAFT X CURRICULUM

The Statecraft X curriculum is a three-week curricula program in Social Studies. Concurrent with playing the game, students meet with the teacher twice a week in class. Each class session lasts for approximately 50 minutes. The teacher facilitates the learning program by overseeing student learning activities in the classroom. These activities include debates, desk-work to prepare for the debates, and dialogic conversations that draw upon students' experiences in the game to make connections with different thematic foci; for example, providing for citizens' basic needs, sustaining inter-racial harmony, dealing with the influx of immigrants, enhancing manpower skills, and meeting the defense needs of the nation. The Statecraft X curriculum culminates in the final session with students individually delivering a "public" speech (to the class) to support their claim of having learned to become good governors. The curriculum positions students' learning as that of playing-between-worlds, as explained in the following subsection. The subsequent subsection describes the *Statecraft X* game and associated game play.

Play-between-Worlds

The Statecraft X program is designed as a learning environment where students play between worlds. This concept is inspired by Taylor's (2006) work examining how players of massively multiplayer games continually slip in and out of complex social spaces, both online and

offline. Figure 3 depicts our three worlds and the relations between them. Students, as learners, are situated "between" the worlds of Velar, Bellalonia, and the real world.

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Velar is the simulation game world in which students, playing the *Statecraft X* game in groups of 20, engage in governorship to manage towns in the game world. Students access Velar by logging into the *Statecraft X* game. The real world is represented by nation states such as Singapore, Sri Lanka, and Malaysia, which students draw upon for lessons concerning how best to enact good governance over the game towns (in Velar) that they oversee. Bellalonia is an entirely fictional world, constructed by the play of students' imagination (Thomas & Brown, 2007) using natural language. It is instantiated online using the social network tool Ning. This Play-between-Worlds model situates learners in a liminal space where they are constantly 'betwixt and between' worlds (Schechner, 2006; Turner, 1969). Shifting from one world to another, students are encouraged to bring multiple perspectives to bear—from experiential and agential game play in Velar and also from what is learned through other media such as textbooks, newspapers, television, film, and new media—when trying to solve the problems that plague the fictional world of Bellalonia. There is one critical difference between Velar and Bellalonia. As a digitally mediated world, students find that Velar 'pushes back' on the actions they take, and they thereby receive feedback on the appropriateness, or otherwise, of actions taken in the game world (according to the rules programmed into the game). As a fictional world, however, Bellalonia never 'pushes back.' Our design intention here is for Bellalonia to serve as a 'space' where students can create their ideal world. Being a fictional world, anything is possible in Bellalonia. Possibilities are circumscribed only by students' imagination. Thus, Bellalonia allows students to construct the model of citizenship that they believe in and are committed to. It is evidenced by the type of governorship that they propose to enact in Bellalonia. By being engaged in this learning process, the design intention is that students develop their identity as *becoming-citizen* (Deleuze & Guattari, 1987; Semetsky, 2006) with a global outlook and a multi-perspectival orientation.

Statecraft X game and game play

Statecraft X is a fantasy multiplayer strategy game that supports four teams of 4–5 players per team within a game session that lasts for three weeks. The game is played on Apple iPhones. It was designed and developed at our university. The action model of the game is tick based. Game state updates, based on players' inputs, are executed at fixed time intervals. Students learn citizenship by enacting the role of governors of towns that they control. Thus, they learn in a first person, experiential way what it takes to successfully participate in governing a nation. We chose the format of a 24/7 mobile game because we wanted students to understand that governance is a 24/7 responsibility that requires timely responses from anywhere and at anytime. In this way, we sought to strengthen students learning governance rather than about governance. Just as the expected learning outcomes from learning swimming (by swimming) are expected to be vastly different from learning about swimming—a third person perspective—so too we anticipate that outcomes from learning governance will differ

significantly from learning about governance. Hence, the first person experience of game play is vital to our pedagogical approach.

When playing the game, students quickly learn that they must meet the basic survival needs of town inhabitants whom they govern. They must also obtain citizen buy-in and support if they are to play the game successfully. They soon realize that governorship is an immensely challenging task because different races—elves, dwarfs, trolls, and humans—that bear allegiance to different factions embodying diverse ideologies, populate the towns. Keeping all races and factions "happy" is the unhappy lot of a governor. Game decisions related to government must be sensitively weighed, and the long-term consequences of such decisions carefully anticipated. Through game play and inquiry, students gradually make sense of what decisions work out well. Through dialog and collaborative meaning making, they also learn *why* certain decisions work well while others do not.

Statecraft X game play takes place against the backdrop of the game's back-story. At the start of the game, students find themselves in the medieval fantasy kingdom of Velar, populated by the different races. Four different factions have established strongholds in the north, south, east, and west of Velar. The medieval lord, Topez, exercises strong control over the central part of the kingdom. The game opens with the unexpected death of Topez whose death sets the stage for a power struggle between the four factions to expand their sphere of influence and to fill the power vacuum caused by Topez's unexpected passing.

The game flow in *Statecraft X* can be divided into four distinct phases. In Phase 1, students have to attend to the basic development of the towns they govern. They must provide for the basic economic needs of the town's inhabitants, including food, water, housing, healthcare, and security. Different regions of the nation are rich in different resources. By design, the distribution of natural resources is scattered so as to create regional inter-dependencies that require the establishment of trading operations to sustain economic wellbeing more globally. Figure 4 shows the interface for managing a town in the game.

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The *Statecraft X* game is a complex server-based simulation that players connect to wirelessly. When playing the game, students have to deal with various in-game objects including slums, houses, water towers, wood mills, farms, and factories. Each object can be interrogated so that details related to the object can be more deeply inspected.

During Phase 2, about a quarter way through the game, players need to commence advanced development of their town. They must now also provide for the education of inhabitants of the town, for the development of industry, and the pursuit of cultural activities. A noble house provides for non-player character (NPC) inhabitants with AI-programmed behaviors to enhance the level of activity in the game. These inhabitants also provide occasional "citizen feedback" to the player-as-governor. A trading post allows players to negotiate terms of trade with other players so that trade exchanges can take place and regional economies can blossom.

Phase 3 of the game commences around the third quarter of the game. This segment focuses on players expanding their faction's sphere of influence to fill the power vacuum resulting

from the death of the king. A player's influence is expanded by extending control over neutral towns controlled by AI, as well as towns controlled by other players in the game. This control can be achieved either by diplomatic means or through the use of force. A diplomacy system is introduced, allowing players to negotiate and establish diplomatic relations with the neighboring countries of Velar. Given the tortuous history of the region, students have to decide how to balance the conflicting goals of expanding a faction's sphere of influence and power against that of being perceived as a threat by the neighboring kingdoms to the north, east, south, and west of Velar. This balancing act is further complicated by immigration flows of the different races within Velar as well as between Velar and its neighboring countries.

In phase 4 of the game, the neighboring country Salfreda invades Velar. All players quickly learn that they need to set aside their inter-factional differences in order to preserve the territorial integrity of Velar. The game's combat simulation subsystem becomes vital in this phase of game play. Figure 5 illustrates the world map on which combat is executed. The player, belonging to the green faction, has selected one of his archers (near center of screen) to attack an armor unit of the blue faction (selected unit on the right). The player executes an Attack action to enact combat. The top right icon accesses the game's diplomacy system. The combat log and multiuser chat are accessed through the bottom right and left icons respectively.

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If the Salfredan army overruns players' towns, they (collectively) lose the game. If players successfully repel the invasion, they remain in the game. Their long-term goal is to maintain a stable state of peace, prosperity, and multi-faction citizen happiness in Velar. When the game ceases at the end of the three-week curriculum intervention, the team that has maximum economic resources and highest citizen happiness is considered the winner.

METHOD

The research study reported here compares learning outcomes of an intervention class that enacted the Statecraft X learning program with that of a control class. In this paper, we focus on two data sets: (1) a survey of dispositions related to governance and citizenship administered after the research intervention, and (2) a summative essay writing task on governance, evaluated on the constructs of relevance of content, perspective, and personal voice. In addition to this data set, the following additional data were collected: (1) pre-intervention student survey, (2) post intervention student and teacher interviews, (3) video recordings of the intervention class, (4) classroom observation field notes, and (5) game server logs of student access to and usage of the *Statecraft X* game.

Our curriculum intervention was enacted over three weeks from mid-January to early February 2010. It took place in a local secondary school. Participation of the school in our research was voluntary and collaborative. The school administration was deeply committed to the project. This commitment was fuelled by a strong desire for achieving innovation in teaching. The intervention was led by the regular Social Studies teacher of a class of 15-year-old students in Secondary 3. She was also the form teacher of this class. She was assisted by a

second Social Studies teacher who led half of the students during breakout dialogic sessions. Our work as researchers entailed direct observation of all classroom enactions of the game-based learning curriculum, administration of pre-intervention and post-intervention research instruments, and the conduct of post-intervention student and teacher interviews.

The control class comprised students of the same grade level belonging to an equivalent ability band in the same secondary school. A different teacher taught these students. He employed a didactic approach to teaching based on extensive use of Powerpoint slides. His overriding goal was for students to acquire the content taught.

The research instruments comprising the focus of this study were administered concurrently to students of the intervention and control classes.

Subjects

The subjects in our intervention class comprised 41 students belonging to a high-ability class in the Express academic stream of the school where we conducted our research. Sixteen students were boys (39%), and 25 students were girls (61%). On average, the students were 15 years old. This class of students was selected by the school administration to participate in the learning program on the premise that the students would conduct themselves responsibly and also take care of the Apple iPhones loaned to them to support the enactment of the intervention.

The control class consisted of 42 students belonging to the same ability band as the intervention class. Twenty-eight of the students were boys (67%), and 15 were girls (33%). They also belonged to the Express academic stream and took the same subjects as students of the intervention class.

Materials

Apple iPhones were loaned to all students who participated in the Statecraft X curriculum for the duration of the research intervention. As a condition of participation, students' parents were required to sign an indemnity form as a safeguard against damage or loss. The students used the phones to play the *Statecraft X* game.

A web portal for the game was set up to provide an online space for students to obtain additional information related to events occurring in the game world Velar; for example, a plague sweeping through the land, a series of bandit attacks on trade routes, and a refugee influx into Velar. This site also supported students' blogging as part of our attempt to promote student reflection on insights and understandings derived from ongoing game play.

In class, information excerpts were distributed during session 2 to help students consider the experiences of governments from several real world countries, as part of the Play-between-Worlds curriculum model.

Students in the control class received Powerpoint notes as handouts for the subject.

Procedure

The Statecraft X learning program was carried out with the intervention class in six 60-minute sessions. Due to delays associated with students making their way from one classroom to another, however, the actual time available each session was typically between 50 and 55 minutes. The Social Studies schoolteachers led the classroom sessions. Prior to the research intervention, the teachers participated in professional development to help them prepare for

their roles in enacting the learning program. The teachers also worked with members of the research team to flesh out and finalize the in-class learning activities used in the research.

In the learning program, students were placed in the role of apprentice governors in the game world, Velar. Given the passing of King Topez and the child heir being too young to ascend the throne, students were tasked with learning to be good governors so that they can qualify to be a member of the council of governors that will administer the kingdom until the young king comes of age. Students made a speech during the final lesson to lay claim to a place on the council of governors. This speech represented the enacted performance of the essay they wrote to make the case that they merited a place on the council of governors.

The first session of the research intervention entailed administering the pre-test, loaning out iPhones to students, and orienting them to playing the game. Students played the game until the day before the sixth and final class session. Although the game was designed to be accessible 24/7, in practice, several restrictions were applied. At the special request of the school administration, the game server was programmed to deny access to the game between midnight and 6:00 a.m. and again between 8:00 a.m. and 2:00 p.m. on weekdays, as well as for the whole day on Sundays. These restrictions were motivated by the administration's concern that (1) students should get adequate sleep at night and not be playing the game in the early hours of the morning, (2) students would not get distracted by wanting to play the game during regular school hours when other lessons are taking place, and (3) students would have ample "time-out" from the game to attend to their school homework over the weekend. Beyond these restrictions, students were able to play the game anytime and anywhere. The game server recorded details of the times students logged into and out of the game.

During the intermediate sessions, students followed the lesson plan we co-developed with teachers. Student learning activities during these sessions involved group as well as whole-class discussion of game play. Teachers facilitated students in distilling "lessons" from game play. They helped students to draw upon the game world and the real world to propose solutions for problems faced by the government of the fictional world Bellalonia. Students engaged in debate on the theme "National interests are more important than citizens' interests," and worked individually to prepare for the speech in the final class session. Students were divided into two equal groups when the learning activity required dialog and debate. Each teacher oversaw the learning activities of one student group. At the final session, we administered the post-test survey and collected back the iPhones after students completed their speeches.

For students of the control class, typical lessons involved the teacher explaining the four principles of governance based on what is given in the textbook. The teacher sought to explain how these principles are applied in different contexts in Singapore, such as in population management and traffic management. In one particular lesson, the teacher organized students into groups and asked them to discuss the importance of the principles. Students were then instructed to rank order the principles, based on their perceived importance, and to write an individual essay justifying their rank ordering.

DATA ANALYSIS

The data analysis consists of two parts. The first part comprises one-way ANOVA on each of the disposition survey items with the intervention and control groups being separate levels of the factorial design. Students' responses were coded with the numbers 1–6, corresponding to the responses *Strongly Disagree*, *Disagree*, *Somewhat Disagree*, *Somewhat Agree*, *Agree*, and

Strongly Agree. Four constructs underlie the 18 survey items. The constructs are: (1) valuing social cohesion, (2) valuing diplomacy over unthinking use of force, (3) recognizing that government power is inextricably bound to responsibility, and (4) possessing agency, as a citizen, to influence a nation's present and future. These analyses were run using the statistical package SPSS. The data satisfied requirements for the use of ANOVA.

The second part of the analysis assessed the qualitative section of the post-test in which students were required to write an extended essay in response to the following instruction:

> *Imagine that you are running for an election to be a member of parliament and that you have to formulate policies to convince the citizens of your country that you are the best candidate. Justify your proposed policies by using examples from what you have learnt, what you have read, and your personal experiences.*

Students' essays were coded based on three factors—relevance, perspective, and voice—using the rubric shown in the Appendix. *Relevance* refers to how well students are able to propose government policies that are relevant and well supported by examples and evidence. *Perspective* refers to how well students are able to go beyond the textbook in incorporating multiple perspectives from which their proposed policies can be viewed. *Voice* refers to how well students succeed in investing their response with a speaking personality that demonstrates commitment to and ownership of the answer provided. The construct of voice draws upon the work of Bakhtin (1981). Two independent coders worked to code the entire set of student essays, resolving differences in the manner described below. Both coders have graduate degrees and work as researchers on the project. Figure 7 shows an example of a weak essay, scoring 1, 1, and 5 out of 20 for the categories relevance, perspective, and voice respectively. Figure 8 shows an example of a strong essay, scoring 18, 19, and 18 out of 20 for each of the categories relevance, perspective, and voice respectively.

Inter-rater reliability of essay coding

In this section, we report on inter-rater agreement for the three criteria of students' essays—relevance, perspective, and voice—for Raters A and B. Johnson, Penny, Gordon, Shumate, and Fisher (2005) report that for most agencies, such as state departments of education, and in educational studies, agreement only requires that ratings be at least adjacent. The results of Johnson et al.'s (2005) study suggest that when scores differ between two raters, discussion as a core resolution method is the better method compared to averaging the two discrepant scores. Johnson et al. (2005) reported that for the use of an analytic rubric for grading essays, the scores arrived at after discussion between two raters were closer to expert-criterion scores than averaged scores between the two raters. They also did not find any evidence of the dominance of one rater over another when raters used an analytic rubric to assess essays. Thus, for this study, the final or operational score is the score agreed upon after discussion between the two raters. In this study, the second and third authors (Raters A and B respectively) sat together to review the language in the analytic rubric, compared the students' essay to what was described in each level of the rubric, reviewed the features of the essay that supported the initial ratings, considered each other's evidence that challenged the original judgments, and engaged in collegial discussion to achieve consensus on a final score.

To calculate exact and adjacent agreement between the second and third authors, we transformed students' scores to the level scores indicated in the analytic rubric; that is, scores of 1-5, 6-10, 11-15, and 16-20 were transformed to level scores 1, 2, 3 and 4 respectively.

Table 1 shows the distribution of the level scores of Raters A and B in both intervention and control groups. Table 2 shows the distribution of the level scores of Raters A and B as well as the final scores. An exact agreement was achieved when both raters assigned the same level score to the students' essay while an adjacent agreement was reached when one rater assigned a level score that was one level higher or lower than the other rater; for instance, when Rater A assigned a level score of 2 and Rater B assigned a level score of 3.

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Insert Tables 1 & 2 about here

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As seen in Table 3, the exact and adjacent agreement rates between Raters A and B were 93%, 94%, and 76% for relevance, perspective, and voice respectively, while the exact agreement rates were 59%, 48%, and 28%. The lower agreement rate for voice could have been due to the larger number of features in this criterion. Table 4 displays the comparison of the final scores with the scores initially given by Raters A and B. The final scores agreed with Rater A's scores about 54% of the time and with Rater B's scores about 33% of the time. Thirteen percent of the time, the final scores agreed neither with those of Rater A or Rater B. For these cases, Raters A and B assigned a neutral final score. The dominance of Rater A over Rater B could be due to her having more experience in assessing student essays: she participated previously in an assessment research project for three years where she had to train teachers to assess student work based on a coding manual and exemplars of student essays during assessment workshops. She also had to act as an adjudicator during score resolution sessions. Another possible reason is that she created the analytic rubric for the scoring of student work in this study and thus might have been more familiar with the rubric compared to Rater B.

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Insert Tables 3 & 4 about here

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RESULTS

Table 5 summarizes the analysis of variance results comparing intervention and control group students' responses to the 18 dispositional statements related to governance and citizenship. Students' responses were significantly different (at the significance level $p < .05$) only on item 8 (statement D3). The mean response for both groups of students was in the Agree–Strongly Agree range (5.20 and 5.55) with a standard deviation of 0.81 for the intervention group and 0.59 for the control group. The response range was 2–6 for the intervention group and 4–6 for the control group. This finding indicates that there was greater response variability amongst intervention group students compared with control students. Although the difference between the groups is statistically significant, the mean difference of 0.35 is fairly small. However, the difference is not in the "preferred" direction. Control group students agreed a little more strongly than intervention group students with the statement "it is more important to save the lives of people and soldiers than to engage in warfare for gain." We believe that this outcome

may be attributable, in part, to the implemented game design which over-rewarded students belonging to the faction that took over the capital city of Velar in Phase 3 of the *Statecraft X* game. The underlying game rules may have encouraged students to play the game aggressively without adequate regard to "collateral damage" (in terms of the impact on citizens' welfare and happiness) brought about by warfare.

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Insert Table 5 about here

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Of the remaining survey items, three differences are marginally significant ($p < .10$). The item 1 (statement SC1) result indicates that intervention group students felt a little more strongly about the importance of trust between races. However, the difference between means—0.23—is not very large. This finding should be interpreted in light of the game context that strongly foregrounds the importance of maintaining racial harmony—between the dwarfs, elves, trolls, and humans—in game play.

In addition, the results of items 16 and 17 indicate that intervention group students felt more strongly about citizens being able to influence their future by exercising their vote (statement A3) and that the government should run with the majority view of citizens (statement A4). The difference in means for statements A3 and A4 was 0.29 and 0.44 respectively. These findings suggest that intervention students were sensitized to the fact that citizens wield real power at the ballot box. An implemented game mechanic that triggers a citizen revolt against a student-governor when the happiness level of citizens in a town falls below a certain threshold may have sharpened this sensitivity. In addition, intervention group students appeared to be more mindful of the need to respect the view of the majority. This outcome can also be associated with the implementation of game rules that averaged out individual citizens' happiness level to yield consequences, such as the revolt mentioned, that impact the entire town. Paying attention to the majority of citizens therefore advances game play successfully.

With respect to the findings derived from the survey instrument, students in the intervention group completed it rather hurriedly due to the lack of time in class. Furthermore, given the nature of the subject, students are in general able to anticipate what a preferred response might be, from the viewpoint of the school as an institutional authority. For these reasons, the survey instrument may have had limited discrimination ability.

Results relating to the quality of students' essays on proposed government policies are shown in Tables 6 and 7. Table 6 contains summary descriptive statistics related to this analysis. Table 7 shows that there were statistically significant differences ($p < .001$) between the intervention and control groups with respect to relevance of content, perspective, and personal voice in the written essays. The effect sizes were 0.385, 0.392, and 0.474 respectively. An effect size greater than 0.14 is considered large.

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Insert Tables 6 & 7 about here

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The findings from the evaluation of student essays suggest that this performative task effectively assesses the substantive learning benefits offered by the Statecraft X learning program. For this task, students must construct a personal answer from scratch. They essentially face a blank response sheet. Consequently, this is a more demanding task. Crucially, this task also provides a stronger basis for discriminating the impact of the curriculum intervention on the learning of the intervention group students. Unlike the control group students, intervention group students' essays demonstrated that (1) students were better able to propose more relevant government policies, supported by evidence and examples, (2) students were better able to offer multiple perspectives when justifying their policy proposals and to integrate these ideas in some coherent fashion, and (3) students demonstrated greater ownership of and commitment to the ideas that they proposed. This finding provides evidence for the efficacy of the Statecraft X learning curriculum, grounded on the theoretical constructs of performance, play, and dialog, and located within the reflective inquiry approach to learning social studies. By engaging students in citizenship education using an enactive form of first-person learning, rather than the conventional "about citizenship" third-person mode of learning, students learn to *become* citizens developmentally as part of an ongoing trajectory of becoming. This shift from "learning about" to "learning to be" marks a deep epistemological shift that values performative learning outcomes integrating skills, knowledge, identity, values, and epistemology, as detailed by Shaffer (2006), over traditional knowledge acquisition outcomes. It also marks commitment to a different understanding of how people learn (Coulter & Sharrock, 2007).

DISCUSSION

The introduction of curricula innovation into a stable school culture is always fraught with significant challenges. We have written elsewhere about the challenges of boundary crossing that teachers face when the implementation of pedagogical innovation requires them to "reinvent" their teaching practice in the classroom (Chee, Tan, Tan, & Jan, 2009). The Statecraft X learning program required our collaborating teachers to distance themselves from their habit of teaching the Social Studies curriculum didactically. The teachers attempted to do so, but they achieved different degrees of success. While acknowledging the pedagogical merit of game-based learning, teachers still struggled with lingering concerns over falling behind in covering curriculum content in relation to the progress in coverage that students in non-intervention classes at the same grade level were achieving. Coupled with the fact that our curricula program values student learning *processes* over content acquisition and reproduction *per se*, our collaborating teachers had to overcome fears that the intervention class would perform worse than other students in across-grade standard tests mandated by the school.

The enactment of the Statecraft X curriculum, as designed, did not therefore always proceed in the manner intended. In this particular intervention, which represents the very first enaction of the Statecraft X learning program, we observed occasions when teachers insisted on (or lapsed into) teaching content. On occasion, the agreed upon lesson plan was modified without giving us any prior notice. These "enaction failures" are a factor that must be taken into consideration when evaluating the efficacy of the curriculum intervention. Challenges in the field, such as these, foreground the fact that a classroom environment is a "messy" research space to work in. It is a situated space, both socially and culturally, that is locked into a more expansive system of existing human praxis. Genuine innovations always create

perturbations to the system, with rippling side effects that disrupt entrenched practices. Conventional cause–effect analyses are of limited analytical power in such situations because they can at best yield only a partial analytical grasp of factors at work in the intervention environment. More holistic, systems-based analyses that go beyond the current state-of-art are required (Chee, 2010b).

A first enaction of a design intervention in the classroom always entails challenges that cannot be anticipated. No reasonable amount of pilot testing is sufficient to anticipate every kind of challenge one may encounter in actual implementation of an innovative curriculum. Game design to support three weeks of continuous multiuser play is difficult. Game balancing issues increase the level of difficulty. One game balancing challenge that we encountered related to the fact that students found it too easy to engage in warfare and to go on a town takeover spree. We believe that our "difficulty" with the significant disposition shift related to statement D3 is a manifestation of this issue. In light of this experience, the game design has since been refined: penalties to moderate over-aggressive play have been introduced. These penalties take the form of having citizens in towns plagued by prolonged war emigrate to towns run by other governors in the game. In this way, student–governors who play over-aggressively will find the population of their towns slowly depleting. They would thereby receive an obviously negative indication that they are playing the game poorly.

A key benefit of a multiplayer mobile learning game is that it affords engagement in game play anytime and anywhere. Such games are intended to make light demands on players because they require only their continuous yet partial and divided attention. The *Statecraft X* game, as an iPhone game, was designed to leverage on this special affordance. As researchers, we were keen to understand how students appropriated this affordance and how they would interweave game play into the conduct of their daily lives. As mentioned previously, however, we were requested to impose server-driven time-outs on game play so that students would not be tempted to play the game, as well as to make use of the phone, "inappropriately": for example, during other school lessons and in the early hours of the morning when they "ought" to be sleeping. These challenges illustrate how new media and new tools can give rise to "transgressive behaviors" that society may as yet be unwilling to accommodate or accept. Such issues will require a longer period of time to find resolution. Thus, although the game was designed for 24/7 use, it was not used on a 24/7 basis. Notwithstanding, we were interested in the space–time distribution of game play enacted by students, given the affordances of mobile technology. Our findings in this regard can be found in Gwee, Chee, and Tan (2010).

Recognizing that there may be barriers to more widespread take up of the Statecraft X curriculum due to the requirement of iPhones, we have worked on two additional configurations to support game play. First, we have created a version of the game that can be played on standard computer-based web browsers. Given the reduced portability of computer laptops and notebooks and our argument that game play design on a portable device deliberately attempts to reinforce the idea that governorship is a 24/7 job, we believe that the space–time dynamics of game play will be compromised. Nevertheless, the availability of a web based version is a practical step to make access to the Statecraft X curriculum more widely available. Second, we are exploring the use of Apple iPods as an alternative hardware platform. This arrangement is viable only in the context of a Wi-Fi network being readily available.

We emphasize that the *Statecraft X* game differs significantly from games designed to teach content acquisition. It also differs from games designed to converge quickly to a "right answer." First, the use of the game is situated within a broader and more inclusive learning program that includes dialogic and performance components, as part of an extended process of student inquiry. In terms of its scope and complexity, as well as the time scale of continuous play over three weeks, playing the game successfully requires genuine effort and commitment (as with any respectable commercial videogame) on the part of the student. Second, as a game, *Statecraft X* has been designed as a game to learn with, not as a game to teach. There is no single right answer. The win condition is the ongoing preservation of a viable nation state: a process outcome, not a product. What students learn is distilled from the game play experience that is situated within the more encompassing Play-between-Worlds curriculum model. Through interwoven engagement in knowing, doing, and being, they learn to become citizens, where becoming remains an ongoing process of learning. Within this framing, the issue of "transfer" does not arise because history is always "in person" (Holland & Lave, 2001). This process of learning, as being and becoming, is realized through performance, play, and dialog.

The research study reported in this paper has several limitations. First, we did not have the opportunity to conduct a baseline pretest to establish "equivalence" in ability level between the intervention group students and the control group students. Being classroom-based research, randomized controls were out of the question. Consequently, we had to rely on the validity of the grouping of students based on the school's assignment of the students to the top band of the Express stream. Second, in order for the dialogic component of the Performance–Play–Dialog model of game-based learning to be enacted effectively, it was essential to create more opportunities for students to participate in dialog: something that occurs infrequently in didactic teaching. Consequently, two teachers were involved in conducting the intervention, and the class of 40 students was divided into two groups of 20 students, each led by one teacher, when the dialogic component of the lesson took place. This doubling of teacher manpower, required by the design of the innovation, may be a confounding variable.

CONCLUSION

In this paper, we described the design and implementation of an innovative learning program that includes playing the game *Statecraft X* to enact citizenship education in the Social Studies curriculum. Rooted in performative notions of learning, students enacted the role of in-game governors in the context of a Play-between-Worlds curriculum model to learn through reflective inquiry. The game was designed for 24/7 availability via a mobile phone to allow emulation of demands faced by real world governors so as to enhance the authenticity of students' role taking. In practice, this design was compromised due to social constraints. Notwithstanding, an evaluation of learning outcomes between an intervention and a control group of students provides some evidence of dispositional shifts related to governance and citizenship. Clear learning gains by intervention group students were manifested in a post-intervention essay writing task. In this task, students were required to propose and justify government policies they would advocate when contesting for a seat in parliament. Students in the intervention group outperformed those in the control group with respect to the quality of their essays, evaluated on the criteria of relevance of content, being able to incorporate multiple perspectives, and demonstrating personal voice. This outcome provides evidence that game-based learning, as enacted in the Statecraft X learning program, can foster student

learning that promotes having a voice and a sense of personal agency in matters relating to citizenship.

From the perspective of practice, the research provides a vision of what can be achieved in the classroom with game-based learning. Teacher preparation is vital to a positive outcome. Factors that enhance the likelihood of the innovation being successful include: (1) support for the innovation program from the school's leadership; (2) teacher willingness to experiment with non-standard teaching approaches; (3) teacher readiness to interrogate personal epistemological beliefs and to be reflective and reflexive as an educator, and (4) availability of hardware resources and infrastructure to mount the learning program.

From the perspective of policy, we suggest that policy makers need to better understand and value performance-oriented learning outcomes that students take with them for life. The difference in learning outcome when comparing "learning swimming" and "learning about swimming" should be self-evident. What children gain by learning swimming cannot be taken from them. Learning swimming does not comprise the simple accumulation of knowledge and skills "about swimming." Rather, performance entails the embodied capacity for enactive action that integrates knowledge and skills in authentic and productive human endeavor. The development of performative capacities is deeply intertwined with values and identity. Such learning outcomes have depth and longevity. They also require more time and effort to develop.

From the perspective of research, it is important to recognize that research of the kind reported here is socially complex. It perturbs, and often dislocates, deeply entrenched participant expectations and classroom practices. The research goal is therefore not simply to "discover" enduring cause–effect relationships. That would be too simplistic. Our research seeks to inform and *develop* practice at the same time. Consequently, it always takes place against a shifting backdrop of emergent practice on the part of active social agents in the education milieu as well as policy changes at the institutional level. The convention of *ceteris paribus*, of trying to "hold everything else constant," is not a practical option when doing classroom-based *intervention* research because interventions seek to modify practice by enhancing it. The findings reported in this paper must be understood in this light.

Our future research will focus on the refinement of our learning design as more students, teachers, and schools experiment with the Statecraft X learning program. Through iterative refinement and reimplementation, we hope to better understand which design principles are robust across situations and which ones are brittle, thereby requiring careful localization so as to work well in practice. In short, the work will continue to be design oriented and located in situated practice.

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APPENDIX

Rubric for coding student's essay

Name of Student: ………………………………………… Total marks: ………/60

Criteria	Level 1 1 – 5 marks	Level 2 6 – 10 marks	Level 3 11 - 15 marks	Level 4 16 - 20 marks
1) Relevance of policies proposed and examples or evidence given to support policies	❑ Policies proposed are not relevant to the social and economic needs of the country. ❑ Most examples given are simplistic. Does not diverge from the textbook.	❑ Policies proposed favour the needs of one or two segments of the country's population but neglect the social and economic needs of other segments. ❑ Examples given may include a non-textbook source or an innovative interpretation.	❑ Policies proposed meet the social and economic needs of the majority of the population. ❑ Examples given are appropriate and include non-traditional sources.	❑ Policies proposed meet all the social and economic needs of this country. ❑ Examples given effectively support all the policies proposed. Examines examples given for its relevance.
2) Perspective	❑ Offers only the textbook perspective.	❑ Limited discussion of perspectives other than the textbook perspective. Alternatives are not integrated. ❑ Treats other viewpoints superficially.	❑ Offers multiple perspectives, but they are integrated in a limited way ❑ Attempts to investigate viewpoints.	❑ Integrates diverse multiple relevant perspectives. ❑ Multiple viewpoints are thoroughly discussed, explained and qualified.
3) Personal voice	❑ Is indifferent towards the topic. ❑ Does not communicate feelings. ❑ Does not offer any opinion. ❑ Writing is phony, stilted or awkward. ❑ The reader is clueless about the personality of the writer. ❑ Voice used is inappropriate for the situation.	❑ Cares about the topic in a limited way. ❑ Communicates feelings as an afterthought. ❑ Opinions are emergent in nature. ❑ Major inconsistencies cast doubt on the authenticity of the piece. ❑ The reader has to examine the piece carefully for an indication of the writer's personality.	❑ Cares about the topic. ❑ Communicates feelings. ❑ Opinions are outlined. ❑ A few inconsistencies in the piece. ❑ The reader gets a glimpse of the writer's personality. ❑ Voice used largely matches the situation.	❑ Cares deeply about the topic. ❑ Communicates strong feelings and honest statements. ❑ Only the writer could have written it. Opinions are well-defined and detailed. ❑ Writing is authentic. The writer's voice is consistent throughout the essay. The writing sounds real. ❑ Displays a well-developed personality. The reader has the impression that he is

		❑ Voice used matches the situation at times.		getting to know the writer very well. ❑ Voice used matches the situation very well.

TABLES

Table 1

Comparison of Frequency of Scores of Raters A and B across Groups

	Rater A		Rater B	
Score	Intervention	Control	Intervention	Control
Relevance				
1	7	23	5	19
2	14	17	12	15
3	14	2	18	7
4	6	0	6	1
Perspective				
1	4	23	6	14
2	11	17	8	14
3	22	2	19	13
4	4	0	8	1
Voice				
1	2	16	2	3
2	11	18	7	9
3	14	7	19	22
4	14	1	13	8

Table 2

Comparison of Frequency and Percentage of Scores of Raters A and B, and Final Scores

Score	Frequency			Percentage		
	Rater A	Rater B	Final	Rater A	Rater B	Final
Relevance						
1	30	24	29	36	29	35
2	31	27	27	37	33	33
3	16	25	21	19	30	25
4	6	7	6	7	8	7
Perspective						
1	27	20	23	33	24	28
2	28	22	33	34	27	40
3	24	32	22	29	39	27
4	4	9	5	5	11	6
Voice						
1	18	5	9	22	6	11
2	29	16	27	35	19	33
3	21	41	25	25	49	30
4	15	21	22	18	25	27

Table 3

Exact and Adjacent Agreement Rates of Relevance, Perspective and Voice Scores

	Relevance		Perspective		Voice		Total	
Score Agreement	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Exact	49	59	40	48	23	28	112	45
Adjacent	28	34	38	46	40	38	106	43
Exact and adjacent	77	93	78	94	63	76	218	88
Non-Adjacent	6	7	5	6	20	24	31	12

Table 4

Agreement Rate of Final Scores with Scores of Raters A and B

	Rater A		Rater B		Neither	
Score	*N*	*%*	*N*	*%*	*N*	*%*
Relevance	20	59	11	32	3	9
Perspective	24	56	15	35	4	9
Voice	30	50	19	32	11	18
Total	74	54	45	33	18	13

Table 5

Summary of one-way analysis of variance results between intervention and control groups on 18 dispositional statements related to governance and citizenship

Item	Statement	Intervention Group		Control Group		$F_{(1, 81)}$	p
		n	Mean	n	Mean		
1.	SC1: I feel that trust between races is important.	41	5.68	42	5.45	3.53	.064*
2.	SC2: I think that it is important for people of different races to live together happily.	41	5.61	42	5.67	0.24	.629
3.	SC3: I want to work well with people from different races.	41	5.51	42	5.45	0.21	.648
4.	SC4: I find it easy to work with people from different races.	41	4.90	42	4.83	0.12	.731
5.	SC5: A multicultural society is preferable to one with a single dominant culture.	41	4.76	42	4.60	0.32	.576
6.	D1: Using non-violent approaches to solve conflicts between countries is the right thing to do.	41	5.44	42	5.45	0.01	.942
7.	D2: Countries should only take military action as a last resort.	41	4.95	42	5.21	1.25	.267
8.	D3: It is more important to save the lives of people and soldiers than to engage in warfare for gain.	41	5.20	42	5.55	5.11	.026**
9.	D4: Building a strong defense force will help prevent other countries from invading Singapore.	41	5.34	42	5.05	1.67	.201
10.	D5: My classmates and I should talk things out when we have disagreements.	41	5.34	42	5.17	2.05	.156

11.	P1: The government that cares deeply for the welfare of its citizens will be an effective government.	41	5.24	42	5.29	0.09	.763
12.	P2: Governments that do not understand the needs of their citizens will make citizens unhappy.	41	5.05	42	4.81	1.20	.277
13.	*P3: The government's decision is always best for its citizens' welfare.*	41	3.05	42	2.81	0.01	.910
14.	A1: The government will listen to citizens who keep complaining.	41	3.78	42	3.93	0.44	.509
15.	A2: Citizens should take action to solve their problems instead of waiting for the government to solve their problems.	41	4.85	42	4.79	0.15	.701
16.	A3: Citizens can influence the future by voting for their preferred party or candidate.	41	5.24	42	4.95	3.44	.067*
17.	A4: The government should always follow the view held by the majority of its citizens.	41	4.37	42	3.93	3.34	.071*
18.	A5: Citizens should give alternate viewpoints on social and national issues and seek to influence their leaders.	41	4.95	42	5.00	0.13	.724

** $p<.05$; * $p<.10$

SC: Social cohesion
D: Diplomacy
P: Power of government
A: Agency
Reverse-coded item shown in italics.

Table 6

Summary descriptive statistics for relevance, perspective, and voice in written essays

Student group		Relevance	Perspective	Voice
Intervention	Mean	11.07	11.46	14.44
	n	41	41	41
	Std. Deviation	4.20	3.89	3.14
Control	Mean	5.55	6.02	8.40
	n	42	42	42
	Std. Deviation	2.73	2.91	3.29

Table 7

ANOVA summary tables analyzing students' essays on proposed government policies

		Sum of Squares	df	Mean Square	F	p	η2
Relevance * Group	Between Groups	633.44	1	633.44	50.74	< .001	.385
	Within Groups	1011.19	81	12.48			
	Total	1644.63	82				
Perspective * Group	Between Groups	613.89	1	613.89	52.17	< .001	.392
	Within Groups	953.17	81	11.77			
	Total	1567.06	82				
Voice * Group	Between Groups	755.45	1	755.45	73.00	< .001	.474
	Within Groups	838.22	81	10.35			
	Total	1593.66	82				

FIGURES

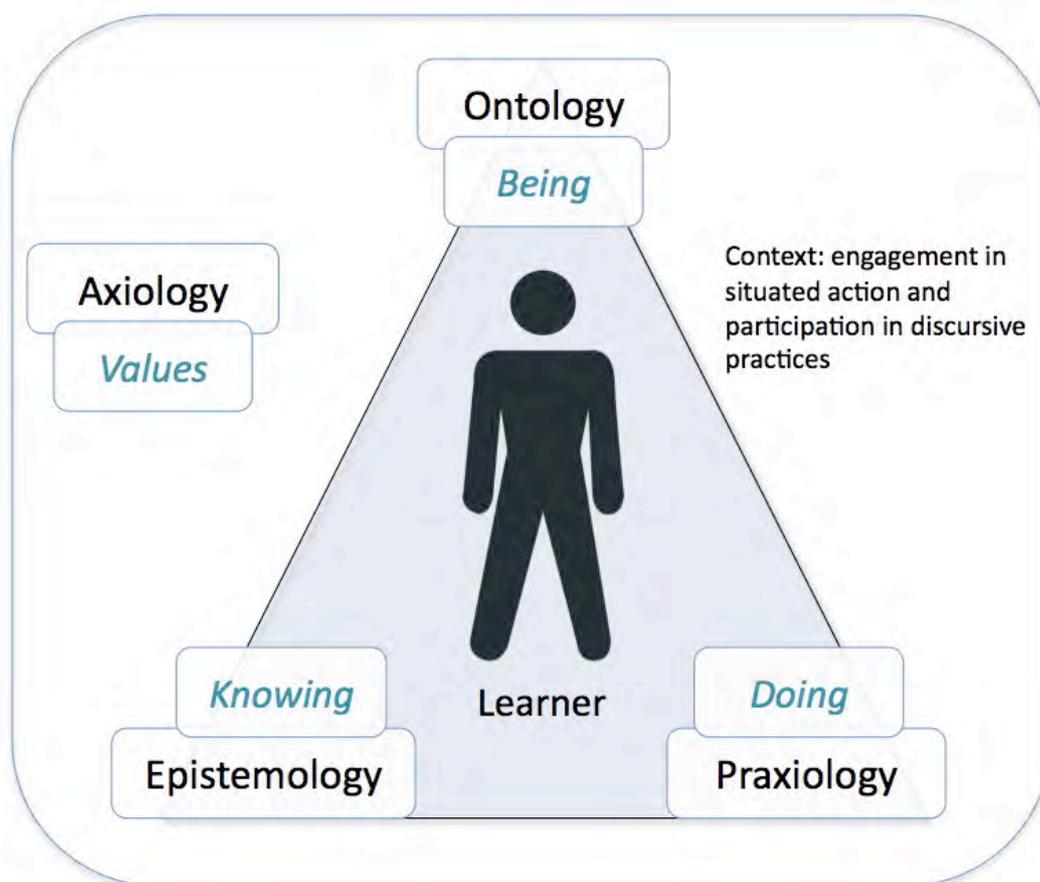*Figure 1. A general framework for undertaking research on human learning*

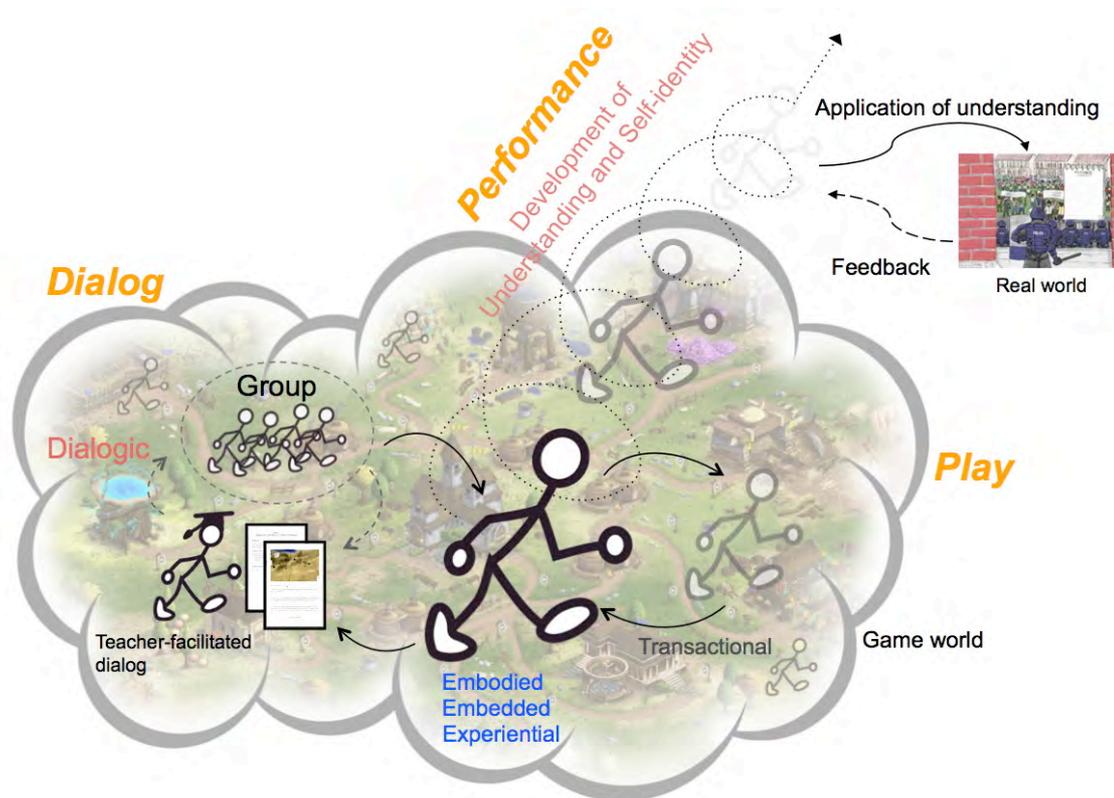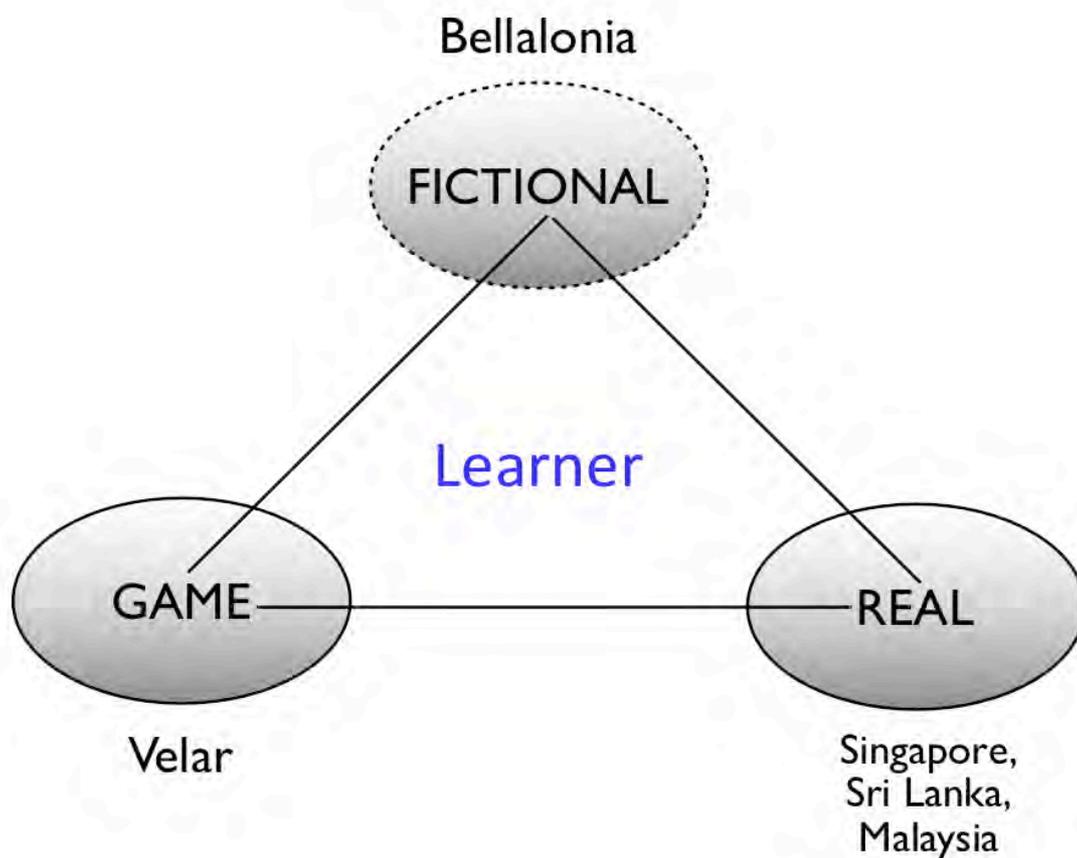*Figure 2. The Statecraft Performance–Play–Dialog model of game-based learning*

Figure 3. The Play-between-Worlds curriculum model

Figure 4. Statecraft interface for managing a town in the game

Figure 5. Executing combat on the world map

Figure 7. Example of a weak essay (shown verbatim)

I would like to propose that selling of cigarettes at one shop in each area. So that to prevent the increase in the number of teenagers to smoke. That specific shop is to sell cigarettes only and selling of cigarettes are banded in anyplaces in Singapore except the shop. As more and more parents are worried of their children would start smoking, this policy will actually helped and control the number of people who are addicted to smoking. This shop probablily run by the government so that it will carry out best. We limited the people who can purchase cigarettes and will not sell cigarettes to people who are below age 21. They need to show their NRIC upon each purchase. We will record down the name and the details of each person. This will actually discourage people to buy cigarettes as it will be a long process. People will not get to buy cigarette at anywhere else. There will only be ONE shop in each area to sell cigarettes. We hope that in one day, cigarettes will not be selling in Singapore.

Thank you.

Figure 8. Example of a strong essay (shown verbatim)

I feel that I am the best candidate as I am able to form suitable policies for the people of Singapore to live harmoniously together.

Firstly, I would ensure that everyone or family would have at least a job. If they are old and retired, I would ensure they have some/sufficient savings so that they would be able to live on until they die. This would help the old and retired enjoy 'the fruit of the labour' after staying in Singapore for quite a long while. Schemes like 'Medisave' and 'CPF funding' can be continued to help the people with financial needs and financial planning. With sufficient money, the citizens can at least own a house and buy their daily necessities. If a group of citizens requires financial assistance, the government (us) would subsidise the taxes, education bills, etc. I do not mean to make the working population carry an extra burden to pay more taxes and GST. They would feel injust. Hence, if they so happen to exceed expectations in their careers in their companies, have more children, they can have bonuses, cut down taxes and other financial schemes.

Coming back to unemployment, by trying to assure every able-bodied citizen has a job, every citizen would be able to earn a living and their upkeep. They would be able to buy their own necessities, support families and take care of their parents. Once everyone starts to work, economy would grow as well since they have more produce and services provided. With more and better economy, the county would have less financial problems. With more funds, everything else would be able to be resolved since 'money makes the world go round'.

With more finances, better living conditions can be fulfilled. More national activities can be organized, education can be improved. Once technological advances are improved, the country would be able to prosper, making Singapore a successful country.