

Narrating professional development trajectories in the context of the Statecraft X game-based learning curriculum

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Abstract

This article examines the professional development trajectories of two teachers who implemented the Statecraft X digital game-based learning curriculum. The research project's objective was to enhance teachers' capacities to enact game-based learning curricula. Teachers participated in guided reflective questioning after their dialogic sessions that generated narratives. The narratives reported here indicate that teachers' professional development experiences were influenced by their personal practical knowledge. These experiences had a powerful influence on them as developing professionals and in transforming their pedagogical practices. These findings have implications for teacher professional development with respect to game-based learning and teachers' readiness for 21st century classrooms.

Keywords: Teacher professional development; game-based learning; narratives; identity; personal practical knowledge

1. Introduction

It is widely accepted that student learning and the quality of teacher education are key to 21st century economic success (Goh & Lee, 2008). Over the last two decades, many educational initiatives have been undertaken to improve students' learning outcomes in standard exams. However, little has been achieved in terms of improving either student outcomes or getting them equipped with the life skills needed for 21st century living. Educational initiatives mostly have taken the form of school restructuring, curricula changes, assessment methods, etc., but scant attention has been given to what actually goes on in the classrooms (Schleicher, 2012) and how teachers can be supported to handle challenges and changes in the educational environment.

Most initiatives that aim to improve students' outcomes include a component of teacher professional development. However, the quality of these initiatives remains questionable. Many professional development programs provide no opportunities for participants to practice what they learn (Darling-Hammond, 2006; Frick, Carl, & Beets, 2010). The disconnection between theory and practice results in a reduced efficacy and half-hearted participation of teachers in the professional development programs.

This paper is a dialog among narratives, identity and how they relate to teacher professional development. In the sections that follow, we first elucidate the challenges to effective professional development (PD) in the context of 21st century education. Having identified weaknesses and challenges with existing PD programs, we draw on ideas from Pierre Bourdieu's (1985) social field theory to re-conceptualize PD that appropriately values teacher agency and reflexivity. Teachers' narratives arising from their experiences have an important place in this study. The section following the re-conceptualization of PD highlights the importance of narratives for understanding PD and the relationship between narratives and identity. In Section 2, we describe the reflective, reflexive, guided appropriation model, followed by a brief description of the Statecraft X game-based learning curriculum. Having established the background for our work, we then describe the PD trajectories of two teachers who participated in two separate intervention cycles of the program.

1.1. Research context and background

The current project emanated from an earlier project that focused on the development of the Statecraft X game, its curriculum, and the implementation of classroom interventions. The results of the earlier project indicated the efficacy of the game with respect to students' outcomes (Chee, Mehrotra, & Liu, 2013; Gwee, Chee, & Tan, 2010). However, teachers faced the challenge of enacting the role of a facilitator. The present project seeks to enhance teachers' capacities to enact the program. The Statecraft X learning program aims to complement textbook use with an authentic educational game (played on Apple iPhones), and associated curricular materials, which are mapped to the unit on Understanding Governance in the Social Studies curriculum for 15-year-olds in Singapore.

The *Statecraft X* game is a multiplayer strategy game designed to support play for four teams consisting of 4-5 players each. The game is set in a medieval fantasy world, around which the back-story of the game is set (Chee, Tan, & Qiang, 2010). The game requires students to think as governors and thus learn to appreciate the complexity of the task of nation building. In doing so, students learn to see the relation between governance and citizenship as opposed to learning *about* citizenship. The teacher uses dialogic pedagogy to facilitate meaningful conversations among students.

In this study, we utilized narratives as a medium of inquiry for following the PD trajectories of participating teachers. We used teachers' narrative accounts as an entry point to explore, analyze and make sense of the journey that two teachers went through while enacting the dialogic pedagogy of the Statecraft X game-based curriculum. Facilitation of dialog requires a change in disposition and mindset and entails moving from a transmission model of teaching to accepting that meaningful learning can occur when students interact among themselves in the class.

1.2. Why is effective professional development a challenge?

Two major approaches to teacher PD are generally adopted in teacher education programs. One is the silos based approach to theory and practice often employed in pre-service teacher education programs where teachers-to-be are provided with educational theory and field training. The other is the deficit mastery approach usually followed in in-service refresher programs, where a deficiency in teachers' skills and knowledge is implied. The latter approach focuses on improving and refreshing the content knowledge of teachers (Sandholtz, 2002). Both the silos and the deficit models have been criticized for not preparing teachers adequately for real classrooms, and teachers themselves complain of a mismatch between what they studied and what they experience in classrooms (Darling-Hammond, 2006; Lopes & Tromenta, 2010).

In addition to pre-service and in-service teacher education programs, implementation of any innovative curriculum or technology also demands that the teachers actualizing the curriculum are well aware of its theory and pedagogy. To prepare teachers to carry out the curriculum with the highest possible reliability in the manner intended by curriculum developers, PD programs are planned. An example of such an approach is the introduction of digital game-based learning in classrooms. There have been mixed reviews about how successfully digital game-based learning has been implemented in classrooms. One of the primary reasons cited for its limited success is the lack of continuous professional support and guidance, and also teachers' resistance to appropriate new technology in the intended manner (Ketelhut & Schifter, 2011).

Another challenge to effective PD is the pressure of accountability. Giles and Hargreaves (2006) argue that pressures of accountability have fostered teacher learning communities to focus narrowly on improving standardized measures of learning, rather than supporting broader conceptions of learning. Because of this practice, a short-term, one off workshop/event approach is increasingly being favored. According to Hardy (2010), teacher PD initiatives of late have become "more individualistic, reactive and

increasingly technicist in orientation” (p. 72) because of the current circumstances and needs of globalized society. In this “fast-track” model of PD, the space to be creative, adaptive and discerning is closed, providing no room for teacher agency (Latta & Kim, 2009). Also there has been inadequate attention given to how teachers’ experiences are shaped by personal, interpersonal, contextual, and situational factors that shift over time. Teachers go through their courses as requirements of professional compliance rather than for professional learning. Consequently, a meager difference has been made in practical situations (Lieberman & Pointer-Mace, 2008). A new paradigm of teacher PD taking into consideration teacher agency is being suggested by researchers (Ketelhut & Schifter, 2011).

1.3. Re-Conceptualizing professional development

Drawing on social field theory by Bourdieu (1985), we highlight the importance of teacher agency, reflexivity and reflection as vital theoretical constructs for re-conceptualizing teacher PD programs. Bourdieu’s theory acknowledges the complexities of teacher development and teacher change. His theory focuses on the dynamic relationships between structure and agency within a social practice, thus overcoming the drawbacks of the silos and deficit models of PD. According to Bourdieu, the everyday decisions made in a social context shape and are shaped by one’s habitus (dispositions) that are formed through the embodiment of one’s life history. His theory further points to a possibility of social change through critical reflexivity, “which is not separated from the everyday but is intrinsically linked to the (unconscious) categories of habits which shape action” (Adkins, 2004, p. 195). For Bourdieu, reflexivity does not mean that one reflects upon one’s theories, but rather on one’s practices in a social context. Being reflexive entails much more than being critical of one aspect of teaching practice. It includes knowing about the field of teaching and its culture. According to Pitsoe and Maila (2011), reflective and reflexive practice leads to valuable outcomes for teachers, researchers and students. Thus, reflexivity serves as an enabler for meaningful teacher PD.

In addition to reflexivity, Dewey (1933) emphasizes reflection in strengthening teachers’ pedagogical practices. He describes three essential attitudes that are a prerequisite for reflective practice. These include open-mindedness, responsibility and whole-heartedness. Reflection also involves emotions, passions and intuitions (Greene, 1986), in addition to logical thinking processes. Clandinin and Connelly (1995) and (Beattie, 2000) strongly emphasize reflection in teacher education and challenge the traditional and dominant view of teacher education as training, with its focus on the mastery of certain techniques, and privileging theory over personal experience. They propose a humanistic view of teacher PD where teachers are not considered as mere actors in or performers of the innovative pedagogy. Rather, it is held that teachers’ appropriation of pedagogy is whole-hearted and is colored by their personal professional contexts.

With this understanding, Authors (Chee & Mehrotra, 2012) have proposed a reflective, reflexive, guided appropriation (RRGA) model for teacher PD (described in Section 2). The RRGGA model is a humanistic model of teacher professional development. Teachers are given opportunities to reflect on their experiences and practices and make their own actions the target of critical interrogation with a view to improving their existing practice. Teachers’ narrative accounts play a critical role in this model for illustrating the process of change as well as being a means for PD. From the point of view of research, narratives also evoke an interest in the self and its representation. The next sub-section highlights the importance of teacher narratives as a means of understanding PD over time.

1.4. Narratives as a medium for understanding professional development

The term “narrative” connotes multiple meanings. Narratives may suggest insight into important biographical patterns or social structures. They may also refer to methods of investigation and analysis, and connote theoretical orientations (Squire, Andrews, & Tamboukou, 2008). Narratives have also been

viewed as a form of representation that “describe[s] human experience as it unfolds through time” (Clandinin & Rosiek, 2007, p. 40). For Dewey, narratives provide a way to keep experience and action unified, allowing greater understanding of experiences (Dewey, 1932/1985). This view honors the primacy of experiences. In the context of teacher education, teachers’ subjective experiences are influenced by both their personal and their social understandings (Dewey, 1938) and are usually narrative in form (Connelly & Clandinin, 1990).

Narrative experiences of teachers depict the complexity of what it means to be a teacher. They reveal the hidden dimensions of teachers’ personal practical knowledge. Clandinin (1992) conceptualizes personal practical knowledge as “knowledge . . . constructed and reconstructed as [teachers] live out [their] stories and retell and relive them through processes of reflection” (p. 125). Personal practical knowledge is embedded in the situational context and is composed of “relationships among people, places, and things . . . [It is] a landscape that is both intellectual and moral” (Clandinin & Connelly, 1995, p. 5). Thus, inquiry into the stories that arise from these contexts does not only bring to light the experiences of the individual but also explores the social, cultural and institutional practices that shape the individual’s experiences. In order to understand the PD trajectory of teachers, we need to consider the personal practical knowledge landscape that colors their narratives. Such an understanding of experiences will also aid in capturing the changing personal and social contexts of the teachers.

An integral part of personal practical knowledge is metaphors. Metaphors give imaginative expression to one’s personal practical knowledge (Connelly, Clandinin, & He, 1997). Lakoff and Johnson’s (1980) work has emphasized the study of metaphors as a means of identifying how teachers understand themselves and their profession. Metaphors used by teachers in their narratives contribute imaginative expressions to the process of teaching and learning and have special significance in offering insights into unexpressed values, beliefs and assumptions (Craig, 2013; Elbaz, 1983; Steger, 2007). The positioning of self in narratives and metaphors offers a rich medium to researchers to study teachers’ professional life and its related changes.

Receiving constructive feedback and sharing narratives with others in a supportive environment are important aspects of PD (Moss, Springer, & Dehr, 2008). The practice of stepping back, describing, analyzing and reflecting upon one’s experiences becomes a process through which one can link and resolve the tensions that arise (Freeman, 1991). When teachers inquire into their own experiences, it propels them to question and reinterpret their ways of knowing. In doing so, their action and knowledge are united. Providing teachers with the space and context for reflecting on their practices and experiences grants them agency for nurturing meaningful learning and thereby contributes to their PD. In the following sub-section, the relation of narratives to identity is considered with a view to understanding identity through a performative lens.

1.5. Narratives and identity

In this article we examine teachers’ narratives -- their accounts of personal practical knowledge and the contexts through the lens of performance. According to Bamberg (2010), narratives are tools for understanding identity construction. We focus on teacher identity from the social interactionist perspective. Mead (1934) used the concept of identity in relation to the concept of self. Following Mead, identity is not a fixed attribute of a person but a relational phenomenon. He describes how the self develops through transactions with the environment. In line with Mead’s idea of identity, Hinchman and Hinchman (2001) suggest that identities are constructed through the narratives we create and tell about our lives: how we externalize ourselves to ourselves and to others. The positioning of self in narratives portrays the performance of identity.

Professional identity and professional action are related in that professional action is the doing of professional identity. Development of professional identity as described by Flores and Day (2006, p. 220) is “an ongoing and dynamic process which entails the making sense and (re)interpretation of one’s own values and experiences” that may be influenced by personal and social factors. From a sociocultural perspective, learning to teach is primarily a process of professional identity construction rather than knowledge acquisition or transmission (Nguyen, 2008), and teachers’ identity evolves over time based on their values. The evolving nature of identity is evident in the way that teachers relate their professional experiences.

Viewing identity as something we do that develops during one’s life invokes a sense of performance, with the connotation of non-essentialism and fluidity. Education involves a continuous process of “reconstruction of experience” (Dewey, 1938, p. 39), which is expressed in narratives. Connelly and Clandinin (1999, p. 4) draw on Dewey’s theory of experience and education and use the term “stories to live by” to signify teacher identity. They suggest that “our identities are composed and improvised as we go about living our lives embodying knowledge and engaging our contexts” (p. 4). Our stories of experience are the narrative expressions of who we are in our worlds. Thus, identity-related narratives are informed by personal practical knowledge based on experience. This view of narratives stresses that experience is the starting point for the process of inquiry. The usage of metaphors in narratives aids researchers in understanding teachers’ sense of professional identity (Craig, 2013; Thomas & Beauchamp, 2011).

2. The RRG model

The literature cited above suggests that teacher PD needs to be re-conceptualized to provide teachers with agency, voice, and active participation in their professional development. This study aims at leveling up teachers’ capacity to enact game-based learning in their classrooms by preparing them for the uptake of innovative pedagogies. To support teachers in bringing about a change in their practices, we propose a reflective, reflexive, guided appropriation model which we describe here.

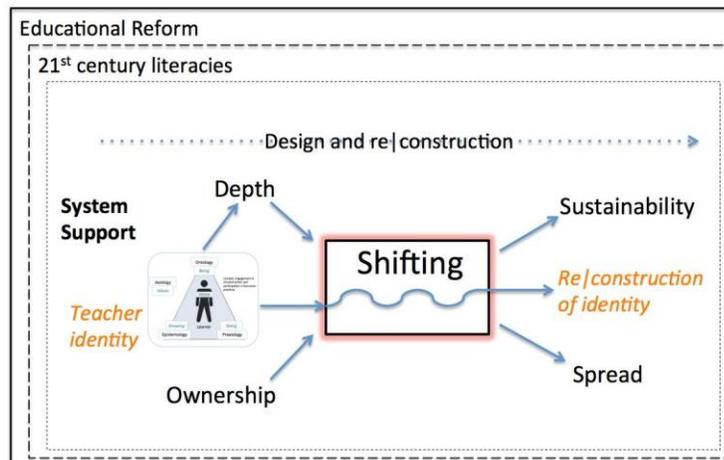


Fig 1: Reflective, Reflexive, Guided Appropriation model

Recognizing the need to support teachers in making the transition from a transmission mode of teaching to being facilitators of learning, Author proposed a process-centric “appropriation model of innovation uptake” (Chee & Mehrotra, 2012). The model draws on ideas from Coburn (2003) on “rethinking scale” in the context of school reform, as well as those of Clarke and Dede (2009). In the model, the construct

of “shifting” is considered central to what is required for teachers to sustain and to spread the adoption of game-based learning pedagogy. The factors of depth and ownership influence the likelihood of achieving a stable shift in teaching practice. Along with these factors, system support is crucial for accommodating and rewarding innovative teaching practice. Our experience working with teachers in schools suggests that “teacher identity” is an important component that needs to undergo significant transformation in order for an innovative practice to be sustained. The current RRGGA model is depicted in Figure 1.

In order to understand human learning, it is vital that learning be studied in the context of humans participating in situated actions, including the enaction of discursive practices that accompany everyday actions. Figure 2 unpacks the components of teacher identity. This framework for studying learners in situated context is appropriated from our earlier work that focused on student learning (Chee, Gwee, & Tan, 2011). In this framework, teachers are considered as much learners as students. In this framework, knowing, doing and being are value-laden activities (Ferré, 1996). Humans are capable of making value judgments related to the process and outcomes of learning. These distinctions guide their learning actions toward outcomes that create positive value for themselves. In the teacher identity framework, therefore, *ontos*, *logos*, and *praxis* are intertwined and grounded in axiology. Learners manifest values through the choices and decisions they make in everyday actions. This is indicated in the figure by “valuing” as being central to humans.

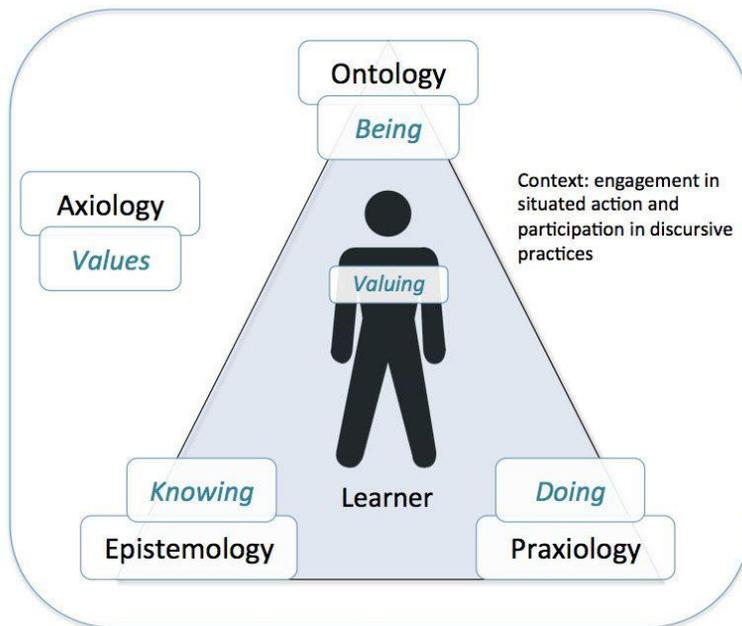


Fig 2: General framework for studying learners in situated contexts

3. The Statecraft X game-based learning program

The Statecraft X curriculum comprises six sessions spread over three weeks. The first session is introductory. During this session members of the research team acquaint students with the game, its back-story, and its game-play. Students play the game outside class hours. The next four sessions are dialogic. Students converse about their in-game experiences and challenges and teachers facilitate students’ conversations. The final (sixth) session consists of student speeches, followed by a final wrap-up by the teachers and a summative assessment.

Central to the Statecraft X curricular program is its dialogic pedagogy. The term “dialog” is used here in the Bakhtinian sense, where ideas are exchanged and lived and are imbued with personal values and judgments (Sullivan, 2012). In dialogic pedagogy, understanding is co-constructed in the classroom, and students learn concepts in personally meaningful ways. In the context of the Statecraft X program, dialogic pedagogy entailed conversations between students and teachers. Teachers help students to make pertinent connections between the game world and the real world. Teachers thus distill ideas from the level of game experience to that of concepts, themes, and “big ideas”. They also encourage students to be reflexive in their learning, directing them to the actions that they took in playing the game and thinking through the ensuing consequences.

Integrating technology into classrooms and taking the role of a facilitator does not come readily to teachers. As a part of preparing teachers for the program, we conducted a workshop over two non-consecutive days. During this time, teachers were acquainted with the theoretical underpinnings of the game-based curriculum and experienced playing the game. During the enactment of the Statecraft X curriculum, we observed all the dialogic sessions and conducted post-session interviews with the teachers. The interviews provided teachers opportunities to reflect on their practices “at moments of contradictions and discontinuity” allowing them to “reconstruct their narratives of experience” (Clandinin & Connelly, 1986). The aim of these interviews was to facilitate teachers in reflecting concretely on their practices and, thereby, appropriating and taking the ownership of the Statecraft X curriculum and the dialogic pedagogy. The interview sessions also served as a platform where researchers could address teachers’ challenges and give them constructive feedback. We interviewed each teacher on six occasions: once before the start of the program, after each dialogic session, and again after the culmination of the program.

4. Method

4.1. Sample and data collection

Nine teachers from five schools participated in the Statecraft X project. In this study, we followed the PD trajectories of two teachers through their narratives. These narratives were expressed during post-dialogic session interviews. Teachers’ narrative accounts helped us to understand how the teachers related to the subject matter, what values they espoused, their teaching practice and their relation to the students and their own community. We analyzed teachers’ narrative to see how they constructed their professional identity, influenced by their personal practical knowledge, and how their identity changed and influenced their understanding of an innovative pedagogy.

In this paper, we report the experiences of Pat and Flora (both names are pseudonyms) who participated in two separate cycles of the Statecraft X intervention program. Both teachers were in the age range of 25-30 years and taught social studies and English in their respective public secondary schools in Singapore. The Statecraft X curriculum was implemented in the express classes in the participating schools. The express group is one of the three academic streams in Singapore school education system catering to academically inclined students.

Each teacher interview lasted between 30 and 60 minutes and was conducted in English. The interview data were audio recorded and later transcribed and coded. As part of research ethics, prior permission was sought from the participating teachers for video recording the classroom sessions and audio recording the post session interviews. Themes for the semi-structured interview questions included personal experiences of teachers facilitating Statecraft X sessions, the nature of the challenges they faced during the session, how they overcame them, their level of comfort in engaging with dialogic facilitation, the kind of modifications they wanted to make to the curriculum, the tensions they faced regarding fulfillment of school requirements, their perception of the emotional responses of their students, and their own emotional responses.

Our aim is to respect the experiences of the teachers and not to compare them. The intent underlying our questioning was not to critique the teachers' practice but to understand their challenges and to scaffold their journey while they enact the curriculum. In this respect, our approach resonates with Britzman (2003), who through ethnography used the narratives of experiences not to fix "truthful", coherent accounts of subjects, but to reveal the different trajectories, and varied stories told of experiences.

4.2. Data analysis

The interview transcripts were reviewed multiple times, and analysis and interpretation of the data were attained in a recursive and iterative manner (Dörnyei, 2007). Even after the interventions were over in schools, we continued our relationship with the teachers through their experiences that we had co-constructed in our field texts. Maintenance of relationship between the researchers and the teachers is vital for co-composing of "new lives" (Huber, Caine, Huber, & Steeves, 2013, p. 220). The process was guided by the research as well as the interview questions. We used NVivo for data organization and coding. In the process of observing the teachers and supporting their PD via the interviews, our own personal practical knowledge may have colored the data collection and interpretation. We emphasize that interview transcripts and their analysis, though insightful, still constitute re-presentations of other people's stories. We probed images of change from a range of interview transcripts and interpreted them with a view to highlighting processes of change in terms of evolving teacher identity. As researchers we were cautious to retain teachers' words, as far as possible, in the narratives being constructed, to ensure that teachers' experiences are not "written over" by our preferred position (Elbaz-Luwisch, 2010).

5. Results and discussion

The journeys of Pat and Flora as they enacted the *Statecraft X* curriculum conveys to a large extent their embodied personal practical knowing, and also the realities of the institutional contexts in which they work. Our observations of the teachers' classes indicated that their interactions with students were usually more aligned with the triadic discourse frame of Initiation-Response-Feedback (IRF) practiced widely in schools (Cazden, 2001). However, both teachers explicitly advocated involving students in the class and giving them opportunities to contribute their ideas, congruent with the philosophy of dialogic pedagogy.

5.1. Pat's journey enacting the *Statecraft X* program

Pat had about six years of teaching experience. Her decision to become a teacher was based on practical concerns of career stability and her personality fit. During her pre-intervention interview, she revealed that she was not a gamer herself but was open to trying new pedagogies. Initially, she saw games as "eat[ing] her curriculum time" until, over time, she became convinced of the value of *Statecraft X* by playing the game herself and its connections to the social studies curriculum. At the beginning of the intervention, Pat saw herself as a teacher who wanted "to impart skills to her students who would be able to make meaning."

In addition, Pat emphasized inculcating values in her students so they would grow to be independent thinkers: "even if I take myself out of the classroom, the end goal would be [that] they are people who [will be] able to come to a certain conclusion on their own."

Though Pat was an experienced teacher, she was nervous about facilitating her first dialogic session and spent several hours on preparation. While reflecting on her completed lesson, she said that it "went better than my expectations" as the students were eager to share their game-play experiences. However, being reflexive and while critically reflecting on her session, she felt uncomfortable at not

having something for “reference” beforehand, as was her usual practice. In the next session, she felt that her practice and habit of preparing her lesson in advance were interfering with the lesson flow.

Pat was new to the practice of dialogic facilitation. In her first post session interview, she acknowledged having missed several “teachable moments.” She said:

. . . but I didn't know how far I could go. . . . Maybe it's just me, my understanding of the limitations, but I felt like there were lots of points that I dropped which if I'm in a classroom teaching I would definitely pick up and move from there.

Pat struggled to get a “hang” of the dialogic pedagogy and felt: “. . . I haven't gotten the hang of the whole technique, the whole process, . . . still need to figure out how to connect all those dots.” As an experienced teacher, she believed in planning her lesson beforehand. For her, careful and meticulous lesson planning was essential to quality teaching. She found it “annoying” when her session did not go well despite planning. She articulated her frustration in the second post session interview and said, “I think as a teacher you don't feel very professional going in not knowing exactly what's going on because most of the time the slides are prepared [in advance].”

However, from the third dialogic session, Pat consciously worked to bring about a change in her pedagogical practice, and her dialogic sessions became more meaningful and engaging. Her stress level also reduced. She realized that “preparation is ongoing . . . I am more interested in what is going on. . . . You don't really have to sit there and plan *per se* how the whole thing is going to unfold.”

This dramatic change in Pat’s attitude brought about marked shifts in her teaching practice and in the values that she now emphasized. These shifts are also indicative of the changing milieu of Pat’s personal practical knowledge, which is experiential and value-laden. Her identity as a teacher evolved over the course of the Statecraft X program. She adapted her practices and learned to facilitate the dialogic sessions effectively. Her journey through the program was by no means straightforward. It was filled with challenges, hopes, and fears that found eventual resolution.

5.2. Flora’s journey enacting the Statecraft X program

Flora was a beginning teacher at the time of the intervention. She had just completed one year of teaching in her school. She was not a gamer herself. She said that she had never “actually encountered mobile phone games in teaching,” but she was open to the idea of exploring the use of games in her class. Her personal background had an influence on her professional values. Flora was educated at a local school in Singapore. She felt privileged to work in a school that focused on innovative teaching approaches leveraging on ICT. At the time of the pre-intervention interview, Flora was not very clear about what she wanted to gain professionally by enacting the Statecraft X curriculum.

Flora reported that she was “nervous and not really excited” before her first session. Her first intervention cycle was with a class of students considered as the “brightest” among the express stream students. In her first session, she felt a “time constraint” as she wanted to do a lot more. She acknowledged spending much time on game-centric discussions. We observed that students in her class did not readily participate in the session. They had to be encouraged (by calling out their names) to share their experiences. The performance of students in the summative assessment was no different from the control group students.

Flora’s typical session involved asking her students questions related to game-play, writing the responses on the board, and then trying to make linear connections. She deliberately asked close-ended questions that involved students giving answers in short phrases. She would then lead them to a topic or theme of discussion that she thought was relevant for “covering the topic.” She directed her students toward the most preferred answers so that she could cover the school syllabus. She said that she

intentionally used this strategy to “try and draw that [concept] out to form the links.” However, she struggled to help her students make pertinent connections between the game world and the real world.

Flora followed a similar pattern for facilitating her dialogic sessions for almost the entire duration of the first intervention cycle. The students remained largely detached during the sessions. They did not engage much in the game-play. According to Flora, students did not actively participate in the dialogic sessions because of “fear of getting things wrong.” As researchers, we spent considerable time scaffolding her journey through the intervention.

For the second intervention cycle, Flora taught another class of students from the same level but who were at the tail end of the express stream. Students who participated in the second cycle were more excited playing the game and participating in classroom dialogic sessions compared with students in the first intervention cycle. Flora was now more confident fulfilling the role of a facilitator. However, she struggled initially with classroom management issues while facilitating dialogic sessions. While reflecting on her session, she realized that she was missing out many points owing to “a lot of chatter around,” indicating her lack of ability to respond dynamically to the classroom situation. Her sessions began to improve thereafter.

In the second dialogic session interview of the second cycle, Flora acknowledged having a “more complete understanding” of the Statecraft X curriculum. She said that, given her experience with the dialogic pedagogy, she had learned to be “seamless between the game world and Singapore situation” and she allowed students to “take over the conversation” in class. She realized that her task as a facilitator was to “give direction [to students’ conversation].” She appreciated the benefits of the pedagogy and commented on using the dialogic pedagogy in her other classes “to get good responses from the students” and also to take the students “beyond the textbook.” Despite the perceived benefits, Flora remained concerned about her students’ preparedness for upcoming examinations. Students in the second cycle of the intervention performed significantly better than the control group students in the summative assessment. Flora’s journey through the Statecraft X program was challenging, but from the second intervention cycle onwards she more successfully appropriated the dialogic pedagogy and her sessions began to improve. Her performance capacity was enhanced, and her identity as a teacher evolved.

5.3. Development of teachers’ identity and shifts in teaching practices during the course of the program

Teachers are always in the state of being and becoming (Vinz, 1997). Their identities are constantly being “formed and reformed by the [multitude of] stories [they are told] and which [they] draw upon in [their] communications with others” (Beijaard, Meijer, & Verloop, 2004, p. 123). As teachers reflect on their practice and experiences, they situate themselves in their dialogic sessions and use narratives to describe events and processes that are intricately connected with their evolving personal practical knowledge. Focusing on shifts in teaching practices as a part of performance learning has enabled us to view teacher learning and the development of teacher identity as holistically situated in practice embedded in school cultures and teachers’ personal and professional histories. Observable shifts in teaching practices were observed over the course of two intervention cycles (the duration of one intervention cycle is three weeks) in which both teachers participated in the Statecraft X program. It should be noted that a shift in teacher identity is one of degree. Our experience with nine teachers indicates stronger and more stable shifts in some teachers than in others. Re-construction of teacher identity in relation to change in teaching practices is discussed in terms of changes with respect to teachers’ ontological, epistemological, praxiological, and axiological positions. We must remember that these changes are deeply intertwined, and it would be inappropriate to try to isolate any one from the others.

Ontological development: According to Clandinin and Rosiek (2007), “experience is the fundamental ontological category from which all inquiry—narrative or otherwise—proceeds” (p. 38). They describe experience as “a changing stream that is characterized by continuous interaction of human thought with our personal, social and material environment” (p. 39). In our study, changes in teachers’ experiences and pedagogical practice were visible. In the case of Pat, several years of traditional teaching experience may have hindered her initially from embracing a practice that was quite contrary to the teaching philosophy and expectations of the Statecraft X curriculum. She initially manifested resistance toward changing her practice but we observed that, even before the first intervention concluded, she saw value in “letting go of control” over how the lesson unfolded and indicated a desire to help other teachers engage in dialogic pedagogy. This change indicates a shift in Pat’s teaching orientation from that of a transmitter of knowledge to a facilitator of dialog among students.

Another significant shift in Pat’s ontological position concerns her realization that she was as much a learner as her students. She commented that, after her experience with the Statecraft X curriculum, and with dialogic pedagogy in particular, she was much less self-conscious about saying to her students, “I have not done this before. It’s a learning process for all of us.” She confessed to not being able to speak these words before. Pat showed persistence in her changed practice and was open to the idea of bringing about a change in her practice for the sake of PD. To this effect she said, “I think that willingness to try and that openness and then just being resilient through all the minor setbacks or whatever has made me more confident, and I feel like I can even share my experiences and if it can provide some help to other Statecraft teachers.”

Ontological shifts were observed in Flora’s identity too, but they were of a slightly different nature. Flora, like Pat, personally believed that it was unacceptable to say, “I don’t know” to her students. It was “not advisable” for teachers to say that as their “whole supposed credibility and reputation” would be lost. She maintained this value position throughout the second intervention cycle, although it became milder.

Another noticeable difference in Flora’s ontological position was indicated by her changed relationship with her students. In early post dialogic session interviews, she had spoken of “not caring about what students think” in response to the question, “How do you feel about being a Statecraft X teacher in the eyes of your students?” The quotation below from the final interview with her indicates a change in how she related to her students and how she had become comfortable with the new relationship.

I guess listening to the kids’ feedback like . . . how they responded to the game, how they responded with their friends really tells us a lot . . . about them as a person, about their lives. And it really gives me like a better insight into them.

Initially, Flora struggled with the dialogic pedagogy, and she found it hard to make suitable linkages among various ideas contributed by the students. But, toward the middle of the second cycle, improvement in her classroom practice was visible. As a teacher, she liked the fact that the Statecraft X program helped her students to “venture beyond the textbook” and, consequently, she did not need to have a “proper lesson plan” before going to her class. However, her emphasis on the mere convenience of not having to prepare a lesson plan indicated her rather superficial appropriation of the pedagogy.

Changing personal practical knowledge was observed in both teachers during the course of the intervention. Critical reflexivity toward ones’ own practice reinforced the need to improve existing practices for the better (Latta & Kim, 2009). Pat explicitly mentioned “letting go of control” to allow student dialog. Flora became less rigid about controlling her class. This attitudinal change helped Flora to improve her relationship with students, and she began to value students’ responses. Both the teachers largely remained committed to their responsibilities as instructional leaders who possessed

information. However, Pat found it less difficult than Flora to make a transition from the transmission mode of teaching to acknowledging that she was as much a learner as her students.

Epistemological development: Teachers may manifest epistemological changes through their pedagogical practices and their understanding of the subject matter itself. Our observations of initial dialogic sessions revealed heavy reliance of both Pat and Flora on telling and lecturing. Yet both teachers seemed unaware that they were engaging in a practice that presented knowledge to the students as fixed and final. This inconsistency was probably due to their understanding of what constitutes meaningful learning and its purpose. Both Pat and Flora wanted their students to score well in their examinations and were convinced that “drilling” the needed facts would help them achieve their objectives.

Another strong epistemological belief that the two participating teachers held was that students would benefit by having information provided in a highly “structured”, step-by-step manner. It is not surprising that Pat often used the phrase “step-by-step” to describe her understanding of scaffolding, a phrase connoting a strong sense of procedural knowledge. As the intervention progressed and she reflected on her practices, her understanding of scaffolding transformed. In her words:

I think in the past I used to think of scaffolding as some form of structure, format, from step 1, 2, 3, 4, but the interesting thing about the dialogic session is . . . how I want to scaffold the lesson according to the responses they give me . . . So actually the kids are the ones who are building up the entire lesson.

Pat’s classroom practices also changed. She refined her ideas about the use of questions in the classroom. We observed that, with the progress of the intervention and conscious reflection on her practices, she could modify her questioning technique from asking questions to lead the students to the right answer to asking questions to interrogate students’ understanding of concepts and values. Her questions became more open-ended, and she used students’ responses as a guide to pitch her questions. This change in practice also changed her relationship with her students. Elucidating the importance of asking appropriate questions, she said:

. . . if we ask the right questions in the right manner, they can come up with very, very good points. So I think as a teacher, actually the key thing is it has built up my confidence in the kids. . . . I think actually this whole thing, it has taught me to let go.”

Like Pat, Flora wanted to help her students by “supplement[ing] a little bit more additional [support]” so that they would not only score well in their examinations but also be able to make connections with other topics in their textbook. For her, additional support meant guiding the students to websites or relevant newspaper articles and helping them to use the “exact words” that would score marks in examinations. A change in attitude coupled with a softened stance on this issue were visible in the second intervention cycle when she acknowledged that she was happy “seeing how the students ... could come out with their own ideas” without her having to “tell them.” Over the course of the intervention, Flora came to spend less time providing information and directing students to her predetermined “agenda” and more time facilitating learning through conversations and experiences triggered by the game world.

Praxiological development: Teachers’ pedagogical practices are deeply rooted in their pre-service education. Teachers perceive a significant gap between theory and practice. This gap was apparent when Pat (with 6 years of teaching experience) expressed that “knowing and understanding is one thing, but then you know applying it would be a different thing. So it's like I know and I understand but then, when it comes to application, it can come out differently.” Both Pat and Flora attended the pre-intervention PD workshop, which familiarized them with the theoretical underpinnings of game-based

learning and the dialogic pedagogy. However, when they faced the real classroom, they encountered difficulties in connecting with the dialogic pedagogy and bringing about substantive change to their practice. This observation strengthens the argument for not separating theory from practice and also for the need to provide continual PD support not only before but also during and after the implementation of innovative pedagogy.

Another significant praxiological shift experienced by both Pat and Flora concerns their ideas about lesson planning. Prioritizing their lesson plan over their students' contributions and ideas put a constraint on both the teachers. Pat realized this tension early and modified her teaching practice. When speaking of her evolved lesson planning practice she said:

. . . [instead of] going to the lesson and just preparing all these things that I want to share with them, perhaps I will just have like a theme, just a gist of what are some of the things we can possibly touch on for that theme, and then getting the kids to really discuss. I see the benefits of that.

Flora was very directive in her teaching style. She planned beforehand the directions in which she wanted to steer the conversation. Though she was convinced that the Statecraft X program was helpful for students' learning, her practice was stubbornly resistant to her evolving beliefs. Flora wanted to bring about a change in her teaching practice but she was afraid to move too far beyond her comfort zone. We observed unresolved contradictions between her changed ideas (beliefs) and her practices. She said that facilitating classroom dialog made her realize the importance of asking appropriate questions and that "good questions" helped to move "lessons faster." However, our observations of her dialogic sessions showed that Flora continued to ask leading questions with preferred correct answers, though the frequency of such questions diminished in the second intervention cycle. Expressing her satisfaction with the dialogic pedagogy and her changed pedagogical practice, she commented:

. . . [in] the typical classroom style where you know, you actually have to put down the idea first and then let them brainstorm so for me [during Statecraft X sessions] they actually came out with the idea first and then we brainstorm from there - that's quite cool, actually.

Deeply embedded teaching practices are hard to change and it takes a long time and sustained effort to bring about any change. For teacher PD programs to be effective, they must provide opportunities for teachers to reflect on their practices and see links between their personal practical knowledge and their professional practice (Craig, 2011).

Axiological development: Teacher identity is manifested in part by the choices and decisions teachers make in their everyday classroom actions. In the case of Pat, the importance of doing well in standard examinations was paramount. Extreme emphasis being placed on marks is what Pat herself had experienced as a student and it had become a part of her personal knowledge and belief. According to her, students needed to listen to what the teachers told them to be able to score well in examinations. The significance of examinations did not change for her at the end of the intervention. What changed, however, was how she saw herself as a teacher. She spoke of a "mindset" change in opening up space for student talk in class. In her words:

. . . If you put your mind to it and not focus on the unimportant things but really just learn to be open-minded to what you are listening here and I think that makes me a more effective teacher because, instead of telling them my perspective or just sharing from very skewed perspective, I also learned to be open-minded and then we are like opened up for discussion.

By the time the second intervention concluded, Pat came to reject commonly held orthodoxies about classroom management, as she turned more to humanistic than to behavioristic principles of behavior

management. While reminiscing about her experiences in a previous school, she said that there would be “pandemonium” if she did not have “control of the class.” She brought this expectation of teacher centered classrooms to her current school. However, with deeper understanding of dialogic pedagogy, she came to realize that too much teacher control was counterproductive and “clam [s] up” the students.

Flora also valued exercising “control” in her class. She was challenged by not being able to predict what direction the dialogic conversation would take. While reflecting on the challenges that she faced during the Statecraft X journey, Flora said:

It's not as easy as it seems. Because in a normal lesson, you have a lesson plan to follow, you know what I mean. You know what's going to happen, you can predict, and you have a lot of control in the class. Whereas this one, you learn to release, let go, which is not easy. Because we've been trained to have a control in the class – you direct where it goes. But this one you have to have like a retractable leash.

The metaphors of “release” and “retractable leash” suggest that Flora still saw herself directing and controlling her class, but she also recognized the importance of giving students the needed space to come up with their own ideas and to discuss them. Flora’s metaphors are culturally embedded and indicate the position of a teacher in the classroom as an authoritarian figure. This image of a teacher was reflected in her classroom practice as well as in her interaction with students.

Another significant axiological shift evident in Flora’s evolving identity was her recognition of the importance of making appropriate linkages among various topics. In the early part of the intervention, she found it difficult to leverage on the game-play experiences of the students and to relate them to real-world situations. She found it “odd” to dwell on a topic for long or even bring it up once it was “done with.” She constantly felt the “need to cover” other topics. However, as the intervention progressed, she realized that, in order for students to develop a visceral feel for a topic, she had to alter her habit of covering topics in favor of developing appropriate linkages. In the later interviews, she said that she did not mind going back to a previously discussed topic if it served to make a link so that her students could form a clear picture. In fact, she showed an appreciation of her students being able to make links between various topics.

Axiological shifts may be difficult to make, but they have a deep and lasting impact on identity development. At the beginning of the project, both Pat and Flora saw themselves as central figures in the classroom. They characterized their “jobs” as “teaching the students what they need to know” and helping them to be prepared for the exams. Although Pat manifested some axiological shifts in her identity, she continued to place heavy importance on students’ achievements in examinations, saying that “drilling” was the only way for it. To differing degrees, both teachers found it difficult to share control of classroom processes with students as they worked to incorporate dialogic pedagogical practices into the Statecraft X game-based learning program.

At the conclusion of the second intervention, the teachers were asked to describe their journey through the Statecraft X game-based learning program. Both teachers sifted their reform experiences through a metaphoric lens. Pat used the metaphor of “pearl formation” focusing on teacher outcomes realized through a process of PD and change enabled by the program. By contrast, Flora’s metaphor was more “care” oriented. She saw herself as a leader whose duty was to take her students through a path unknown (dark) to them but known to her. Her metaphor was oriented more toward her students’ learning outcome. Teachers’ descriptions were quite indicative of their dispositions to be reflective with respect to their practices, guided by their personal practical knowledge. These findings resonate with

the work of Craig (2013), who emphasizes that metaphors are powerful tools to understand teachers' knowledge developments, their communities of knowing and their identities.

Interpreting teachers' metaphors provided us with deep insights into the roles and identities teachers saw themselves taking and exposed any contradictions that remained between their beliefs and their continuing practice (Elbaz, 1983). Teacher identity development necessarily entails the intertwined co-evolution of being, doing, valuing and knowing. Development and re-construction of identity are typically not smooth processes. Hence, it is represented by a wavy line to connote challenges and tensions in the process (Figure 1). These challenges are overcome with persistence, reflexive capacity, and reflection on practice.

6. Conclusion

Our study presented the PD trajectories of two teachers who participated in the facilitation of dialogic sessions as part of enacting the Statecraft X game-based learning program. We examined critically how PD was taken up by two teachers and what this meant in designing learning opportunities for them.

In order to integrate technology into classrooms teachers need to be supported professionally. In terms of game-based learning, effective PD support needs to be provided in terms of training and hands-on experience with the game, with opportunities built in for reflection and reconstruction of knowledge, as well as for follow-up support. There is a need to move away from impersonal, mechanical, short-term approaches to more humanistic approaches that value teacher agency and identity.

The RRG model of teacher PD helps to bring about sustained changes in how PD may be designed and supported. This process of PD is located in Dewey's metaphysics of ongoing reconstruction where "our actions, our behaviors, our social constructions, deconstructions, and reconstructions have ontological significance" (Garrison, 1994, p. 8). This method of RRG aids teachers in reflecting on their pedagogical practices and interrogating their values and practices. It can help teachers to develop a critical consciousness of the complex personal nuances of practice, making substantive enactive changes if necessary. Constant support and guidance were provided to the teachers during the implementation of the program. Teachers' experiences enacting the dialogic pedagogy formed the crux of our inquiry. The narratives of experience of participating teachers were examined over the course of the intervention to study changes in teacher professional identity. Teachers' narratives allowed us to identify shifts in their practice with respect to ontology, epistemology praxiology, and axiology.

In addition to reflecting varying degrees of identity transformation, teachers' narrative accounts provided a glimpse of their transient personal practical knowledge that was reflected in their practice. Teachers' personal beliefs, practices and context played a crucial role in understanding shifts in teacher identity and practices. Both the teachers constructed and reconstructed their personal practical knowledge through the reflective and reflexive practices within the context of organizational and personal change. Initially, both teachers felt displaced and disconnected while learning to take the role of a facilitator, but gradually they appropriated the new practice. Narrative accounts of both the participating teachers moved from conveying their teaching identity and roles as being more concerned with the transmission of knowledge and students' learning outcomes toward valuing the process of facilitation and lifelong learning. Both teachers articulated a change in their attitudes from being passive instructional technicians to considering themselves as active practitioners who envisioned their students as active and responsible decision makers. Pat and Flora were personally open to new ways of seeing their students and their role as a facilitator. However, both were embedded in contextual situations of schooling that determined what becomes officially acknowledged as professional success and, therefore, both teachers remained extremely concerned about their students' performance in tests.

Metaphors employed by the teachers in their narratives helped to get a sense of their personal practical knowledge as well as their professional identity and how it evolved over time. One teacher's metaphor indicated the depth of her personal struggles and the extent of personal change as a result of her PD, while that of the other teacher was oriented toward students' outcomes. Both teachers highlighted the challenges they faced while they enacted the Statecraft X curriculum. Both the teachers could also reflect on their changed pedagogical practices, suggesting their conscious, active involvement in the process of their own PD.

Our study has implications for 21st century education where innovation, creativity and critical thinking are widely acknowledged. In order to bring about a sustained change in the education system to meet the requirements of the "new economy," teachers need to develop their capacities to explore and enact innovative teaching approaches. In our study, teachers made complex connections with the pedagogy. They differed in their understanding and thereby enacted the curriculum differently. Our analysis of their narrative accounts provides evidence that sustained participation in inquiry-based approaches to PD can lead to beneficial changes in teachers' beliefs and practices. It also strongly suggests that the RRG model provides an effective theoretical lens through which teacher PD programs may be designed.

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Figure Captions

Figure 1: Reflective, Reflexive Guided Appropriation model

Figure 2: General framework for studying learners in situated contexts