WIKI & TGFU:

A COLLABORATIVE APPROACH TO UNDERSTANDING GAMES EDUCATION

by

Helena Baert

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Submitted to the Faculty of Graduate Studies

in Partial Fulfillment of the Requirements

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A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of

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ABSTRACT

Technology is becoming an integral part of teaching and learning in schools. In recognition of the potential contributions of technology toward learning, this thesis explored the use of a wiki, a collaborative webpage where students are free to add, edit, erase or create content (Leuf & Cunningham, 2001), within physical education teacher education. Using interpretive inquiry (Ellis, 1998) as a methodological framework, this qualitative study investigated the perceptions of a cohort of 28 final year physical education teacher candidates regarding the usefulness of wikis as an instructional tool to enhance learning through an online five-week collaborative group project. The objective of the assignment was for teacher candidates to develop deeper understanding of the Teaching Games for Understanding (TGfU) approach, which creates student-centred games education that links tactics and skills in game settings. The study employed several qualitative research activities including: observing the daily entries on the wiki, document analyses of reflective journals, pre- and post writing samples, and focus group interviews. The information collected identified both enabling and constraining factors this wiki brought to a collaborative undergraduate online project. Data analyses confirmed that the wiki facilitated collaboration among group members, improved writing skills and enhanced deeper understanding through scaffolding of one's own ideas as well as those of others. Findings also showed how the teacher candidates interacted with the content to gain a deeper understanding of the TGfU approach through an emergent design of scaffolds. In their efforts to work collaboratively, the students realized that establishing roles and responsibilities and creating more opportunity for communication were

necessary ingredients for learning. To encourage knowledge acquisition, the instructional guidance provided by the teacher was a crucial component of the scaffolding design. In sum, this thesis elaborates on how wikis contributed to the development of an understanding of teaching games.

ACKNOWLEDGEMENTS

I often wondered whether a thesis would be of better quality if it was written in collaboration with another student. However, even though only one author is listed on the title page, no thesis is ever the work of only one person and this thesis is no exception. When completing this thesis, I realize that this piece of writing is an accumulation of the efforts of a group of individuals, not just one writer. During this process, several people took the time to assist me in ways I am truly grateful for. A few key people I would like to highlight below, each accompanied by a descriptive word to express the impact they had on me throughout my Masters program.

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TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER ONE

Introduction

Enhancing teacher candidates' understanding of the complexities associated with the design and implementation of quality physical education instruction is the primary focus of physical education teacher education (PETE) programs. Quality programming includes teaching fundamental movement skills, active games and life skills to promote an active healthy lifestyle (Manitoba Education, 2000). This study focused on the preparation of physical education (PE) teacher candidates in the area of games education[1]. Although several instructional models exist to effectively teach games, this study concentrated on the "Teaching Games for Understanding" (TGfU, Thorpe, Bunker, & Almond, 1986) approach. The TGfU approach facilitates an understanding of game theory through the development of tactical awareness and skill development during the playing of modified games (Hopper & Kruisselbrink, 2002). Additionally, the approach encourages students to construct meaning from situations that incorporate any of the four game categories: invasion/territory, net/wall, target and striking/fielding (Butler & McCahan, 2005; Thorpe et al., 1986).

Research suggests that the teachers' understanding of the "TGfU" approach is an important element in their commitment to using the approach and their experiences in teaching games (Light, 2003). Howarth (2005) indicates that teacher educators remarked

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[1] For the purpose of this study, the term "teacher candidates" or "participants" will be used to refer to the undergraduate students involved in this research study. The term "students" will be applied to discuss any matter related to the teaching of students in general. Additionally, the term "teacher educators" refers to professors who teach in teacher preparation programs.

that insufficient time spent teaching the content of games during class subsequently contributes to a poor understanding of effective game teaching practices. The necessity to locate an instructional tool that may enhance teacher candidates' understanding of teaching games inspired this research.

As a former public school PE teacher and university sessional instructor, I draw upon constructivist principles when selecting effective instructional tools and developing activities within my own teaching. I believe that students create meaning by being actively involved in their own learning. According to constructivists, forming meaning is the aspiration of learning and it requires reflection and articulation of what we know (Jonassen, Davidson, Collins, Campbell, & Haag, 1995). Learning should be interactive and based upon students' prior knowledge, interests, and abilities. From a constructivist point of view, we can proclaim that when teacher candidates express, reflect, and collaborate on what they know, their learning experiences will lead to richer understandings and applications of their own teaching. Planning effective activities where students can connect and integrate experiences from other contexts or with other students will further develop their understanding of the content. A learning environment should be a place where students can create meaning, reflect, and apply knowledge by challenging their own understanding and learning new knowledge.

Concerned engagement

In the process of reflecting upon my own teaching philosophy and experiences, I often wonder whether what I am doing is helpful to the students. I have asked myself, how do my teaching strategies enhance learning? Ellis (1998) refers to this process as

"interpretive inquiry", a process of interpreting or "reading" a situation to explore, question, and create understanding before acting or responding. An interpretive inquiry approach is a qualitative research method that examines a question related to the concerned engagement of the teacher. The questions I pose are: "*How can I, as a teacher and researcher use my own teaching philosophy as a way to support the needs of teacher educators when teaching the TGfU approach? Can I provide students with a learning environment where they can express, reflect, and collaborate on the model of TGfU to enrich their understanding of teaching games? Additionally, will the instructional tool complement the in-class instruction?*"

One way teachers create additional tasks to practice or gain a deeper understanding of the concepts learned in class is through homework or projects, completed individually, or in groups. Reflecting on my own teaching philosophy, I suggest that many students gain deeper understanding of new concepts through collaboration rather than by working alone. Therefore, I have explored the use of group work within this inquiry. When choosing an instructional tool, I considered both the research and the concerns of the students. First, the research around TGfU, as stated above, refers to the lack of time teacher educators have to present the knowledge content of teaching games to teacher candidates. One solution could be to create a project that teacher candidates complete outside of the classroom, which will extend the in-class instructional time. Second, from my own experience, both as a teacher and a student, project work often corresponds with high levels of anxiety and frustration among teacher candidates. Several issues come to mind as I will illustrate in the following narrative.

Yet another group project

I'm sitting in an undergraduate class, and as the professor passes along the new assignments, I immediately notice several reactions from my peers. The realities and challenges of a group project immediately reveal the expressions of concern found on many of the students' faces. It may be a very interesting project but that is not the point. Almost immediately after the announcement of the project, tension increases, hands rise and questions reflecting frustrations emerge. "Will we have adequate time to work on this project in class?" Most likely the response to this question will be "no" as students will be expected to work on their own time at home. Primarily, the reason given for not providing in-class time to work on projects is the limited instructional time professors have to cover all the course objectives. Additional reasons to do a project out of class are to extend the learning experience to create deeper understanding of the content and to develop teamwork and communication skills among students.

A question students ask themselves often is "How will the group be able to assemble outside of class time?" Students must coordinate schedules and often have multiple projects on the go at once which creates additional stress especially for those students lacking time management skills or those who must uphold two jobs to stay financially secure while in school. They might ask themselves: "Will I end up doing the project on my own? Will I end up with a lower mark because my group was unable to meet frequently to complete the task? What will I learn from this experience?"

This narrative anecdote reflects that, for some students, group work can be frustrating, stressful, and often not worth the time and effort required. In fact, in a recent teaching experience in an undergraduate course, the students participated in a group project and their reflections consistently revealed that although they enjoyed the project, they experienced difficulties meeting face-to-face with group members. It seemed difficult for them to assemble at a time convenient to all. To alleviate this issue, one group used 'Facebook', an online social network, to communicate and collaborate with group members. Another interesting aspect related to this particular group was that although the professor wanted to use the group work as an effort to encourage collaboration, some groups ended up splitting the workload, which limited the possible benefits of collaboration. As I reflect upon my own experiences as a teacher, I now realize that the efficacy of group work is worth questioning. It requires deeper investigation and in light of my interest in TGfU as it relates to teacher education, there is potential to explore the links between group work, technology and TGfU through formal inquiry.

Ellis (1998) asserts that when we wish to get closer to what we need to understand, the study can be viewed as "a series of loops in a spiral (Fig.1), each loop in the spiral representing a separate inquiry activity within the study, and each loop starts through uncovering the previous loop" (p.20). Teachers who reflect upon their own practice tend to use this spiral as well by attempting to understand students' needs and selecting activities or instructional tools to meet those needs.

Backward Arc

Forward Arc
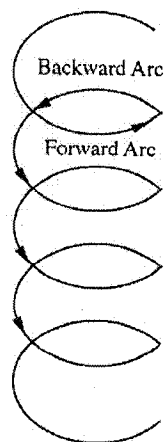
Figure 1. Interpretive Inquiry as an Unfolding Spiral (Ellis, 1998, p. 20)

One instructional tool often overlooked by teachers, yet given plenty of attention within educational research, is the use of technology. Teachers can use computer programs as instructional tools within the classroom as well as outside of the classroom. A "wiki" is such a tool. A wiki is a webpage and collaborative instrument where students can freely add, edit, erase and create knowledge (Leuf & Cunningham, 2001). In short, a wiki is an editable webpage. A wiki forms an online meeting place where students can form a community of learners, each responsible for creating knowledge, yet building on their peers' understanding to create a broader awareness of the content (Engstrom & Jewett, 2005). Wikis are accessible to all people with computers and a web browser. Wikis encourage communication, promote the use of literacy and technology skills and may contribute to the creation of positive relationships between students (Schwartz, Clark, Cossarin, & Rudolph, 2004).

When reflecting upon the frustrations of group work and the lack of collaboration within these groups, I wonder how wikis might provide a supportive collaborative online

environment, eliminate students' frustrations, and enhance learning. This question created another loop in my interpretive inquiry. In an interpretive inquiry, research begins with such a question and continues with several data collection and analyses stages where new meaning will guide the path of further research (Ellis, 1998). It is important to this type of study that the inquirer is vigilant about how he or she interprets each step in the process as new data and interpretation may evolve and influence the path of the investigation. In response to my own concerned engagement, and to uncover answers to the questions posed, this study investigated the experiences of a cohort of final year physical education teacher candidates using a wiki to provide new insight and meaning with regard to games education. As a means to initiate this interpretive inquiry, I collaborated with a professor who teaches a course for senior year PE teacher candidates, which began in September 2007 and ran until April 2008. The purpose of this course was to support teacher candidates in developing pedagogical skills in the area of physical education through a variety of interactive activities in which the wiki project is one.

Purpose

For the purpose of this study, I investigated the use of wikis in the field of Physical Education Teacher Education (PETE). This study examined the perceived influence of wikis on learning as seen through the experiences of PE teacher candidates participating in a project on teaching games for understanding. I posed the question, how can wikis enrich the teacher candidates' understanding of teaching games as promoted by the TGfU approach? Further, how did students use wikis to collaborate and build on each other's ideas? Based on the experiences of the students, I wanted to know how wikis

influenced the in-class learning experience through an online interactive learning environment.

Rationale for research

Over the last few years, the province of Manitoba has experienced many changes in the area of physical education (PE). Curriculum changes include a combined PE and health curriculum (Manitoba Education, 2000), mandated PE in grades K-10 (Manitoba Education, 2004), and a newly introduced mandated curriculum for grades 11 and 12 (2006) to be implemented in 2008 . In addition to curriculum changes, societal views have evolved to create extra challenges for PE teachers. There is greater emphasis on enhancing health and lifelong fitness (Hill & Brodin, 2004) while adopting an all inclusive environment (Manitoba Education, 2000). With regards to this study, I suggest that the "Teaching Games for Understanding" approach (Bunker & Thorpe, 1982) may, in fact, complement the new curriculum outcomes. When students' game performance improves, their level of enjoyment and participation improves as well (Werner, Thorpe, & Bunker, 1996). Furthermore, through the use of modified lead-up games, students gain more success earlier in the game which may create a more inclusive environment sensitive to students of all needs and skill levels (Butler & McCahan, 2005).

Since 1989, several researchers have demonstrated the positive implications of using the TGfU approach when teaching games (Bunker & Thorpe, 1982; Butler & McCahan, 2005; Chandler, 1996; Hopper & Kruisselbrink, 2002). In teacher education, it is often stated that teacher educators must foster the teacher candidates' pedagogical content knowledge in order to enhance their understanding of the process of learning and

teaching (Shulman, 1986). Teachers must first gain a deep comprehension of the tactics and skills of all four games categories (Chandler, 1996; Thorpe et al., 1986) and second, teachers must be able to select game forms which are developmentally appropriate (Chandler, 1996). Another common inquiry related to teaching teacher candidates the tactical games approach is to ask appropriate questions to adjust games to the specific student needs and to maximize learning and participation (Doolittle & Girard, 1991; Ellis, 1986).

The rationale behind this study was based on the suggestion that wikis created by teacher candidates may deepen the understanding of the TGfU approach, as well as the knowledge of the skills and tactics involved in games. Secondly, wikis support a collaborative learning environment where students work together with other students and their professor to foster the use of collaboration which may lead to effective scaffolding of learning. Instructional scaffolding was first introduced by Vygotsky (1978) and it refers to a teaching strategy where students build on their own and their peers' knowledge to construct new knowledge (Bruner, 1984). Additionally, the convenience of a virtual learning environment the wiki provides may alleviate the frustrations of students working on a group project outside of class time (Colbeck, Campbell, & Bjorklund, 2000; Crookall, Jacobs, Hussein, & Ismail, 2001). Finally, by providing teacher candidates with an opportunity to use a new technological tool, these future teachers may gain the experience they need to implement a wiki in their own teaching practice.

Statement of the research question

In this study, I ask: *What are the perceptions of physical education teacher candidates regarding the usefulness of wikis as an instructional tool to enhance learning through a collaborative group project?* The following sub-questions guide the research:

1. What are the experiences of PE teacher candidates (PETC) using a wiki in a group project?

2. How do PETC perceive the influence of wikis on their understanding of the TGfU approach?

3. How do wikis facilitate the scaffolding of ideas to create deeper content knowledge? Research has shown that using a wiki can improve the writing and computer skills (Leuf & Cunningham, 2001; Mader, 2006). Two additional sub-questions were added to investigate if this wiki facilitated in the development of the writing and computer skills.

4. How do PETC perceive the influence of wikis on their writing skills?

5. How do PETC perceive the influence of wikis on their computer skills?

Following this introduction to the research, the research questions will be informed by a review of the relevant literature in Chapter 2. Chapter 3 outlines and explains the research design, research activities, the TGfU wiki assignment and ethical considerations. Chapter 4 provides the findings based on the data analysis while Chapter 5 discusses the theoretical, research and practical implications of the findings. In Chapter 6, I will conclude this thesis with a personal reflective evaluation of the research and the implications for further research.

CHAPTER TWO

Review of relevant literature

This study involves the connection of technology and games education. In this review of literature, I begin by introducing the theoretical framework that forms the foundation of this investigation. Second, I explore the relevant literature of Computer Supported Collaborative Learning (CSCL), wikis and the TGfU approach in teaching games. Third, I provide a link between wikis and the TGfU approach. Last, I explain the term scaffolding and examine its use as a collaborative learning process as it pertains to the use of a wiki to broaden teacher candidate's understanding of teaching games. This literature review will focus directly on the use of wikis in the context of teacher education to investigate how teacher educators might enhance learning and gain an appreciation of teaching games according to the TGfU approach.

Theoretical Framework

As previously mentioned, when developing activities for my own teaching, I draw on constructivist principles. Doolittle (2000), a constructivist theorist in the area of online education, provides eight specific principles of a constructivist pedagogy.

1. Learning should take place in authentic and real-world environments.

2. Learning should involve social negotiation and mediation.

3. Content and skills should be made relevant to the learner.

4. Content and skills should be understood within the framework of the learner's prior knowledge.

5. Students should be assessed formatively, serving to inform future learning experiences.

6. Students should be encouraged to become self-regulatory, self-mediated, and self-aware.

7. Teachers serve primarily as guides and facilitators of learning, not instructors.

8. Teachers should provide for and encourage multiple perspectives and representations of content. (Doolittle, 2000, p. 8)

From these constructivist' principles, I wanted to know how well wikis can support this pedagogy and provide a positive addition to the learning experience. Working with the professor of the games education course, we designed a wiki that adhered as best as possible to the above eight principles. First, wikis can provide a virtual environment that may simulate real-world interactions between people. Realizing that wikis do not provide the face-to-face interaction real-life gives, wikis won't take away from the face-to-face meetings between students but will be an addition to the in-class interactions. Second, wikis provide an excellent site for social negotiation and mediation through asynchronous discussions (Raitman, Augar, & Zhou, 2005). In this study, students were encouraged to edit each other's work and then discuss their work in the discussion area within the wiki. Third, students were encouraged to create their own meaning and make the wikis relevant to their own learning and that of their peers. This wiki project included students creating their own games according to their own interests and relevant to their prior knowledge. Next, this project did not only frame the student's prior knowledge but built on it throughout the wiki assignment. This specific project was

implemented following in-class instruction on TGfU and at the end of their teacher preparation program.

The fifth principle showed the importance of continuous assessment to enhance the learning experience. Within the wiki project, teacher candidates provided the professor with a detailed outline of what they completed on the wiki and the professor, in return, could provide constructive feedback to guide and assess the learning process. For the purpose of this study and in order to evaluate the effectiveness of a wiki as an instructional tool, the professor provided feedback only when students requested it. The sixth principle requires that students should be encouraged to become self-regulatory, self-mediated, and self-aware. In this study, an introduction session provided feedback to the students on their individual responsibilities when creating a wiki in collaboration with other students. It provided instruction on what it means to engage successfully in the wiki environment. Students were encouraged to be involved in continuous communication with their peers to remain involved and engaged in the process. The seventh principle explains that the teacher will facilitate and guide rather than instruct. Even though the teacher will be available for support, as the students constructed the wikis, they were encouraged to learn from each other and build on one another's knowledge rather than questioning the instructor.

The final principle forming the foundation for pedagogy within a constructivist framework is that teachers should provide for and encourage multiple perspectives and representations of the content. Wikis present an excellent environment to incorporate the ideas and views of the diverse student population as different perspectives may create