

Redefining Field Experiences: Virtual Environments in Teacher Education

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Abstract—The explosion of interest in online gaming and virtual worlds is leading many universities to investigate possible educational applications of the new environments. In this paper we explore the possibilities of 3D online worlds for teacher education, particularly the field experience component. Drawing upon two pedagogical examples, we suggest that virtual simulations may, with certain limitations, create safe spaces that allow preservice teachers to adopt alternate identities and interact safely with the “other.” In so doing they may become aware of the constructed nature of social categories and gain the essential pedagogical skill of perspective-taking. We suggest that, ultimately, the ability to be the principal creators of themselves in virtual environments can increase their ability to do the same in the real world.

Keywords—field experience, pedagogy, simulation, teacher education

I. INTRODUCTION

IN an article entitled “Movements of Mind: *The Matrix*, Metaphors, and Re-Imagining Education,” Alison Cook-Sather uses the “stage” of the popular neo-Orwellian film *The Matrix* to discuss metaphors that have dominated “*notions of and approaches to education in the United States*” and their link to the ‘realities’ we construct for ourselves and others” (p. 946) [8]. Within the context of teacher education, Cook-Sather makes an argument for the construction of metaphors that cast students “*as the principle creators of their education and themselves*” (p. 946). In her discussion, Cook-Sather draws from Dewey to argue that the characters Morpheus and Neo provide a “*powerful model of education*” in which Morpheus perceives that Neo possesses the capacity for critical thought, which is essential to learning: “*an unsettling*” in understanding, a perception that things don’t match or add up, and an impulse, toward “*overcoming [that] disturbance*” (p. 947-48) [8]. This capacity not only allows Neo to free his own mind, but to free humankind from the

prison of the matrix. In this article, we discuss the desirability of expanding and redefining the construct of field experience in teacher education through the use of virtual environments. Through the dialectic of questioning, reformulation, and reconstitution of concepts and ideas, teacher candidates can truly act as the principle (re)creators of themselves as educators.

Two parallel, yet converging phenomena are underway in education and teacher preparation. The first centers on the emergent movement toward mainstream applications of virtual, synthetic or persistent worlds for a variety of educational and training purposes. The second is the recent trend toward the delivery of teacher education by distance education technologies. This convergence of purpose and medium offers pedagogical dilemmas as well as possibilities. Each of these pedagogical techniques has advantages and disadvantages.

Using 3D online worlds as the context, we present two examples of the pedagogical uses of these environments as a type of field experience. Incorporating Cook-Sather’s hypothesis that metaphors can be used to change one’s thinking and reveal possibilities, we examine the potential of virtual worlds to both interrogate the “realities” that we construct and the potential to change them. In particular, we argue that these synthetic worlds may provide a means for crafting and embracing metaphors that cast students as active participants in their own education. We investigate the following questions:

- 1) What is the pedagogical potential of a virtual environment for field experiences where students can adopt disparate identities for the process of learning to teach?
- 2) What are the implications for teacher education students in becoming the principal creators of themselves in virtual environments?

II. FIELD EXPERIENCES IN TEACHER EDUCATION

The role of the field experience in teacher education takes many forms. The considerable literature base in this area advocates for increased and varied experiences. Henry outlines the influences of field experiences on students that include the following: (1) field experiences link teacher candidates to the actual teaching settings; (2) field experiences exemplify the classical concept of learning through experience; (3) field experiences have a higher degree of emotional involvement, mostly positive; (4) field experiences

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are growth producing; (5) field experiences offer the opportunity for one-to-one teaching encounters; (6) goals are internally determined rather than externally imposed; and (7) prospective teachers are inducted into the existing school milieu [20]. McIntyre, Byrd, and Foxx conclude from their extensive review of literature on field experiences that (a) increased practice without reflection and analysis does not lead to professional growth; (b) the context of field placements is very influential on professional development; and (c) evaluation of field experiences should reflect the complex world of teaching [24]. These experiences are strengthened by organization, critical reflection, and analysis. Authors have voiced concern that increased field experiences do not necessarily raise the level of reflection and analysis [14]-[37], thus outlining the importance of attention to reflection as a key component.

III. SOCIAL FOUNDATIONS COURSES AND TEACHER EDUCATION

Courses in the social foundations of education explore the effects of race, social class, and gender on education by utilizing the disciplines of history, philosophy, and sociology to interrogate schools and schooling. Although it is often incorporated into social foundations, multicultural education can also be a stand-alone course that is required in addition to a course in social foundations. The objectives of courses in multicultural education are likely to focus on one or more of the following: 1) multicultural education as the idea or concept that all students—regardless of their gender, social class and ethnic, racial, or cultural characteristics—should have an equal opportunity to learn in school; 2) multicultural education is a reform movement that tries to change schools and other educational institutions so that all students have an equal opportunity to learn; and 3) multicultural education is the process of working toward the ideal of educational equality, eliminating prejudice and discrimination against out-groups [3].

Field experiences are frequently an integral part of courses in social foundations of education and particularly multicultural education. In addition to providing a potential link between theory and practice, field experiences offer a “real life” context where teacher education majors can experience and apply what they have learned in the classroom. Another promising use of the field experience is to transport students out of familiar economic and social surroundings into the world of “the other” [10]. Required courses in multicultural education sometimes incorporate a field experience in which students spend time in an inner city, urban, or ethnic (e.g. native American reservation) setting in order to “sensitize” them to nonwhite, non-middle-class populations. For example, students might spend time at a community center that offers after-school tutoring for children of the working poor. By gaining an understanding of the economically-stressed lives of the working poor, pre-service teaching majors can also begin to consider the conditions fostered by poverty that affect students: e.g. poor nutrition,

mobility (moving from place to place), unstable living conditions (living with extended family members), little quiet time for study, and few resources (e.g. a computer). Likewise, special education majors might visit a sheltered workshop and provide services to its clients.

Faculty for whom the field experience is a methodology for understanding race, class, and culture stress the fact that such concepts are social constructions. Building upon post-modern theory, Banks and Banks discuss the social construction of categories. From the theoretical framework of the post-modern, the categories of race, social class, disability, gender, and religion are socially constructed. The criteria that assign individuals to these categories “*are determined by human beings and consequently are socially constructed*” (p. 7) [3]. The categories are often derived from physical characteristics. In the United States, for example, race is based on a binary system of white—non-white. Historically, the “one-drop” rule was used to assign individuals to categories of “blackness.” If one were half-white and half-black, e.g. one was a mulatto. Someone who was one-eighth black was considered to be an “octoroon,” despite the fact that octoroons are indistinguishable from whites based on physical characteristics. On the other hand, individuals whose ancestry is mixed may choose to identify themselves as “black” based on cultural attributes and a shared historical past. Individuals who cannot hear sounds are considered by the hearing community to be disabled. Deaf Culturists, however, argue that Deafness is not a condition of disability, but is the basis for a linguistic ethnic group that uses American Sign Language. Unless students can alter their intellectual equilibrium, they are likely to continue to think of these categories as fixed and immutable. And unless preservice teachers can develop an understanding of the role of social construction in the schools’ assumptions of success, it is unlikely that they will be able to understand the effects of racism, poverty, heteronormativity, and other pathologies on student achievement.

IV. FACE TO FACE SIMULATIONS IN TEACHER EDUCATION

The use of more traditional simulation as a means of provoking cognitive dissonance in courses such as multicultural education students is ubiquitous. One of the more popular simulations is BaFa’ BaFa’, a cross-cultural simulation activity involving two groups [32]. Drawing upon Halls’ concept of culture according to context, the Alpha culture is a relationship-oriented, high context, culture [4]. The Beta culture, however, is a highly competitive, low-context trading culture. After the participants learn the rules of their culture, observers and visitors are exchanged. During the debriefing, stereotypes, misperceptions and misunderstandings are revealed and interrogated.

The “Blue Eyes, Brown Eyes,” exercise is based upon the 1968 experiment originally developed by teacher Jane Elliot wherein she divided groups of her third-grade class according to eye color and then assigned differential

privileges/handicaps [13]. It is designed to illustrate that racism is constructed and conditioned. Rather than a prescribed game, it is a strategy that developed from Elliot's pedagogical use. Teachers often meld this strategy with lessons on the Civil Rights movement by allowing only certain students to drink from fountains, limiting their access to computers, or making them sit in the back of a bus.

In the Community Action Poverty Simulation, participants role-play the lives of low-income families [25]. Scenarios include single parents caring for dependent children, welfare mothers, drug addicts, and senior citizens trying to remain self sufficient while dependant on social security benefits. The task of each family is to obtain food, shelter and other basic necessities while interacting with various community resources. Players have to maneuver the labyrinth of the social agencies in order to get work, obtain Aid for Families with Dependent Children (AFDC), or housing. Volunteers who are actually living or have lived in poverty staff the simulated social agencies.

One of the limitations of the field experience is the knowledge that it is a temporary and somewhat aberrant part of the multicultural education course. When students return from the field experience to the classrooms of the university, they are able to once again insulate themselves from the challenges and discomforts of the field. They know, in other words, that they ultimately have the power to avoid teaching in the troubled inner city or impoverished rural school. Virtual Reality (VR), however, has the potential to add another dimension—a reinforcement—to the process of learning to teach by intensifying the field experience.

The potential of virtual environments as a context for field experiences is a new and promising area of scholarly work. The courses we present demonstrate both the promise and potential peril of such a medium for preparing future teachers. Our findings and recommendations can be used to help future educators implement such practice as well as help virtual reality developers in the creation of online environments that have attributes and characteristics specific to teacher education.

V. COMPUTER-BASED SIMULATIONS AND GAMES

Games and simulations as learning environments are believed to hold great potential because learning has more relevance and is placed within a meaningful context where content must be applied and practiced [12]-[34]. Shaffer suggests using what he calls "epistemic games" [31] where students learn in more authentic learning environments and become acculturated with the material in a manner similar to the reproductive practices of medical and law communities. Researchers contend that knowing and doing are interconnected and that the immersive experiences provided by games make it easier for learners to assimilate knowledge as well as allows for progressive internalization of the material [17]-[31].

Gee asserts that there is only so much information that

teachers can put into explicit words and, therefore, educational games and simulation environments will help to represent those more complex concepts to students [17]. Halverson suggests that game environments provide a pathway for constructivist learning by presenting compelling activities that motivate students and by offering an alternative approach to traditional teaching that can be built into today's standards-driven curriculum [19]. Simulations may therefore be a way to cross the border between an educational setting and an everyday setting. In particular, the simulation genre lends itself well to the underlying learning paradigm of experiential teaching [18]. It is not enough to simply hear or read some information, learners have to be engaged and connect material with existing knowledge and concepts.

Due to these and other benefits, increasing numbers of educators are exploring and studying simulation environments such as virtual worlds for use in coursework. Some popular virtual worlds include Second Life, World of Warcraft, Everquest, and Active Worlds. Castronova outlines three features of virtual worlds: interactivity, physicality, and persistence [7]. One of the possibilities of VR in the multicultural education classroom is the creation of a situation exploration environment in which students can both take on alternative identities and interact—safely—with "the other." Alternative identities or aliases are termed *avatars* in virtual environments. An avatar is a digital representation, human or other, chosen by the player. The potential lies in the ability for students to portray themselves in alias form, thus permitting insight into perceptions and interactions with others [11]. Burbules describes the promise of such an ability:

".... for the different, the hybrid, the disabled, and others, it is experienced as tremendously liberating not to allow an embodied physical 'fact' to be so determining; and the Internet is proving a fascinating zone of experimentation in how people can move beyond these embodied physical facts, not for the sake of 'escaping' them or denying them, but for changing what they mean to us and to others" (emphasis in original, p 393) [6].

Allowing for controlled experimentation and confrontation affords the learner a more in-depth immersive experience where s/he can actually get lost in the fantasy context thus facilitating a "psychosocial moratorium" with therapeutic and educational benefits [33]. In other words, it goes beyond a game. Pacino enlists Keller's work on learner motivation to make this same point:

"Any of these fantasy elements can be used to create a microworld in which the learner can imaginatively play a role, and can perform the kinds of activities that are required for survival and success in the real world. The fantasy might include the feature of a game, but it also includes an invented situation that, like simulation, goes beyond a game. This can create a very high level of perceived relevance" [26].

Such abilities offer opportunities for simulated experimentation without real-world repercussions [9]. By entering into a VR environment, students are placed into a

situation that calls upon them to, first of all, make certain decisions about themselves. In other words, they must “construct” an identity for themselves and study the interactions with other constructed selves. Winn suggests that this can help bridge the distance between experiential learning and information representation [36]. It is important, however, that this exercise goes beyond the virtual field trip, in which students are little more than voyeurs. As Gee summarizes, simulations offer the ability to “reflect on the intricacies of the design of imagined worlds and the design of both real and imagined social relationships and identities in the modern world” (p. 48) [16].

VI. PEDAGOGICAL EXAMPLES IN HIGHER EDUCATION

A. Illinois State University

Three faculty/staff members at Illinois State University are currently using World of Warcraft (hereafter, WOW) to teach an undergraduate social foundations of education course. The students are predominantly white female teacher education majors. They hail from rural, working class communities as well as more affluent suburban communities. Most have junior or senior class standing. In addition, they exhibit a wide level of skills in regards to computer-based applications. According to its Web site,

“World of Warcraft enables thousands of players to come together online and battle against the world and each other. Players from across the globe can leave the real world behind and undertake grand quests and heroic exploits in a land of fantastic adventure” [5].

Students are required to activate accounts that will enable them to create their own avatars and interact synchronously online. This is in addition to traditional classroom discussion sessions. The intent of the project is three-fold:

“1) to observe and analyze the ways in which students behave and learn in the synthetic worlds; 2) to engage students in substantial reflections about their behavior and learning both online and in the traditional classroom; and 3) to determine the usefulness of social interaction in a synthetic world for enhancing learning itself and for thinking pedagogically and meta-cognitively about educational practice” [1].

One of the assumptions underlying this project is the necessity to develop new metaphors for the pedagogical use of technology (specifically, virtual environments). For example, “playing the game” is, in this application, not an idle preoccupation. It is also not merely a manipulative exercise. Rather, “playing the game” is the deliberate work associated with exploring and manipulating a synthetic environment in an intentional and purposeful way. Second, it must be perceived as creative. The player must be willing to use one’s imagination, suspend belief, and take risks [1]. In other words, the player must be open to cognitive dissonance.

The course EAF 228, Social Foundations of Education, is described in the syllabus as

“an online, interactive video game where players (students) must overthrow Status Quo, a mythical figure that represents educators who fear online gaming and resist the future. Players must complete Quests (assignments) in order to earn a final grade. Each Quest requires mastery of increasingly difficult educational concepts and technological skills” [27].

The objectives include

“applying the central concepts, tools of inquiry and structures of one or more of the foundations disciplines, such as history, sociology, philosophy, and/or anthropology, to understand contemporary issues and paradigms in education; analyze school policies and practices in relation to the economic, political, social, cultural, and/or technological forces that shape them and in turn are shaped by them; examine contemporary educational reforms and policies regarding, for instance, curriculum assessment, the organization and funding of public schooling, equity, and the profession of teaching; examine categories, such as race, class, gender, ethnicity, sexual orientation, language, religion, and physical and mental abilities and disabilities as social relations of power that impact school experience and individual and collective identities in a democratic society; evaluate challenges of educating diverse populations and policies and practices for serving them effectively and ethically in a democratic society” [27].

Additional objectives include the development of skills related to technology and online gaming environments. EAF 228 has a story, quests, characters, a player’s guide, and other elements that advance the metaphor of a game.

B. Ball State University

Sarah Robbins, an instructor in the Department of English, teaches English 104 using Second Life as the primary delivery tool. Second Life is a virtual world or “a 3D online persistent space totally created and evolved by its users” [22]. Such an environment provides a multi-dimensional context for situating learning, communicative tools to support discourse and collaboration, and Web integration for necessary resources and information. English 104 is one of a series of required entry-level writing/rhetoric courses. Robbins, a former video gamer, historically taught the rhetoric class in a traditional manner and later proposed to prototype the course delivery in Second Life. English 104 is intended for freshman or sophomores with the following course rationale and goals:

“English 104 applies the fundamentals of rhetoric to the research process. This class introduces students to the methods of research; the rhetorical nature of research; and the elements, strategies, and conventions common to research writing, including the visual as well as the verbal organization of new knowledge” [28].

At the completion of English 104, students should be able to achieve the following goals:

Create and complete research projects. This involves generating a research question, engaging in

critical/analytical reading, developing an argument with evidence collected from both primary and secondary research, and documenting sources appropriately.

Align research questions with appropriate research methods

Employ critical thinking in evaluation, speculation, analysis, and synthesis required to evolve and complete a research project

Use a variety of strategies to gather and organize information appropriate for the context and persuasive to the intended audience

Use the university research library to forward their research agenda

Engage in collaborative research

Employ format, syntax, punctuation, and spelling appropriate to various rhetorical situations in a stylistically sophisticated manner

Collect, analyze, and organize research information in verbally and visually compelling ways

Take initiative for the development and completion of individual and joint research projects [22]

As an outcome of the course content and format, which enable the accomplishment of the course goals, students in English 104 are required to complete:

Four or more research projects that address different audiences, contexts, and data collection/analysis processes

Each project will culminate in a research driven report, between 4 to 6 pages; appropriate works cited is additional

One report must incorporate a significant visual element

Reading assignments for discussion, analysis, and response including texts created through a variety of media

Informal writing assignments (such as journals, reading reflections, in-class writings, or smaller pieces intrinsic to major research projects) [2]

Students were recruited for the class via a request in an all campus e-mail. The sole prerequisite was ownership or access to a computer that runs Second Life [23]. The e-mail request from Sarah resulted in 300 responses from students to enroll. To decide eventual course members, she interviewed interested students to arrive at class enrollment.

The Second Life environment aligned well with a course focus on a variety of rhetoric devices, including the visual. Visual rhetoric can be described as how visual images communicate; emphasizing images as rational expressions of cultural meaning as opposed to mere aesthetic form [15]. The Second Life avatars representing each student stood as a rhetorical vehicle in the class. For most class sessions, students met in Second Life at Middletown Island. Using role-play, journaling, blogging, and a variety of research protocol, including participant observation, students became academically and socially immersed in the Second Life culture. The ability to create an alias via the avatar was key to the first required course paper. Students were asked to analyze the parallels between their “offline and inline self” and should

contain extended, enlightened reflection about the interplay between various versions of your self. The focus could be on something as subtle as the tone used in email versus conversation or as complex as an analysis of relationships online and offline [29]. Other requirements asked students to interview a Second Life avatar to investigate personality, purpose for being in Second Life, and an overall interpretation of the avatar. The course final was an open house constructed by the students named “The Celebrity After Party.” The open invitation to the Second Life Researcher’s Listserv further described the event:

“The assignment started with rhetorical analyses of other Second Life spaces. The students then created a rhetorical situation of their own and constructed a space to meet that situation. The space is meant to explore the ramifications of America’s infatuation with celebrities and the potential negative effects on the lives of celebrities.

“It’s a fun space featuring Ozzy, Janis Joplin, Billy Holliday, Kurt Cobain, Elvis Presley, and Johnny Cash. I hope you’ll all stop by between 3:30 and 5 pm SLT on Tuesday to interact with the students, ask questions, and provide feedback on the assignment” [30].

VII. DISCUSSION

Virtual or simulated environments hold promise as a means of re-visioning the field experience component of multicultural education, and thus creating the *unsettlement* necessary for the (re) construction of a teacher identity. To frame the discussion, we turn to Kögler, who suggests that recent developments in cognitive science ought to be merged with the pedagogy and practice of multicultural education [21]. Specifically, Kögler speaks to the rejection of the “theoretical” paradigm of social understanding in which “*individuals understand other individuals by applying, explicitly or implicitly a ‘theory’ of mind*” [21]. Within this paradigm we are considered to make sense of others by drawing on some conceptual assumptions that interpret others according to certain logical or traditional standards. But individuals do not always conform to rational action, and very often the observer draws on emotional and practical experiences for understanding. Therefore, as a more appropriate model, scholars have proposed “*the concept of ‘empathy’—or, as it is recently called more technically, ‘simulation’*” [21] One understands another (or “the other”) by putting oneself in the other’s shoes. In other words, we “simulate” how we would feel, what we would do, how we would react to certain experiences and situations. Aspects of the two classroom examples serve to give context to the model’s three aspects: perspective-taking, language, and situated rationality. The question becomes, how can virtual environments be used to highlight these three elements?

Perspective-taking means that to understand someone else’s mental state necessitates the capacity to “*imaginatively take someone else’s position; that is, to leave one’s own perspective behind and switch to the point of view of another*”

[21]. This act of simulation must take into account cultural, social, and historical differences during the process of empathetic identification. Both the social foundations of education course at ISU and the English course at BSU utilized WOW and SL as the avenue to perspective taking. In the context of WOW, students were required to role-play with others to understand the various factors that create and sustain current educational policy and social structures. This moved students beyond the traditionally passive experience of reading and discussion to active participants in a world where they held membership. Similarly, students in the SL section of the English course spent considerable time as participant observers studying contexts and cultures as the outsider. Opportunities to role-play, interview, analyze, and research avatar behavior were made possible by using Second Life as the context for field experience. Many, if not all, of these experiences represent the experiences and outcomes that are desired as a result of coursework and field experiences in multicultural education curriculum. In this context, perspective-taking should enable students to experience and see things from the other's perspective. This experience should allow students to switch positions and roles and operate within different worlds. More so, it should provide students the opportunity to create themselves *as educators*. In addition, the process can become reflexive by allowing for students to understand themselves from the perspective of the other. Ultimately, the student may come to see him/herself *as the other*.

Kögler notes perspective-taking is connected to and dependent upon the ability to use language effectively for communication. This association is supported by the fact that "*children acquire the capacity to understand and predict the behavior of others*" who have different conceptions of shared situations only when they become competent language users [21]. Emotional and practical experiences with role-play and dialoguing then augment student capacity for perspective-taking. In the Second Life course, students used the virtual experiences as a basis for journaling and blogging, as well as formal writing. So while providing a sense of reality, the virtual environments gave enough psychological distance to allow for reflective analysis of events – a key component of many courses in multicultural education. The ability to articulate the other's view enables students to move beyond an understanding of the other toward an understanding of different voices in a shared dialogue. In other words, they can understand their own voice as one strand in the dialogue.

Finally, this model of social cognition eschews a model of applied theory for one of process, in which the interpreter "*employs his or her own intuitions and beliefs in order to make the other intelligible*" [21]. As such, it is a social construction in which one's interpretation is embedded in a specific cultural, historical, and social context. Moreover, the projection onto the other has to take into consideration cultural, social and historical differences, as well as similarities. Coming to experience reality as situated—indeed, as socially constructed—can interrupt - if not dispel - the

notion of a normative society.

The safe space of virtual reality has its own limitations, of course. Turkle points out that simulations in virtual environments "*provide rich spaces for both acting out and working through. There are genuine possibilities for change, and there is room for unproductive repetition*" (p. 200) [33]. Those who benefit the most, she believes, are individuals who 1) come to the game with a sense of self that is healthy enough already to benefit and 2) those who try to understand why personae and actions of other avatars evoke particular responses from them. When players reflect upon their own feelings and actions, the effect on self-understanding can be positive. This same ability to reflect is identified by Weiner as the central skill that determines the success or failure of new teachers, particularly those who are working in urban schools [35].

VIII. CONCLUSION

Cook-Sather draws upon philosopher Maxine Greene to remind us, "*imagination is the capacity to posit alternative realities*" (p. 963) [8]. Building on that notion, she warns us that it is difficult to recognize let alone unpack metaphors that are deeply embedded in one's culture, history, environment, ethnicity, etc. Instead, she encourages educators to "*imagine metaphors into which we might live*" (p. 963) [8]. In that way we can, as Greene puts it, "*break with what [we] simply assume or take for granted as given and unchangeable*" (p. 963) [8]. Virtual environments hold the distinct (if not sole) capability to allow preservice teachers to do exactly that by creating new identities for themselves, taking on the personae of others, and thereby understanding the other's perspective. As a metaphor for the situated and socially constructed reality in which we live, virtual environments offer the student the ultimate freedom not only to "free one's mind," but also to create one's world. As the principle creators of their world, preservice teachers can achieve the ideal of "transformation."

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