ABSTRACT

Digital games like *Where in the World is Carmen San Diego* and *Oregon Trail* have been used to support learning since the 1980s. However, the last decade has seen games, simulations, and virtual world use take firm hold of the academic imagination. There also has been a rapid expansion of sponsored, formal research, informal inquiry, and a growing body of theory supporting the use of learning games. As a result, several challenges to their use have been identified such as flaws in the games themselves, inadequate methods of assessment due to complex, confounding variables, and the perceptions of students and teachers. How then can academics develop valid research methods that recognize such challenges and allow for strong claims regarding the impacts of such tools through the lived digital and classroom game experiences of learners and teachers? This article presents a description of one research method that seeks to provide one possible solution called *Critical CinéEthnography*. It stems from a discursive, systems-oriented view of learning that explores the arguments and truth claims made by learners and teachers. Beyond examining in-game discourse alone, the method employs video capture of out-of-game discussion, artifacts, and body language that should allow researchers to build a complex picture of participant experiences that can be easily shared with academics and practitioners alike. For additional context, a sample study is presented that investigated teacher perceptions and use of learning games.

**Keywords:** Critical Ciné-Ethnography, games, research methods, qualitative research, discourse
Over the course of the last decade, the use of digital games for learning has become increasingly common in the field of education. This has ranged from the use of off-the-shelf simulation games like the *Civilization* series employed by Squire (2004) to games created in Adobe Flash in the case of *Whyville* (Kafai, Quintero, & Feldon, 2010) and those embedded in multi-user virtual environments such as *River City* (Dede, Ketelhut, & Ruess, 2006) and *Quest Atlantis* (Barab et al., 2007). Each of these has shown a propensity to motivate or support learning as has our own work with the undergraduate course alternate reality games *The Door* (Warren, Dondlinger, Jones, & Whitworth, 2010), *Broken Window* (Warren, 2010), and *The 2015 Project* (Warren, Gratch, Najmi, & Trussell, 2010) alternate reality games over the last five years has supported the idea that games can be used to contextualize curriculum and pedagogical practices.

However, as with many new technologies over the last two decades, there is often a push to view each as a panacea, which can solve all the education system’s ills. As such, this push can sometimes result in false promises and concerns that the tools distract from the work of teaching and learning (Reese, 2011). The impact of such games on achievement remains in question and instructors have not always had positive views of the level of work involved in implementing such game systems. Beyond the question of whether games can impact achievement, which is at the core of many educators and administrators concerns regarding games, it is important to ask a number of additional questions regarding the use of learning games, whether in K-12 or higher education settings. We and others have identified in past research include issues of the ethics of using games for learning (Warren & Lin, 2012), confirm the degree to which what is learned in activities performed in a game context transfers to real world contexts (Barab
et al., 2009), whether games can be designed and delivered in a cost-effective manner that allows them to take hold in classrooms (Scott J. Warren & Jones, 2008), game-based, discursive literacy practices that can lead to learning as embedded in participatory cultures (Steinkuehler, 2007; Steinkuehler & Johnson, 2009), and an examination of games and play as critical discourses that may lead to emancipatory play, social critique, and the use of a related game curriculum as liberating, pedagogical tool (Slattery, 2006).

Some challenges to the use of games for learning have been noted in the literature. These range from flaws in the game systems themselves as designed to support learning (Baker, C., 2008; Baker, R., et al., 2008), the construction of games within multi-user virtual environments (MUVEs) such as ActiveWorlds that were not intended to support such designs (Warren, Dondlinger, Stein, & Barab, 2009), confounding variables stemming from complex game designs that make relationships between treatment and outcomes unclear (Rupp, Gushta, Mislevy, & Shaffer, 2010), inadequate reporting of the instructional designs of games and decontextualized findings in research publications (Warren, Jones, et al., 2011), and a lack of usability or play testing prior to game use (Warren, Jones, & Lin, 2010). This last issue can lead to unintended consequences from the designs such as the production of the aforementioned inaccurate mental models. Importantly, Warren and Lin (2012) also cite ethical challenges in the use of games for learning including the concerns with the motivating power of games with children that may lead to addictive use, possible damage to student identity when it becomes too tightly entwined with their virtual identity, and possible inaccurate mental models presented by the games that lead to poor learning and waste teacher time when they must re-teach content.
While such critiques begin to depict possible difficulties facing academics as they seek to bring learning games into educational settings, one question is only lightly touched upon in the literature; namely, what are instructor perceptions and attitudes of and towards these complex game systems and do they influence their willingness to use games for teaching and learning? The fact that games have not saturated educational systems in the U.S. may indicate that there is something that we in the academic community do not understand about teacher views of learning games and systemic challenges to their use. Some of those we do know include time constraints due to the structure of the school day, requirements of state mandated curriculum, a lack of clear connections between game and state learning objectives, student access to computers at school and at home, and administrator constraints on game use in schools (Jones & Warren, 2008, 2011; Warren, Dondlinger, et al., 2009).

While quantitative measures begin to provide some insight into what allows or prevents a teacher from using a learning game, it is important to move beyond surveys and seek other means of understanding both the day-to-day lifeworld experiences of instructors (Habermas, 1981) if we are to understand the political and systemic challenges instructional designers face as they seek to use games in classrooms. Further, it is important to understand the critiques that instructors have of not only our game designs, but also of ideas about how, when and where games can and should be used to support learning. To reach an understanding of instructor views, the authors of this article suggest employing a methodology we have developed called Critical CinéEthnography. This qualitative, critical research method has been previously been employed with teachers to capture and analyze not only the reports of teacher perceptions of instructional
technologies, but also their actual practices, school system supports, and epistemic worldviews of instruction (Gratch et al., 2011). By employing a critical stance in the examination of both the perceptions and practices of instructors, we can begin to understand the power relationships, norms, and communicated views of the educational systems in which they work. Understanding these relationships is integral to beginning conversations with teachers regarding the integration of innovative games for learning in the classroom to support teaching, learning, and our own research. This article provides an overview of past studies of teacher perceptions of learning games, presents a new method, Critical CinéEthnography, that seeks to bolster the field’s understanding of the systemic limitations that affect the use of learning games, and offers a limited example of how such methods can practically be used.
LITERATURE REVIEW

What are learning games?

While there are countless definitions for the term game, we are interest mainly in what constitutes a learning game. As such, the one that will be employed for the purposes of this article comes from Warren, Dondlinger, McLeod, and Bigenko (2011, p. 400) and that is they must include:

- strategically constructed conflict or problem
- context for engagement with the conflict/problem
- goals or objectives for play or learning
- normative rules or conditions governing play or learning
- a quantifiable outcome with a means for assessing success
- scaffolds to support learners when challenges are too great
- cognitive conflict emerging from interaction with a designed problem

While this is the definition that will be used for this article, there remains disagreement in the field regarding what constitutes an educational game and further, whether games can or should be discriminated from simulations (Gibson & Baek, 2009).

Theories of learning games

At their core, much of the underlying argument for using learning games stems from the idea that they can motivate students to engage in activities that they may otherwise be unwilling to engage in academically (Gee, 2003). Knoetes (2010) hypothesizes that both intrinsic and extrinsic forms of motivation are necessary for encouraging students to engage in academic tasks either by using students internal need to succeed or through the punishment and reward aspects of a game.

Beyond motivation, Prensky (2001) suggests that it is important that schools and teachers encourage the appropriate use of digital games to support today’s “Digital
Natives” as these students use them as a way to develop skills that will benefit them for their future work. As Rupp, Gushta, Mislevy, and Shafer (2010) note, these skills commonly include “expanding traditional concepts of knowledge, skills, and abilities to encompass concepts such as critical and innovative thinking, systems-thinking, interpersonal communication and collaboration skills, digital networking and operation skills, intra- and intercultural awareness and identity, and cross-cultural sensibility (p.4).”

Yu (2009) further argues that games can be used to support the higher order thinking skills necessary for knowledge workers (Galarneau & Zibit, 2007). Additional benefits purported to stem from learning games include engagement (Nieborg, 2005) and collaboration (Defreitas & Griffiths, 2007). However, much of this remains theory and in-depth research is necessary to understand the real benefits of games for learning. Troublingly, most theory focuses entirely on the learners, while failing to understand the role of the teachers and administrators as mediating factors in the use of games for learning. This is problematic, because how and whether games may be used in the classroom is often highly dependent on the perceptions an individual instructor has towards games for learning (Jones & Warren, 2011). Also, without the cooperation of teacher and administrator, a game will never see the inside of a classroom (Kenny & McDaniel, 2011). One major factor that can determine whether a game will be used is whether there is research evidence to supports its use.

**Research on teacher perceptions of the use of learning games**

Pastore and Falvo (2011) report, “The literature base on teachers' perceptions of gaming in the classroom is limited (p. 50).” In reviewing research by Cagiltay (2006)
conducted with 116 pre-service teachers, these authors note that while the pre-service teachers found games to have value for teaching, they questioned the learning effectiveness of current video games. The findings of Cagiltay were confirmed by the work of Scrader, Zheng, and Young (2006), who further stated that the games available at the time were not useful for supporting learning. In response to these findings, Pastore and Falvo (2010) recently surveyed 98 pre- and in-service teachers seeking their perceptions of the use of games in K-12 classrooms. Their survey research indicated that only around half of the teachers in this group have used or intended to use games in the future to support learning, despite viewing them as valuable learning tools and believing that the use of games will continue to grow in the next half-decade.

While the research in this area is mainly constrained to quantitative survey instruments with a few follow-up interview questions, one exception is a small case study framed within Rogers’ (1995) Diffusion of Innovations idea. Kebritchi (2010) focused on those factors, perceived by three teachers, to affect their use of computer games to support teaching and learning of math concepts. The main factors identified included that the game must

1.) have empirical research support and be based on real concepts,
2.) be gender neutral,
3.) be easily integrated into the classroom by teachers,
4.) require critical thinking and problem solving,
5.) be usable with the number of computers and within the time constraints of the school day,
6.) align learning objectives and state standards,
7.) include training for the teachers,
8.) have a balance in terms of difficulty between to easy and too difficult,
9.) allow the teacher to use and evaluate the game themselves before implementing it, and
10.) not be viewed as a replacement for the teacher.

While these factors are a useful starting place, the limited number of cases and lack of connection to real examples, limits its usefulness. Further, the study does not engage in a critique of the game systems themselves or the systems in which they will be implemented. Instead, the focus is entirely on how to implement within the existing system, when such those identified limitations may make using a game untenable.

A recent study by Kenny and McDaniel (2011) sought to understand whether having teachers play games could shift their perceptions of the use of video games to support learning. Using a pre-post-test design, found that exposure to games improved teacher perception of video games. However, the authors also found that those teachers with little experience using games prior to the intervention continued to see them as having little to contribute to learning after it. While this study did focus on the role of the teacher’s perceptions towards video games as a mediating factor in their value of them as educational tools, this study did not examine systemic constraints in schools and classrooms that may contribute to their attitude. There were open-ended questions, but they did not provide much context as to why they felt as they did about the use of games for learning. Considering this problem, it becomes important to identify research methods that can provide such context.

Why qualitative research methods?

One of the primary reasons for focusing on the use of qualitative methods is that we believe that it is not possible to generalize from either a sample of instructors or
students to make larger claims about how others will react in the future. Richard J. Bernstein (1983) states that for the empirical scientist or objectivist, “there must be some fixed, permanent constraints to which we can appeal and which are secure and stable” by means of the scientific method (p.19). Within the study of society or social organizations like schools, there are major challenges to employing scientific methods and drawing conclusions that result in generalizable laws. Bernstein (1976, pp. 34-37) identified these theoretical and practical challenges as:

- **An inability to engage in controlled experimentation:** Given the lack of ability to engage in controlled experiments regarding large-scale phenomena, it is not possible to test and uncover generalizable laws.

- **“Unreal” laboratory settings:** Even in cases where researchers seek to engage in controlled experiments, the very nature of the laboratory does not mirror the real, social world and therefore opens the findings to heavy critique.

- **Social phenomena are historically or culturally conditioned:** In many cases, the establishment of “laws” of social phenomena will be limited in their generalizability because they are culturally and locally bound. Therefore, generalizing beyond the locale in which the study is conducted is also limited.

- **Ethically neutral social science is not possible:** Bernstein (1976) states that “an ethically neutral social science is not just difficult but impossible to achieve, because, in the description and explanation of human action, fact and value are so fused that they cannot be distinguished (p. 39).”

- **Ideology bound to theory:** Bernstein (1976) further states that
“Yet increasingly we are faced with the paradox that this is not the consequence of inquiry in either the natural or the social sciences. What is frequently offered as genuine knowledge of social and political reality turns out to be a subtle form of ideology…even more troubling is the realization that science and technology have become powerful and invidious tools for manipulation, repression, and domination, rather than the way to enlightenment and freedom (p. 176).

Ethnography for educational research

In educational settings, ethnographic research methods are qualitative methods that have been used to understand cultural phenomena in the context of a group’s knowledge and social systems. Such methods have been used to tell the stories of learners and teachers by examining how they function within the cultural bounds of formal and informal education and other support settings. For example, the research work of Paul Willis (1977) in Learning to Labor examined working class students and their socialization by school to become workers, has become more prevalent over the course of the last three decades as a means of telling the stories of learners and teachers.

Other ethnographic titles such as Davidson’s (1996) Making and Molding Identity in Schools and Lather & Smithies’ (1997) Troubling the Angels have become classic texts in this areas of cultural knowledge sharing, both in and out of formal learning contexts. Davidson’s text depicts the influence of the American school structure on how students create identities that allow them to survive and navigate the demands of daily schooling. Alternately, Lather’s work examined the experiences of women from several different backgrounds as they sought and provided support as knowledge sharing and care statements while they coped with the ravages and social stigma of living with either HIV or AIDS. This form of ethnography provides insights well beyond traditional quantitative research related to student learning outcomes, instead focusing on the processes of
educational systems, the learners and teachers with them, and the contextualized experiences of participants in those systems as actors. As technology has advanced, qualitative methods such as ethnography have been influenced as the benefits of these tools have been recognized as helping to validate the analyses of researchers and expand the reach of their findings outside of academia.

Cinematic ethnography

As Steven Feld states in his introduction to the book *Ciné-Ethnography*, cinematic ethnography

“enunciate[s] a dedication to participation, involvement, long-term ethnographic commitment, and interpersonal engagement. They enunciate the processual, revelatory power of cinema to unleash and stimulate new ways of representing scenes both familiar and fantastic, mundane and spectacular. It is a recognition of the parallel intersubjective, improvisatory, and dramaturgical qualities of both everyday life and direct filming that signals the intersection of social and cinematic theory” (Rouch, 2003, p. 20).

Ciné-Ethnography or ethnocinema is a practice of creating intercultural documentary films that focus creating on intersubjective, shared understanding among participants (including the researcher[s]) and seeking social change within the communities under study. A process of collaboration among members of cultures and subcultures, with technology, results in a shared, common visual construction. It is from this that researchers and researched become one, sharing a common power to examine and confront their own cultural understandings.

The use of such methods have been a component of anthropological and educational research since the widespread availability of motion picture cameras in the 1940s, beginning with Robert Flaherty, Dziga Vertov, and Jean Rouch (Rouch, 2003;
Ruby, 2000). While some of their work tended to focus on ethnographies of cultures in countries very different from their own in places like Senegal, Arctic Eskimo settings, Vertov’s focused on the commonplace everyday life in Russia after the October Revolution. It was through everyday events, Vertov sought a semblance of a greater truth that, when edited into a coherent story, revealed that which was beneath what was available to the naked eye. This is commonly referred to as cinema-verite or kino pravda (film truth) (Rouch, 2003). It is this search for the underlying truths of the cultures that make up a society and ours is an examination of the cultures of school that both enable and restrict teacher’s ability to leverage technology to support teaching.

INTRODUCTION TO A METHOD: CRITICAL CINÉETHNOGRAPHY

In this section, we describe Critical CinéEthnographic research methods. These are a synthesis and expansion of the work of two different authors: Jean Rouch and Phil Francis Carspecken. The French filmmaker Rouch (2003) is primarily known as an anthropologist who worked between 1941 and 2004. His ethnographies, while mainly focused on western African cultures, have also examined the lives of ordinary French people during the tumult of the 1960s.

In contrast, Carspecken’s (1996) work has been in educational research and he has developed detailed methods for establishing valid outcomes to qualitative studies stemming from the work of pragmatist and sociologist Jürgen Habermas (1998; 1981a, 1981b) in the area of linguistic communicative actions. Each is described further below as their particular affordances as researchers and theorists are central to understanding the reasons to use the synthesized methods as well why they are relevant and necessary to
understanding the use of learning games.

Rouch and cine-ethnography

The French ethnographer Jean Rouch’s (2003) work in the field of cine-ethnography stemming from his work in the area of cinema verite or “film truth,” which was an attempt to present cultures as they are with minimal interpretation by an editor. During his time as a researcher, Rouch employed his filmic methods to examine the practices of different cultures, especially in western and central Africa, centered mainly on the people of the Niger River basin. His research and methods have spawned fields including visual anthropology, visual evidence, and many other recent anthropology, sociology, and ethnographic research methods. What this has in common with educational research is a focus on a distinct group of people and their shared practices.

Carspecken and Critical Ethnography

One researcher concerned with such shared practices, namely those of teachers, is Phil Carspecken. His methods for constructing a valid qualitative research process were illuminated in the text Critical Ethnography in Educational Research in 1996. His work stems mainly from that of the pragmatist Jürgen Habermas (1981a, 1981b) and ours is an expansion and synthesis of Habermas, Rouch, and Carspecken. In particular, Carspecken provides a five-step process for conducting analysis on qualitative data with a special focus on establishing and understanding of power and system relationships in educational settings. We will provide an expansion of his analytical process later in the article in a description of our methods. An important contribution from Carspecken is his use of the critical lens to engage in critique of human and technological systems.
The critical lens

A critical lens is one that employs a reflective attitude on the part of the researcher(s) as a central part of any research process (Bernstein, 1976). What is more important, as Bernstein notes, it is imperative that the researcher recognize “the processes of the constitution of meaning rooted in human subjectivity (p. 169)” and that we, as researchers have intrinsic interests in the outcomes of our research. Thus, those of us working in the area of learning games must recognize, reflect upon, and critique our own relationships to what is at once the subject of our study and often indivisible from our past and current experiences as players of and researchers of games. Further, the goal of the critical lens is not only to recognize our own role in the research, but also as part of the larger society towards a goal of engaging in social, systemic critique, and reflexive critique.

Employing such a critical lens may allow one to study the inequalities (i.e. social, economic, epistemic, educational) in educational systems towards a goal of improving our game systems and the experience of learning participants. Further, this reflective, critical lens can also help us understand the affordances and constraints of educational systems that govern and mediate the acceptance or rejection of games for learning. Without such understanding, it is difficult to pragmatically design and implement learning games. Some general goals of systemic critiques are:

- Understand challenges to use of games in learning systems
- Reform and improve systems
- Improve practice

Outcomes we propose for the systemic critique of educational systems in the context of
learning games:

- Improve the design of learning games
- Increase acceptance and use of learning games in educational systems
- Improve educational research practices with learning games
- Educational theory building related to learning games

How well this critique can be made or the designs can be improved is dependent on the forms of data collected and who collects them as is discussed in the next section.

**Collecting ethnographic data with video**

When collecting data using Critical CinéEthnographic methods for games, we suggest that the researchers come to the project with a perspective informed by practice in the particular field of education or by some preliminary observation and conversation with all parties that will be observed, interviewed, and filmed. This allows the development of a larger frame of understanding from the perspective of the participants. While the researchers bring their personal experiences and lenses to bear on the situation, allowing the participants to shape the research questions gives them voice in the process from the very beginning rather than after the fact through some form of member checking validation.

Further, expect to have at least three researchers involved in both data collection and analysis, if not many more. This has several purposes including 1. bringing multiple observer perspectives to bear on the collected data and artifacts, 2. allows multiple reflexive stances that may reveal challenges and problems in the construction of research outcomes such as texts and films, and 3. provides a group large enough to conduct
Carspecken’s (1996) methods for constructing validity.

**Research questions**

When developing research questions, we suggest that they emerge from preliminary, informal discussions with participants. Further, they should be constructed not by an isolated researcher, but with feedback from all researchers who will conduct interviews, filming, or analysis in order to bring as many perspectives to bear as possible. Following the development of research questions, they should be presented to the proposed participants to allow their voice to be present in the process. By doing so, it is believed that these questions that emerge through consensus will have high validity for all stakeholders. Based on our experience, it also allows the researchers to understand the systemic constraints and affordances of an educational setting so that the researchers do not overstep those cultural and political boundaries that exist and may disrupt research or practice.

**Subjectivity statement**

As the researchers develop their research questions, it is also important that the researchers adopt a critical stance regarding their own perceptions as well as those of the system they will be collecting data in for the CinéEthnography. As one of the main goals of the research is to empower and make recommendations that will allow the educational setting to improve, all researchers involved must be aware of how their presence influences those that they observe while they are themselves influence by the participants they observe.

We recommend that the researcher begin with examining their own personal biases
through a statement of subjectivity in which they state at least the following about what they believe:

- *What is learning and teaching?*
- *What does this mean for my interviewing?*
- *What do I already know about this topic?*
- *What is then the challenge of what I think I already know?*
- *What should my peer analysts know before they review my codes?*

By constructing such a statement of subjectivity and sharing it with those members of a group of analysts, there is an expectation that the peer analysts will recognize when a member of the group may be coding at too high an inference level and according to their personal bias rather than based on evidence.

**Keeping records**

Beyond this statement of bias, we recommend that the researchers each keep what, in film terms, may be termed a “production diary.” This may be an online blog or notebooks in which reflections are shared regarding data collection, filming, and other components of the research during the entire period of data collection and analysis. If kept in a notebook, it should be shared or available to others in the group of analysts so that it may be compared with the statement of subjectivity and other members’ reflections and reviewed to ensure that each is both taking a critical stance on the system under study and their own perceptions. Further, someone outside the group should assess such records to determine whether a form of groupthink may be taking place in which all members may have lost their critical stance or concern with the emancipatory interest of the
individuals in the system.

**Observations**

Research observations can take a number of forms ranging from brief field notetaking expeditions into classrooms to longer stays in which the researcher captures audio, artifacts, and still images, and even to long-term filmed observations of the type we suggest are most appropriate in this methodology. Observations can be Positivistic counting exercises in which the researcher keeps a checklist of the number of times particular expected behaviors occur in the classroom such as how often students raise their hands or make scientific inquiries during a lesson (Pershing, Warren, & Rowe, 2006).

However, Critical CinéEthnographic methods require that the researcher spend time documenting and capturing video evidence of the lived experiences of teacher and learner. More importantly, the use of documentary data capture, when combined with critical ethnographic analysis, allows the observers to focus on the communicative actions of all participants rather than one. This allows for the analysis and generation of meanings from constative, strategic, normative, and dramaturgical perspectives and for the researcher to develop visual evidence that has been thoroughly vetted in a thorough process. This provides a clear picture of participant experience in educational settings also supported by filming conducted in classrooms.

**In the field**

Especially when filming, conducting field investigations is challenging because of the necessity of interruption by the researcher and his or her equipment. However, because of the critical aspect of these methods, the researcher(s) should already be aware
of their impact even in Positivistic tradition research methods that include direct observation from research regarding the “observer effect.” Other challenges from the very nature of the researcher seeking to capture as much relevant data as possible on film can create complications such as an overwhelming number of research observers in a classroom or computer lab, too many digital capture devices (cameras, audio recorders), and too small a space, which may stress students and cause them to behave differently than they may under more naturalistic circumstances (Warren, Dondlinger, et al., 2009).

**Becoming part of the classroom**

Because of the possibility of inadvertently creating a negative impact during data collection, it is important to try to minimize the impact of the filming. This can be done in several ways, but the first that has shown some success is having the researcher or researchers become part of the classroom culture and environment over a fairly long time. Rouch (2003) used this technique in his many documentaries even showing his own interactions in film with his subjects and Willis (1977) and Carspecken (1999) used this technique in their critical ethnographies to both recognize their own role in the classroom, with the adult expertise and power that influenced participant perceptions and activities in the classroom. This acclimatizing process both recognizes that the researcher becomes a participant during the filming and data collection process when they set foot in the room and establish slowly shifting roles, norms for participation in the classroom setting, and possibly take part in constative communications emerging from truth claims made by participants in the classroom. To validate the researcher’s conclusions, it is important to allow the participants to provide their own voice, which is commonly achieved through discussion with participants.
Interviews

Interviews are necessary at several different times during the research process in a Critical CinéEthnography. It is important to gather some information directly from participants before engaging in direct observation, if only to identify those you are observing as you build your thick record, which is the collection of all data and analyses. As the need arises, additional interviews should be conducted throughout the data collection period as learning and teaching behaviors of interest come up in class. Further, once the direct observation is done, interviews should be conducted both immediately interviewing, especially when done for film, is a challenging skill that takes years to gain competence in for gathering relevant data. It requires knowledge of one’s participant, their values, and is sensitive to what they are comfortable with saying on film.

Given the inherent nature of many researchers as outsiders, often from academic institutions, educational settings are difficult places to gain the trust of participants needed to have them speak openly. Building this trust takes time and requires that the researcher be physically present in the classroom and school setting and recognizes their role within the setting. Another challenge for the interviewer is the imbalance of power that may be perceived between the researcher and the participants. A simple difference in age or status may skew the outcomes of an interview as a participant attempts to answer in the way that they think the interviewer prefers.

Analyzing data

To conduct data analysis with a Critical CinéEthnography, we have adopted and modify Carspecken’s methods as outlined in Critical Ethnography in Educational Research (1996). The original was five-step process that involves (1) capturing data and
researcher reflections in a thick record, (2) conducting reconstructive analysis of the data, (3) conducting follow-up interviews to validate findings from the reconstructive analysis, (4) describing the relationship of the findings and participant speech acts with respect to other systems, and finally, and (5) explaining these findings with respect to cultural, power, political, and other systems. Each step in the process is one of building from low inference observations up to a high level of inference that is grounded in low and medium inferences that have been confirmed through a stringent validation process. We provide a summary of this process here and break it further into a ten-step process as Step Two consists of a large number of equally important sub-steps. For a full understanding of how to conduct Critical Ethnography research, we strongly suggest reviewing Carspecken’s (1996) text.

The following were the stages of analysis used to validate those sections of film included in the final documentary product and were adapted from Carspecken (1996).

**Step 1: Build a primary record** describing the complexity of interactions in the system including context, speech acts, body language, setting diagrams, time, direct observations, all using low-inference vocabulary

**Step 2: Preliminary reconstructive analysis: Meaning Field Generation**

This stage employs the articulation of Meaning Fields in which the researcher defines the possible meanings of important speech acts. Using Validity Horizon Analysis, the claims made in these Meaning Fields are classified in terms of their validity related to how near or far the meaning is from the unadorned statement.

**Step 3: Preliminary reconstructive analysis: Validity horizon analysis**
Continuing from the meaning field generation, this step seeks to classify statements, often taken from the meaning fields, with objective, subjective, normative, and identity validity claims as a means of seeking to understand the values of the individual speakers and their interactions with one another. To verify these horizons and the meaning fields that preceded them, it is important to conduct interviews as part of the next step.

**Step 4. Dialogical data generation** in which the researcher engages in a means of democratizing the research process to provide the interviewees with the opportunity to challenge the findings of the researcher and give participants voice in the process; this is a form of member checking.

**Step 5. Interactive rhythms** can be used to identify speech acts as a series of give and take between and among speakers. These rhythms can indicate comfort among speakers, tensions, and other issues that may require further analysis.

**Step 6: Umbrella norms** are identified through participant speech and physical acts that represent how they feel they *should* behave. In textual acts such as players communicating in World of Warcraft, participants often convey expectations as to how one another should play, how often they should play, as well as their attitudes and ideas about how their game play relates to the non-digital world.

**Step 7: Roles** are identified, especially when they occur in game play with two or more players. Often there may be a Vygotskian (1978) sense of a zone of proximal development in which a more experienced player helps another player complete tasks they would normally be unable to do on their own such as defeat a major game boss.

**Step 8: Analysis of Interactive Power** is the final step in the reconstructive analysis
phase is to generate an analysis of interactive power in order to understand how the roles and norms play out in the establishment of authority and action in the classroom.

**Step 9: Describing system relations** is a stage at which the researcher seeks to understand participant actions and perceptions of the systems that most impact them. In the case of students, this often includes school, culture, family, etc. In the case of a learning game, the game system itself plays a central role that must be understood.

**Step 9: Use system relations to explain findings** including such aspects as environmental, economic and political conditions to understand the cultural relationships and similarities in the system among the many sites represented in the study by leveraging the Motion Picture Lens of analysis put forth by Banathy (1992).

**Step 11: Critical reflection** is a penultimate step in which the researcher engages in reflection about their participation in the research process and their relationship to the outcomes as well as how biases may have shaped them.

**Step 12: System critique** is the final stage during in which the researcher engages in a full critique of the systems involved towards a goal of improvement.

To have a fully valid process, each step should be included. However, skipping some steps in the interest of time remains up to the individual researcher. The following section provides a short example of some of the outcomes of one Critical CineEthnography that focused on teacher use of games in the classroom as part of a broader study of teacher technology use.

**EXAMPLE AND DISCUSSION**

The first documentary constructed using this process is *In the Classroom* (Warren, Gratch, et al., 2011), and a short version was presented at the 2011 American Educational
Research Association Annual Meeting. It included interviews with teachers, instructors, professors and administrators and ranged from elementary school instructors to university professors. Five of these participant instructors and their classes were also observed and filmed over several periods during one semester during which time the observers became part of the classroom, a technique suggested by Carspecken (1996). A major focus of the associated documentary and the interview questions was on teachers’ perceptions and use of digital games to support learning.

In this example, we focus on one particular instructor, a community college instructor, Sue Anne. During the research process, she provided the researchers with instructional artifacts, filmed her own classroom practices. In addition, she spoke expansively in interviews and written reflections about her experiences as a gamer and her perception of both whether and how games should be used to support learning. The following describes Sue Anne’s perceptions of games as tools for learning as well as her experiences with games as context for possible disconnects between teacher and student value of games for entertainment versus learning.

The Artist

Sue Anne has been teaching art at the community college for about eight years and describes herself as “an ex-junkie” as a gamer. When asked what games she has played, she reported an array of massively multiplayer online games (MMOGs) ranging from Asheron’s Call to Star Wars Galaxies and ending with A Tale in the Desert. Sue Anne describes her relationship to game in the following Figure taken from the documentary.
As an artist, she said what drew her to this last MMOG was the ability to create digital artworks in the game space.

**Lifeworld tension: Making in the virtual versus making in the real**

However, it was being a professional artist outside of teaching that led her to give up the creation of virtual items. She said, “My husband started make fun of me, because I was going to be the coolest artist ever [in the game] (...) and he walked by and went, ‘Oh, you’re going to be the coolest artist ever in a virtual space, huh?’” The video reveals that, while humor was clear in her face, her voice broke a bit as she expressed the tension between *being successful in the virtual game space* and being *successful in the outside world*. Her rejection of the virtual and shift back to making art in the real world opposes
Baudrillard’s (1994) claim that the symbol or virtual object is equivalent to the real one. Instead, she and her husband counterclaim that the digital objects made in the game do not have the same value or power as art made in the world outside it.

She bolsters this claim by saying that, “He had a point (…) I was spending all of my time doing that instead of making art in the real world.” As a professional, while it brought a pained expression to her face, Sue Anne’s statement indicates that she sees a bright line distinction between the value of what she made in the game and what she made outside it. This led her to make the decision to abandon the virtual for the real.

**Counterpoint: Learning games for art education**

Specifically, when asked to tell about how and whether she used games to support learning in her classroom, it was clear that her choice to refocus on real world art did not diminish her value of games to support learning. She noted that, as an instructor, she believes that games like Amanita Design’s *Samorost* can challenge students to reconsider what art is and what it can be. *Samorost*, designed by Jakub Dvorský, is a point-and-click, Adobe™ Flash-based game in which a small cartoon character is used to explore a fantastic, otherworldly space towards a goal of solving puzzles that reveal a story. Her reasoning for employing such games was that “I’m going to introduce it because this is their language. I think because I’m tied into technology, I’m tied into their language and I love it and that’s what they know. They’ve been raised with it.”

Sue Anne’s use of such games to support was evidenced through several projects that she shared as part of data collection and her filming of projects and discussions she had with students in her class. Her belief in the power of such tools was not something
she reported, as sometimes happens in interviews, to make herself appear to be a better instructor than she is. Instead, the values she claims above are demonstrated through the way in which they are integrated into her curriculum and the specific activities she has chosen. Further, when she makes the claim that games are “their language,” she views these tools with openness and acceptance as vehicles for learning. This may be due to her age proximity with her students, which is only about ten years, but is also likely due in part as a result of her past game play and deep understanding of the structures of motivation and interaction that come from play.

Sue Anne is but one case among many we have recorded that helps inform what shapes teacher perceptions of learning games. By employing Critical CinéEthnographic methods, we are able to delve more deeply into the personal experiences and history of individual instructors that sculpt their views of games as learning tools. Such methods also reveal the underlying power relationships, not only within the educational environment, but also in the day-to-day lives of instructors outside of school that influence these perceptions. To do this takes time and a willingness to listen to and thoroughly analyze the complex stories of the classroom.
CONCLUSION

Critical CinéEthnographic methods are only one means by which we can begin to understand not only how provide the researcher with the ability to capture and validly analyze teachers’ reports and practices of using games to support learning. By employing a critical stance as we examine the instructors’ perceptions and practices, we can begin to understand the power relationships, norms, and communicated views of the educational systems. As designers and academic researchers, understanding these relationships is integral to beginning discussion with teachers regarding the integration of games for learning the classroom.

The videos and other artifacts captured as a result of this process provide evidence and data for analysis that might otherwise be glossed over in the rush for results. Nuances such as the roll of a teacher’s eyes as she says she feels empowered by administrators to technology to teach may be lost in the days, weeks, and months between data collection and analysis. Keeping such video for later analysis and review of codes and themes also allows the researcher to feel their claims and themes remain supported by evidence over time, while field notes and interview audio recordings may feel less clear. We believe that another great benefit of employing such methods is the ability to communicate findings beyond academic circles and to the practitioners we seek to share with by using video sharing tools to bridge the chasm between those that seek to bring games into the mainstream and those most affected by our desire. Presenting our findings online through documentaries that are generated through our research allows participants to speak for themselves, sharing their stories directly with those that will most benefit from them: other teachers.
There may be some that disdain such methods for being too stringent, too time consuming, or excessively detailed. There are survey methods with Likert-type scales that allow for rapid classification of teacher perceptions in neat scales ready to report. However, the reasons that a teacher may choose to use a learning game are rarely clear-cut. Teachers are affected by individual history, general perceptions of technology, and other factors that such tools are unlikely to detect. Despite the time they take to complete, Critical CinéEthnographic methods have provided us with a deeper understanding of such influences. We believe that anything worth knowing is difficult to find and that those that choose to employ such methods to examine the stories of the teachers and learners that choose to share them.
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