

When sex, drugs, and violence enter the classroom: Conversations between adolescents and a female pedagogical agent

George Veletsianos*, Cassandra Scharber, Aaron Doering

*University of Minnesota, College of Education and Human Development, Curriculum & Instruction: Learning Technologies, 150B Peik Hall,
159 Pillsbury Drive S.E., Minneapolis, MN 55455, USA*

Available online 15 February 2008

Abstract

In this article, we investigate the discourse between a female conversational pedagogical agent and 59 adolescents in the context of a social studies lesson. We note that previous pedagogical agent research has focused on the positive effects of agents, while failing to take into account the intricacies of learner–agent discourse, and subsequently missing the abuse suffered by pedagogical agents at users’ fingertips. Our analysis indicates that learners readily misuse and abuse pedagogical agents while placing them in a subordinate and inferior role. We conclude by making recommendations on agent design and future research.

© 2008 Elsevier B.V. All rights reserved.

Keywords: Pedagogical agents; Conversational agents; Agent abuse; Agent misuse; Computer-mediated discourse analysis; Social studies

1. Introduction

Pedagogical agents are conversational and non-conversational virtual characters employed in educational settings to serve various instructional purposes. For instance, Payr (2003) notes that virtual characters can be employed as teachers, tutors, coaches, learning companions, and actors, in essence reenacting the multiple roles played by real-life instructors. Not only are pedagogical agents able to enact multiple instructional roles, but they have been employed in numerous content areas as well. For example, Penelope and Alexander portray themselves as electronic portfolio experts available to assist learners with all aspects of developing an electronic portfolio (Doering et al., 2008). Other examples include AutoTutor who converses with learners on physics and computer literacy (Graesser et al., 2004), and Laura who attempts to encourage users to engage in physical activity (Bickmore and Picard, 2005).

New technologies (such as wikis, blogs, and pedagogical agents) often bring with them the expectation that they will

revolutionize learning (Bull et al., 2005). Thomas Edison believed that motion picture would transform our educational system (Brooker, 1947). Seymour Papert (1984) held the same views regarding microcomputers. In a similar vein, educational technology researchers appear to be overly enthusiastic regarding the possibilities afforded by pedagogical agents, even though it appears that there is no compelling experimental evidence for their learning benefits (Choi and Clark, 2006). It is concerning that educational technology researchers have not taken a long and deep look at exactly what happens when learners interact with agents. It appears that the focus has been on the benefits of pedagogical agents on affective issues (such as student motivation) rather than student outcomes and what actually occurs when students converse with agents. For example, the January–February 2007 special issue of *Educational Technology* focuses on pedagogical agents and presents them in an overly positive light “within this exciting and quickly-evolving field” (p. 4). Even more concerning is the fact that it is only recently that researchers have examined the evidence surrounding the claimed positive impact of pedagogical agents and found that such evidence is contradictory and at best mixed (Gulz, 2004). The focus

* Corresponding author. Tel.: +1 612 626 8276; fax: +1 612 624 8277.
E-mail address: velet006@umn.edu (G. Veletsianos).

on the perceived benefits that pedagogical agents may bring in learning contexts appears to have brushed aside the possible shortcomings of this tool.

One of the limitations of pedagogical agent implementations not examined in the educational technology literature, and briefly touched upon in the human–computer interaction literature, is the topic of agent abuse and off-task behavior. Learner–agent interactions appear to encompass a “darker side” – one where the metaphor of the agent as an instructor, tutor, and learning companion succumbs to the visual of the agent as a mistreated subordinate object. The “darker side” of learner–agent interactions bears no clear-cut linkage to education, learning, and teaching in the way that educational researchers hope. The novelty of this paper therefore, lies on the fact that the issue of agent abuse *in the context of educational software* has, so far, been left largely ignored and, as a result, unexplored.

To investigate learner–agent interactions, we focus on Conversational Pedagogical Agents (CPAs) and the free-form dialogue between agents and students. Specifically, we investigate the abuse CPAs suffer by examining adolescents’ discourse with a female pedagogical agent in the context of a social studies lesson. Our investigation focuses on one lesson with one agent and multiple students, enabling us to collect and contextualize *all* conversations between agent and learners. We first examine work related to pedagogical agents and virtual character abuse. While examining such work we draw on theoretical notions of cyber sexuality, psychosocial development, anonymity, and online inhibition to illuminate why learners may abuse pedagogical agents. We then present the focus of our study, our specific research questions, data, analysis, and empirical results. We conclude by examining the implications of this study and offering recommendations for future research and agent design.

2. Previous work

Educational technology researchers have claimed that pedagogical agents offer numerous benefits for teaching and learning. In a review of the existing literature, [Gulz \(2004\)](#) notes that previous research makes six claims regarding the use of such tools. Specifically, pedagogical agents can (a) increase motivation, (b) increase perceptions of comfort, (c) stimulate learning, (d) enhance information and communication flow, (e) fulfill personal connection to learning, and (f) enhance problem solving processes. Nevertheless, both [Gulz \(2004\)](#) and [Choi and Clark \(2006\)](#) note that the evidence surrounding these claims is at best mixed. On the other hand, [Baylor \(1999, 2000\)](#) and [Veletsianos \(2007\)](#) note that such tools can be of great benefit in educational contexts. For instance, agent gender has been shown to influence pedagogical efficacy and learning ([Moreno et al., 2002](#)), and animation and conversational capability appear to afford more opportunities for electronic learning with pedagogical agents than passive information delivery

([Mayer et al., 2003](#)). Clearly a consensus on the benefits or shortcomings of pedagogical agents is hard to reach ([Gulz, 2004](#)).

Prior to investigating the negative aspects of pedagogical agent deployments, it is important to note that the distinction between conversational pedagogical agents (CPAs) and non-conversational pedagogical agents (NCPAs) is not perfectly evident in the educational technology literature. The majority of available studies deal with NCPAs whose purpose is to deliver content to learners. Even though both types of characters can be termed *pedagogical agents*, we perceive the differences between the two tools to be of such magnitude that an analysis of pedagogical agents as a whole without discriminating between conversational and interactive capabilities would not do justice to either tool. Therefore, from here onwards we will focus only on CPAs.

In a longitudinal qualitative study of pre-service teachers’ experiences with two CPAs ([Doering et al., 2008](#)), we found that learners held mixed and often conflicting opinions on the CPAs. For instance, even though the majority of the learners perceived CPAs to be socially supportive, learners also found them academically incompetent. Although learners felt the CPAs were inept, they reported being motivated to revisit the CPAs throughout the 4-week duration of the study to seek assistance and support. This study also indicated the complexity of deploying a CPA in an online learning environment with the purpose of assisting learners in the completion of a task: Even though we expected learners to interact with the CPAs on issues that were unrelated to the course content, we were surprised to discover that the majority of student–agent interactions were unrelated to the assigned task. This finding was one of the motivating factors behind the current investigation of student–agent discourse. This factor was heightened when we were unable to locate any studies that examined student–agent discourse and the reasons behind such conversations. If off-task behavior represents a large part of student–agent interactions, a number of related questions naturally arise: What do students and agents talk about? What form do these discussions take? How do students treat agents? How do students perceive the agents’ role? How do students perceive their relationship with agents? What does the language used by students tell us about how agents are evaluated and perceived?

Pedagogical agents are usually viewed with the *media equation* lens ([Reeves and Nass, 1996](#)). The media equation argues that humans treat media as if they are also human, in essence interacting with media in the same way that humans would interact with each other. For instance, humans rate computers more favorably when computers praise the humans’ performance than when they do not. Additionally, [Nass et al. \(1997\)](#) found that participants applied gender stereotypes to computers even though the only suggestion of gender was vocal cues. Even though virtual character researchers have largely embraced the media equation program, some express their dissatisfaction with it. [Shechtman and Horowitz \(2003\)](#) note that the results

Download English Version:

<https://daneshyari.com/en/article/551867>

Download Persian Version:

<https://daneshyari.com/article/551867>

[Daneshyari.com](https://daneshyari.com)