Do Intelligent Agents Impact Students' Online Experience?

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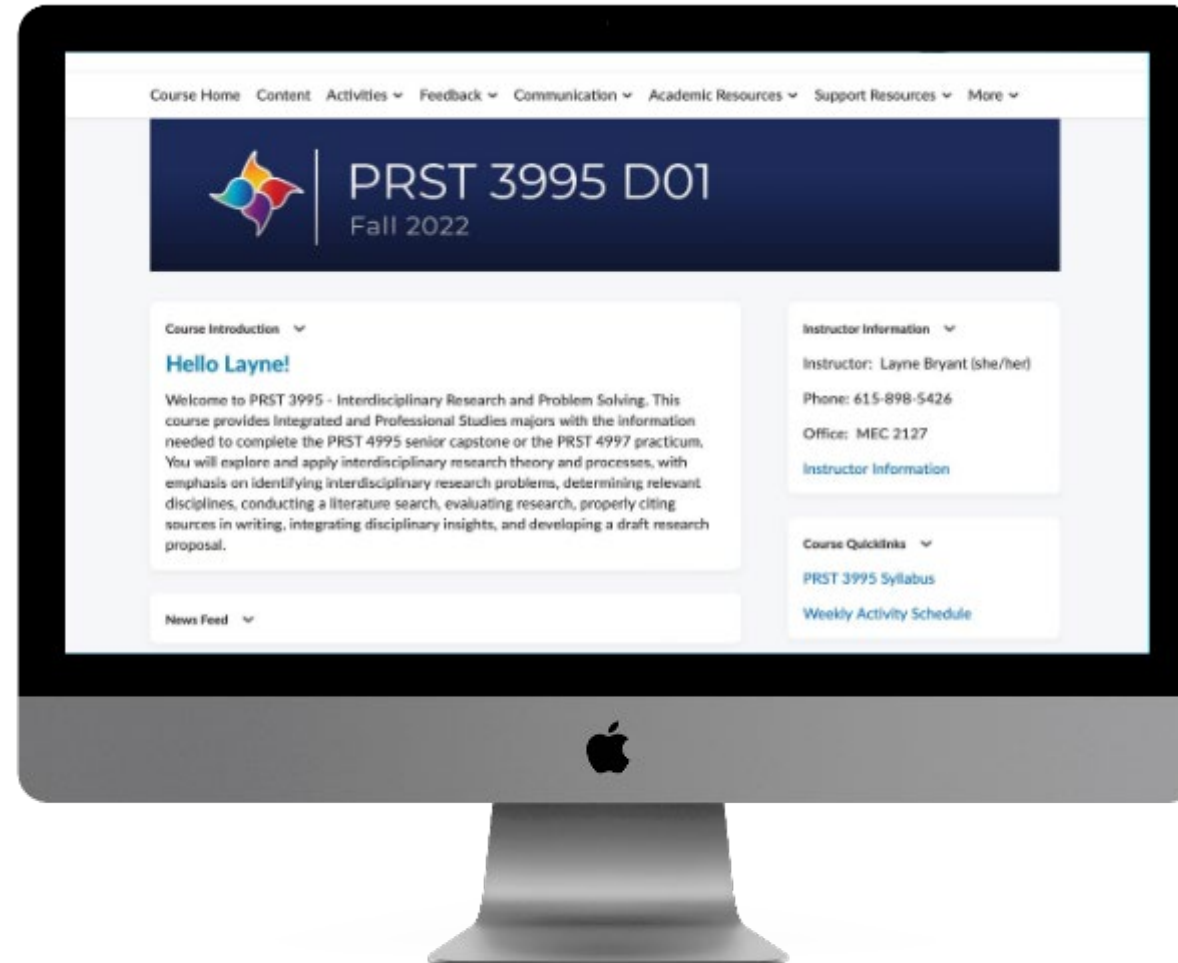
Agenda

Introduction

What are Intelligent Agents & How do They Work?

Attendance

Quizzes

Discussions

Dropboxes

Problem & Purpose

Few empirical studies on agents

No literature on COI and agents

Aim to inform faculty training/usage

Research Questions

RQ1 Is there a relationship between the use of Intelligent Agents and students' perception of teaching presence?

RQ2 Is there a relationship between the use of Intelligent Agents and students' favorable impression of the instructor?

RQ3 Is there a relationship between the use of Intelligent Agents and students' successful course completion?

RQ4 How do students describe the instructor's engagement in sections where Intelligent Agents are used?

Theory & Literature

What did we learn from the research?

COMMUNITY OF INQUIRY

Meaningful online experience includes three elements: teaching presence, social presence, & cognitive presence (Garrison et al, 2000)

TEACHING PRESENCE

Effective instructors demonstrate teaching presence through frequent communication, feedback, & availability (Garrison et al, 2000)

SOCIAL PRESENCE

Social presence can be developed by using affective communication and students' preferred names (D'Alessio et al, 2019)

STUDENT SATISFACTION

Studies have found higher satisfaction in online courses when faculty demonstrate strong teaching presence (Gurley, 2018; Maddrell et al, 2017; Thompson et al, 2017)

STUDENT PERSISTENCE

Researchers discovered a correlation between social presence and a lower rate of drops, failures, and withdrawals (Glazier, 2016; Soffer & Cohen, 2019)

Design & Methodology

STUDY DESIGN

Quasi-experimental; deployed 17 pre-designed intelligent agents in 19 randomly assigned treatment sections; 19 randomly assigned control sections had no agents

POPULATION & SAMPLE

498 undergraduate students in two required online upper-division courses at a large public regional university in the Southeastern US

QUANTITATIVE METHODS

Modified Community of Inquiry (COI) survey to assess student perception of teaching presence & collect demographic data; course final grades

QUALITATIVE METHODS

Open-ended survey questions survey asking how instructors engaged students; one-hour interviews with five volunteers

Intelligent Agent Categories

Welcome Email

Searches every 24 hours during first week of class for students' 1st access.

No Attendance

Identifies students who have not accessed a course in more than 7 days.

Low Quiz Score

Sends tips to students who earn below a 70% on a module quiz.

Feedback Ready

Notifies students that assignment feedback has been returned.

Reminders

Nudges students who missed an assignment deadline or who have not posted to a discussion.

Recognition

Congratulates students who earn an exemplary score on their 1st discussion.

Quantitative Results

Student Success Outcomes

**COURSE
GRADE (GPA)**

Control Mean: 2.95, N=242
Experimental Mean: 2.99, N=256

Difference was **not** statistically
significant (p>.05)

**COURSE
NON COMPLETION**

8% Noncomplete, N=228: Control
5% Noncomplete, N=248: Experi.

Difference was **not** statistically
significant (p>.05)

Qualitative Survey Results

Social Presence Themes

KIND/NICE

"She's patient, kind, professional, and was very attentive in all my interactions with her."

"Prompt, knowledgeable, personable, and nice."

CARES ABOUT STUDENTS

"I would say that she is extremely engaging and cares about the success of her students."

"...you can tell the instructor cares about each student and their ability to pass the class"

HELPFUL

"...was very responsive and helpful. ...she was proactive in reaching out to me..."

"The instructor's engagement was helpful and encouraging."

Qualitative Survey Results

Teaching Presence Themes

"My instructor was very engaging and available. The reminders and email communication were helpful. It was better engagement than 99% of my past professors"

EMAILS

"The emails and memos that were sent to the class showed her concern for everyone to be timely and complete with assignments."

"Her emails and memos were timely and beneficial."

FEEDBACK

"She provided timely grades and feedback."

"My instructor was very informative, on time with feedback..."

"I loved all the feedback. It was very helpful."

REMINDERS

"The weekly announcements and reminders are extremely helpful. I am a father of 3 and work over 40 hours a week."

"I was impressed my professor reached out to me when I missed an assignment...I really appreciated that..."

Discussion

What Have We Discovered So Far?

PRECAUTIONS	PROMISING

Use Students' Preferred Names

Agents are more effective when students believe they are intentionally personalized

Consider Student Accommodations

Agents are not able adapt to extended individual deadlines:

"It all seemed very preplanned..like certain emails already being sent even though DAC gave me extra time I would always get generated emails and that really kind of showed me like how basic it was and that it wasn't really the instructor caring..."

Course Completion Rates

Experimental group students successfully completed the course at a higher rate than the control group

Survey Responses More Favorable

Initial descriptive statistics show more favorable responses to all survey questions for the experimental group.

Takeaways

Are There Any Ideas You Will Take Back to Your Campus?

Welcome Email

No Attendance

Low Quiz Score

Feedback Ready

Reminders

Recognition