Chatbot Use in Online English Composition Courses: A Quantitative Study

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Chapter One: Introduction

Introduction

Higher education has seen a dramatic rise in online learning over the last two decades, with a growing number of universities providing both online courses and full degree programs (Jarvie-Eggart et al., 2019). Some non-traditional students, particularly those more mature or working full-time and with family commitments, are searching for programs that are more versatile and thus better tailored to their overall life and lifestyle (Berry, 2018). While students' ability to participate asynchronously in online courses from universities allows students to work around their busy schedules more easily, issues in communication are more common (Kelly, 2017). Additionally, attending courses online may lead to perceptions of isolation (Berry, 2018; Forbes, 2019; Huang, 2019) and subsequent de-motivation. One possible solution to isolation and lack of immediate communication of asynchronous learning is the use of chatbots in the online classroom.

Statement of the Problem

While studies indicate mixed success with chatbot use in language learning classrooms (Bii, 2013), the literature is scant on practical pedagogical use in general studies, undergraduate courses. A review of the research literature indicates a need for scholarship in classroom AI, including chatbot utilization (Zawacki-Richter, 2019). Although chatbots may assist with isolation and clarification, it is not known how widely they are used and to what effect.

Purpose

The purpose of this study is to establish a baseline for the current use of chatbots in online undergraduate English Composition courses. This knowledge is essential because, in

addition to adding to the research, this study serves as a springboard to determining the efficacy of pedagogical practices of incorporating chatbots into college-level writing courses.

Research Questions

The following descriptive research questions drive this quantitative study.

1. To what extent are chatbots implemented in online English composition courses?
2. What are the perceived benefits of chatbot implementation in online English composition courses?

Chapter Two: Literature Review

Introduction

While this study seeks to fill a void in current literature regarding chatbots in online undergraduate English Composition courses, it is worthwhile exploring the context in which this study falls. Students lose motivation when feeling isolated or confused. And while a chatbot is a poor substitute for an instructor, there is merit in reviewing the perceived benefits of a conversational assistant, particularly if it mitigates de-motivational factors challenging undergraduates and their instructors.

Isolation

The asynchronicity of online causes can be isolating. Students participating in online courses cite a lack of interaction with instructors as the primary reason they prefer face-to-face courses. Lack of immediate access to the instructor leads to the perception of no instructor and of teaching oneself (Tichavsky et al., 2015). Additionally, students feel isolated in part due to the slower pace and lack of immediate response inherent to online learning (Berry, 2018).

In addition to feelings of isolation, online students may be disadvantaged by "office hours." In face-to-face courses, immediate access to the instructor allows students to obtain clarification about assignment execution and content. However, in an online course, the instructor defines various ranges of hours of availability to grant proper access for students to have their questions answered. Since an instructor must limit availability to specific days and times, some students will inevitably have conflicts with those hours of availability (Wingo et al., 2017).

Chatbots

Virtual assistant chatbots are an emerging technology. A chatbot is a technology in the form of a computer or web program that simulates the conversation of a human partner. The program processes natural voice or text input and responds appropriately (Georgescu, 2018). In recent years, "AI-augmented machine learning has dramatically increased the accuracy of both

automatic speech recognition (ASR) and related natural language processing (NLP)" (Alexander et al., 2019). As the NLP or chatbots increase, so will use in education. This technology is already implemented in higher education campuses: Georgia State's "Pounce" or Winston-Salem State University's "Winston" increased student responses and retention (Bendici, 2018).
Some studies show positive outcomes from chatbot use in universities. In a flipped-classroom study of out of classroom use of three types of chatbots, Huang et al. (2019) determined that graduate students found chatbots helpful in preventing feelings of isolation. However, although the synchronous capacity of chatbots is helpful with isolation, the study also concluded that students find it difficult to treat a chatbot as a human being. Huang et al. did not specify if this is a negative or positive aspect of student perception.

Song and Oh (2019) found a positive correlation between chatbot use and learner achievement. In a study examining learners' participation in online courses and synchronous interaction with a chatbot, the quality of conversation with a chatbot shows a significant association with student achievement.

While chatbots may be used to prevent isolation and increase student achievement, it is imperative to examine the types of conversational assistants that might be successful in a classroom. Cunningham et al. (2019) find two forms of chatbots particularly suited for education. An FAQ Chatbot should reduce an instructor's workload through responding interactively to students' frequently asked questions while immediately addressing student needs, thereby reducing frustration and isolation. A Short Response Quiz Chatbot delivers an interactive assessment which prompts students for textual justification for their multiple choice answers. In addition to addressing isolation, students receive instant responses and possible "tutoring" the student through misconceptions to clarification (Cunningham et al., 2019).

Summary

The slower pace of communication in asynchronous online learning can be frustrating for college students. Distance learning, though very convenient for some and necessary for others, is isolating and de-motivating. As enrollment in online programs increases, the success of enrolled

students is essential to the success of colleges and universities. Chatbots may be a successful tool to mitigate negative associations and experiences with asynchronous learning. Although there is a void in scholarship pertaining to practical pedagogical uses of chatbots in education, the responsive nature of conversational assistants seems to address issues of lack of clarity, isolation, and a subsequent loss of motivation.

This review of literature illuminates one of many objectives. Using the context presented in the above review, one can extrapolate that using a chatbot in an undergraduate English composition classroom would benefit the instructor and students. First-year writing courses are already challenging and require a large outlay of energy from instructors who often give guidance and feedback for each assignment. The lack of instant feedback and conversational shortcuts inherent in asynchronous learning require even more effort from instructors. How would chatbots work in those courses? One must first determine if and how chatbots are currently utilized in those courses.

Chapter Three: Methodology

Introduction

It is essential to establish a baseline for current use of chatbots to further study the efficacy of chatbot use. As more classes and programs migrate online, more students become isolated and frustrated. If chatbots can assist with student success, they should be seriously considered as instructional tools. Furthermore, first-year English Composition courses are required in most colleges and universities; such a course is ideal for undergraduate education research. The questions driving this study are:

1. To what extent are chatbots implemented in online English Composition courses?
2. What are the perceived benefits of chatbot implementation in online English Composition courses?

Research Design

The primary purpose of this study is to empirically ascertain usage of chatbot implementation in online undergraduate English Composition courses. A survey method will best determine the attitudes and practices of instructors and their implementation of chatbots. The cross-sectional survey will be distributed through social media and targeted professional associations to increase targeted population sampling. This method allows for inexpensive, systematic, and quick data collection (Creswell & Guetterman, 2019).

Population and Sample

The target population for this study includes all online English Composition (writing) instructors in the United States. To draw the most valid inferences from convenience sampling, the survey will be distributed through social media, social media teaching groups, National

Council for Teachers of English (NCTE) listservs and International Society for Technology in Education (ISTE) listservs.

Instrument

The instrument is a survey constructed in and distributed via Google forms for ease of data collection. The collected data will be populated into self-generated spreadsheets, eliminating data entry error. The instrument consists of categorical scales and, because this survey is a new instrument, it will be pilot tested by 5 instructors. The pilot test is essential to establish the validity of the scores and will be used to revise the instrument (Creswell, 2015). The instrument is attached as Appendix.

Procedures

Several steps are required for this study.

- Construct an appropriate instrument designed to answer the research questions.
- Pilot the instrument and incorporate revisions.
- Determine specific listserv and social media among whom to distribute the survey.
- Compose a compelling request tailored to areas of dissemination (i.e. a request is worded differently if distributed to We Are Teachers Facebook group than to ISTE listserv).
- Distribute the survey through social media, NCTE, and ISTE.
- Post a follow-up reminder for the survey 1 week later.
- Close the form to prohibit additional responses 1 week later.
- Analyze the data.
- Determine scope of follow-up studies.

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Appendix

Chatbots in Your Course

Thank you for participating in this survey. Please answer the following questions as best you can.

* Required

1. Where do you teach? *

   Mark only one oval.

   - ◯ United States
   - ◯ Internationally

2. Do you teach at least one online English Composition (College Writing) course? *

   Mark only one oval.

   - ◯ No
   - ◯ Yes

3. Do you use a chatbot for your course(s)? *

   Mark only one oval.

   - ◯ No
   - ◯ Yes

4. If you use a chatbot for your course(s), how do you use your chatbot? *

Mark only one oval.

- ◯ To answer FAQs
- ◯ To assess the students
- ◯ To answer FAQs and assess the students
- ◯ Other
- ◯ I don't use a chatbot

5. To what extent is your chatbot beneficial? Please select an answer for each prompt. *

Mark only one oval per row.

	Not beneficial	Beneficial	Very beneficial	Not applicable
Freeing up instructor's time	◯	◯	◯	◯
Helping students feel connected and less isolated	◯	◯	◯	◯
Answering student questions	◯	◯	◯	◯
Filling in knowledge gaps for the student	◯	◯	◯	◯
Entertaining and/or engaging the students	◯	◯	◯	◯
Creating classroom culture	◯	◯	◯	◯

6. What is the name of the instution in which you work? *

_____

7. Can we contact you to follow up? If so, please respond with your name and email address. *