2024 Technology Fee Full Proposal

Title: Incorporating AI in Human Sexuality Education to Reduce Sexual Interest Misperceptions

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Sponsoring Organization: Academic Technology

Purpose and Specific Objectives:

What is the proposal intended to improve or facilitate? Human Sexuality Education (HSC4133/5138) is a cross-listed (i.e., undergraduate/graduate) course in the department of Health Education and Behavior (HEB), housed in the College of Health and Human Performance (HHP). The course is designed to increase students' knowledge of human sexuality issues, to increase students' level of comfort with sexuality topics, and to provide an opportunity for students to explore and clarify their personal sexual attitudes and beliefs. Course requirements, including class activities have been designed to emphasize the importance of both content and process in human sexuality education. This proposal is primarily intended to integrate AI in the course and improve the class activities by facilitating student use of AI in an innovative final project like those that have already been incorporated into other HHP courses.

The University of Florida's (UF) mission is to, "enable our students to lead and influence the next generation and beyond for economic, cultural, and societal benefit," and we are on track to build the nation's first AI university. This includes, "teaching AI broadly across all disciplines," as a foundation so that our students may graduate with AI expertise and be ready to serve in an interdisciplinary AI workforce. A Human Sexuality Education course housed in a college of Human Health and Performance (HHP) might not be the first AI learning environment that comes to mind when one thinks of AI opportunities for our students, but HHP, through our use of our CogBot Katherine— named after Katherine Johnson (en.wikipedia.org/wiki/Katherine_Johnson)—has already integrated AI into our curricula in innovative, cost-effective, and transformative ways (e.g., APK5702, APK3400, SPM104, SPM4724).

Katherine is one of UF's many CogBots, AI-powered Digital Teaching Assistants (TAs) that can also be used as customized, hands-on, AI student projects tailored to any UF course in any college. CogBots are developed by CogAbility, a UF partner and an open AI platform (youtu.be/EDvxtHjCMlg?si=q2xO_-7a4isUwFtl), run by Jim Hoskins, a UF graduate. CogAbility has created other CogBots, including Alli Gator, who appears on dozens of UF websites, and she has answered hundreds of thousands of questions for more than 60 thousand users.

The objectives of this project are:
  (1) Integrating HHP's Katherine as a virtual AI-powered TA in the HSC4133/5138 course.
  (2) Creating an AI final project in the HSC4133/5138 course, in which students teach Katherine to be a custom-trained natural language processing ChatBot like Alli Gator.

Why is it important to do so? A learning objective of this course is, "Apply critical-thinking methods to human sexuality education and research." By integrating AI into a new final project, students will not only improve their critical thinking skills, but do so in a cutting-edge way that will prepare them to serve in an interdisciplinary AI workforce that seeks to solve complex problems in innovative ways. For example, the annual cost of sexual assault is $3.1 trillion. Those who have experienced rape report more physical, psychiatric, and reproductive health consequences and they are also 13x more likely to die by suicide. Approximately 1 in 6 women (1 in 4 college women) and 1 in 10 men are survivors of rape, and sex and gender diverse (SGD) people are 2-2.5x more likely to experience victimization than cisgender/heterosexual (cishet) people. Developing AI-powered tools that help scale prevention programs and reduce risk, especially for vulnerable populations (e.g., women, SGD people, college students), is a cutting-edge and under-leveraged area in which students could apply their critical thinking skills to a real-world problem. **Thus, this project will improve the technical skills, competency, and success rate of students.**

Converging evidence suggests that sexual interest (SI) misperception is a major factor in sexual assaults. The perception of potential sexual partners' interest is a critical component of social concerns like consensual sexual

activity, harassment, and assault. The disparity that exists between cishet men's and women's perceptions of SI has been extensively documented. Men perceive many verbal, nonverbal, and situational cues as sexual in nature. Nearly 70% of women report having their behaviors mistaken as SI. However, research conducted on how SGD populations perceive SI of potential partners is less well understood or integrated in prevention programming. This is important because (1) it has been well established that cishet men's misperceptions of women's SI could be a potential antecedent of sexual aggression perpetration, and (2) SGD individuals are at greater risk of sexual aggression victimization. Moreover, (3) giving SI perception feedback has successfully improved correct SI judgements among cishet men, but (4) little has been done to scale or tailor these prevention programs.

Through UF's collaboration with CogAbility, students have leveraged AI to create CogBots. In this human sexuality education class, if this project is funded, students will learn to program a custom-trained natural language processing CogBot designed to reduce SI misperceptions. Like Alli Gator, which serves as a ChatBot that answers questions about UF, an "Are They Just Not That into You?" ChatBot would answer questions about SI misperceptions and provide tips on how to recognize actual cues of SI correctly. Based on a literature review, students would feed the ChatBot data from peer-reviewed articles on SI judgements so that it may become familiarized with "correct" SI judgements and students can train the ChatBot to provide tailored (e.g., cishet vs. SGD feedback, feedback for college students). Students will learn how to develop a scalable, tailored, AI-driven intervention which is critical given the role of SI misperceptions in sexual aggression, the high-risk rates among some groups, and the burden of sexual assault on society.

The project is innovative in creating a new final project that addresses a real-world problem, not simply upgrading existing projects, however, feasibility of this project has been established through similar but distinct use of the CogBot, Cammy, in UF's EEL3872 course. In this course, students train Cammy to identify the species of a sea turtle in an image as part of their hands-on AI project. They label training data (i.e., pictures of sea turtles) and then build a machine learning model that can predict the species of turtle from a novel image and give the CogBot feedback on its performance. Cammy also serves as a TA for the course on the Canvas shell. Student feedback included, "This was a truly hands-on approach... It taught me so much about AI…" and, "I liked being able to teach the machine leaning algorithms instead of just reading about it," which indicates that **this project will improve student learning experiences, capacity to create and innovate, and improve high-quality learning environments**. CogAbility is a UF partner, and we will ensure **all outcomes meet ADA requirements as they have for prior courses.**

The expected outcomes of this project are:
> (1) A functional virtual, AI-run TA for the course that operates right in the Canvas shell.
> (2) An operational final project centered on students' use of AI that can be used every semester.

How is this project innovative, and could it be scaled in the future? HiPerGator is the 40th most powerful supercomputer in the world. Empowering students to train CogBots like Katherine (and Cammy) through integration of AI in this course (and future courses) gives students unprecedented opportunity and access to technology exclusive to UF that will set them apart on the job market. Just as the sea turtle project using Cammy will be scaled to this human sexuality project using Katherine, other projects in other courses using other CogBots could be created using this project as a model. This will be the first course at UF to use AI in a human sexuality education context (to my knowledge).

Impact/Benefit:

Who benefits? In what ways? Students enrolled in HSC4133/HSC5138 in the Fall of 2024 will immediately benefit from working on an AI final project and learn to apply critical thinking skills in a human sexuality education context via labeling training data (i.e., correct, and incorrect sexual interest judgements) and then build a machine learning model that can infer sexual interest from novel scenarios. They will give the CogBot feedback on its performance detecting sexual interest. They will benefit from having an AI-powered TA (like Alli Gator, who will answer questions about the course). Because instructors monitor the questions that students ask the TA and provide the

CogBot with feedback on how well it is answering student questions, this project **includes the involvement of course instructors utilizing the technology.**

Future students will also benefit from this investment. Student evaluations of AI integration in the course will be used to improve both components (i.e., the TA and the final project) in subsequent semesters, so the initial use of this Technology Fee Fund will continue to benefit students in later semesters. The evaluations can also be used to inform development of other potential projects that could be incorporated in this course or other courses which would benefit future students.

The instructor/proposer (Liana Hone) will benefit by engaging the Academic Initiative Center (AI²) opportunities to ensure that equitable and ethical processes are followed, and that "widespread access to AI education for diverse audiences" is achieved, thereby contributing a state-of-the-art course to her portfolio/CV.

Other faculty will benefit from this investment. This project can be leveraged to facilitate the use of Katherine in similar health behavior courses in other departments in HHP by using this project as a model. It could also be used to facilitate use of other CogBots (e.g., Cammy) in unrelated courses in other colleges by adapting the materials developed for this course for other purposes. I would be eager to share any/all materials developed as a part of this project, and CogAbility is already a partner of UF working with several of our faculty. CogAbility is also open to scaling any projects developed for the classroom that are potentially marketable to industry and partnering with UF in developing these products. **Thus, the project has the potential to reach students, faculty, and staff across the university and beyond to achieve a common good.**

An honors thesis student will benefit by working with me during the developmental stages of the project to meet the aims of the proposed project. She has been accepted to be a part of the AI University Scholars Program based on her AI USP application detailing her involvement in this proposed project.

What are the implications of how this project is innovative? Does it leverage existing resources? The proposed project leverages several existing resources including HHP's Katherine and UF's AI University Scholars Program, and **efficiently uses existing resources and services**.

HHP's AI CogBot, Katherine, is already used in the two ways proposed here (i.e., as a virtual TA and as an AI-powered project) in other courses in our college. HHP instructors work with CogAbility, which has instated CogUniversity at UF. CogUniversity is a school for training AI CogBots, and UF has several of these CogBots that serve as AI training tools for students. They function in two ways: (1) as teaching assistants (TAs), and (2) as "students" that UF students teach as if they were the instructor. As a TA, CogBots function as popup windows in Canvas, and students can ask these ChatBots questions (e.g., talking to customer service online in chat boxes, except they are powered by HiPerGator). Instructors can review questions that students ask and assess whether students have similar questions. When CogBots function as "students," UF students can learn how to program the CogBots to perform certain tasks. Students do not need any prior programming or AI experience to complete these projects. In the human sexuality education course, students will program Katherine to be a custom-trained natural language processing ChatBot designed to reduce sexual interest misperceptions. Like Alli Gator, which serves as a ChatBot that answers questions about UF, an "Are They Just Not That into You?" ChatBot would answer questions about common sexual interest misperceptions and provide tips on how to recognize actual cues of sexual interest correctly. Based on a literature review, in initial development stages, students would feed the CogBot data from peer-reviewed articles on sexual interest judgements so that she may become familiarized with best practices in "correct" sexual interest judgements. Then, Katherine will be graded on how well she is able to give good feedback on novel sexual interest judgement scenarios that she is asked to assess (and the UF student will be graded on how well they are able to improve her performance iteratively by providing feedback). Katherine is used in this way in HHP's APK5702, APK3400, SPM104, and SPM4724. For example, in a sports psychology course, students program Katherine to be a "digital sports psychology therapist" and in sports science, students teach Katherine to predict pitching speed in a baseball tryout.

UF supports an AI version of the University Scholars Program. My honors thesis student has been accepted to this program and will work alongside me as we develop these tools for the course.

Sustainability:

If the project requires recurring resources, how will these be acquired? Who will be responsible and is committed to providing these resources. There is an approximately $2,500 upfront cost to work with CogAbility to develop these tools. There is a recurring fee of ~$50 per student for use of these services each semester. Depending on the typical enrollment, the per student cost could be difficult to cover in the first few semesters of implementation, however, eventually, the goal is for the department to have a Materials Fee added to the course (with hopes to cover this with internal/external funding). The earliest a Materials Fee could be added is Spring 2025. My aim is to develop these AI tools over the Summer of 2024 and offer them in Fall of 2024, and my goal is for this funding mechanism to cover upfront costs, and recurring student fees until a Materials Fee can be added to this course.

There are ways this investment could lower student costs (i.e., Materials Fee) in the long term. By covering the recurring fee of ~$50 per student for use of these services for one to two semesters, the Technology Fee Funds would enable me to secure more permanent sources of funding. First, there are one-time HHP College Funds available to support efforts to facilitate AI Across the Curriculum. Use of Technology Fee funds would give me time to apply for these funds which could help cover Materials Fees during the pilot semesters of integration of these AI tools in the course. Second, there is funding available for instructors in any department or college seeking to add AI content to undergraduate curricula through course development awards of up to $6,000 (and HiPerGator support) through an NSF-funded project. "The aim of these awards is to provide resources, flexibility, and funds to enhance and expand the Undergraduate Artificial Intelligence Curriculum." I will apply for one of these awards, which would cover the cost of Materials Fees for several semesters while a more permanent line of funding is sought. In essence, the Technology Fee Fund would bridge the gap in funding between implementation through pilot semesters until Materials Fees can be instated. Use of the Technology Fee would also allow me ample time to find other sources of funds to cover these Materials Fees once in place.

Timeline:

What specific activities are to be carried out, and when is each objective/benchmark achieved?
Spring 2024: Initial meetings with CogAbility, project feasibility established, CogAbility timeline set (04/24 - 09/24).
Summer 2024: Complete objectives: (1) Integrate Katherine as a virtual TA. (2) Create CogBot final project.
Fall 2024: Inaugural semester, work alongside CogAbility to pilot AI integration in course, collect student evals.
Spring 2025: Materials Fee added to the course for sustainability and HHP, UF, NSF fund applications submitted.

Budget:

This is a 1-year project budget. In the summer of 2024, $2,500 is requested as startup costs to develop the expected outcomes (i.e., a functional, virtual, AI-run TA for the course and an operational final project centered on students' use of AI that can be used every semester). In fall of 2024, $3,750 in student fees is requested (75 students x $50). In spring of 2025, an additional $3,750 is requested to cover student fees if a Materials Fee for the course has not yet been approved (and/or to cover the Materials Fee until alternative HHP/UF/NSF funding is secure). The total request is $10,000 from summer 2024 to spring 2025 and thus **the proposal is technically feasible**, **and the first approximation of funds required for success is relatively low given the innovative, yet feasible use of technology**. **Recurring resources will be secured** via Materials Fees, with plans to cover these via HHP, UF, and NSF funding, and these applications will be submitted during the course of **the 1-year project, which includes only technology items** (i.e., development of CogBot and TA; student fees).

Cost	Summer 2024	Fall 2024	Spring 2025	Total
Start-Up	2,500	0	0	2,500
Student/Materials Fees	0	3,750	3,750	7,500
Total				**10,000**