

## **INTERDISCIPLINARY INITIATIVE GRANT APPLICATION**

*Bringing together faculty members to enhance teaching and learning*

### **Name, Department, and College of each faculty participant**

Jennifer Lovelace, Department of Teaching, Leadership, and Counseling, College of Education and Health Professions

Rania Hodhod, TSYS School of Computer Science, Turner College of Business

### **Proposed Project Title**

Designing and Developing a Collaborative Research Platform for Faculty and Students

### **Project Description**

Interdisciplinary research projects are increasingly common in higher education. The benefits of combining two or more academic disciplines are far reaching. Pirrie, Hamilton & Wilson (1999) found that an interdisciplinary approach integrates multiple perspectives. Both faculty and students benefit from interdisciplinary collaboration. Faculty from each field of study bring a level of expertise unique to that field but one that can enhance the research and teaching of other fields as well. Additionally, as employers are increasingly looking for individuals with experience working on teams and in collaborative projects, it is important for universities to provide these opportunities for students to learn and grow (Stewart, Wall & Marciniac 2016). This project requires the expertise of both faculty and students from two disciplines: Education and Computer Science.

Both faculty and students within the College of Education need opportunities to work with one another prior to entering the dissertation phase of the EdD program. Oftentimes, students will seek a dissertation chair during the semester immediately prior to their dissertation research phase. Doing so does not allow students to work with their chair throughout the program learning the dissertation process, learning how to research and write academically, or learning how to prepare research for conference presentations or publications. This timeline also does not allow faculty to get to know students beyond the classroom.

This project seeks to provide opportunities for students to seek out faculty research projects throughout their program rather than waiting until the end of their program. As a byproduct of that collaboration, faculty will be able to collaborate with other faculty more easily as well. The creation of this platform is vitally important to the academic and professional success of the College of Education students and faculty yet its creation falls outside of the expertise of the discipline.

For this reason, we sought the expertise of faculty from the field of Computer Science. This type of project is a prime example of the appropriateness and benefit of interdisciplinary research and collaboration. Both students and faculty from both Computer Science and Teaching, Leadership, and Counseling will be able to use their unique experiences and expertise to design and develop the desired platform.

Together, we plan to create a digital platform that allows for collaboration between students and faculty from multiple academic disciplines. This project will create opportunities for individuals to seek collaborators and opportunities to collaborate on interdisciplinary research with each other. Faculty and

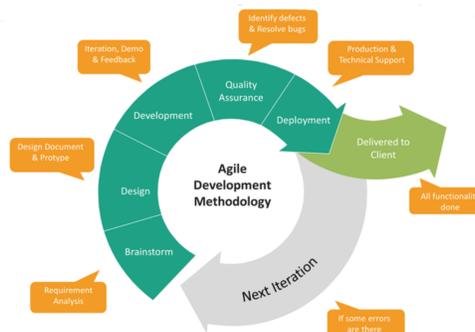
students will be invited to create a profile that outlines their current research interests, their strengths, any ongoing research projects, or upcoming research needs. When entering the project into the platform, researchers will be able to enter details for the types of collaborators they need (i.e., 2 undergraduate students or 4 graduate students in the School Counseling master’s program). They will also be able to indicate any compensation available, a time frame for participation, any planned conference presentations or publications anticipated from the project, ...etc. At the same time, researchers can browse projects listed by other faculty/students and receive more information about those projects. As listed needs are filled, the platform should adjust the research needs as listed by the original researcher. For faculty or students not currently working on research projects or those looking to get involved in additional research projects, the platform will allow those individuals to list their areas of interest, research specialities, ...etc. In addition to searching the existing research and opportunities. When a research project is posted that matches those criteria, the platform will notify the individual that a possible research project is available by adding a link to that project to the student’s portfolio.

Design and development are two essential phases in any software development life cycle (Ruparelia 2010). Students from both departments will be involved in the software development life cycle shown in the figure below imitating a software development business. Moreover, students from the Teaching, Leadership, and Counseling department will be leading the design of the platform, whereas students from the School of Computer Science will be leading the development and deployment of the platform.



Fig. Agile Model

The students will be using the Agile process (Cohen, Lindvall & Costa 2004), shown in the figure below, in the creation of this platform which allows for continuous feedback and system/platform modifications over several iterations before the system deployment.



## References

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- Cohen, D., Lindvall, M., & Costa, P. (2004). An introduction to agile methods. *Adv. Comput.*, 62(03), 1-66.
- Ruparelia, N. B. (2010). Software development lifecycle models. *ACM SIGSOFT Software Engineering Notes*, 35(3), 8-13.
- Pirrie, A., Hamilton, S., & Wilson, V. (1999). Multidisciplinary education: some issues and concerns. *Educational Research*, 41(3), 301-314.
- Ruparelia, N. B. (2010). Software development lifecycle models. *ACM SIGSOFT Software Engineering Notes*, 35(3), 8-13.
- Stewart, C., Wall, A., & Marciniak, S. (2016, July). Mixed signals: Do college graduates have the soft skills that employers want?. In *Competition Forum* (Vol. 14, No. 2, p. 276). American Society for Competitiveness.

### **Creativity and Innovation of the Project**

This project is novel to CSU and will serve the faculty and students, with our students being digital, it is important to reach out to them through the same technology they are using on a daily basis. The project will promote all types of research collaborations between faculty and students as well as faculty and each other.

### **Evaluative Plan of Effects on Faculty and Students**

After the development of a prototype for the digital platform, a group of faculty and students will be invited to use the platform. A questionnaire will be designed for feedback on the design of the platform and its usability. An IRB will be submitted for the purpose of this case study. It is worth noting that the platform will not ask for any personal information from the participants.

The feedback from the participants will be used to refine the platform and its functionalities. The platform will be then deployed on the CSU portal or as a mobile application.

### **Project Objectives**

(Goals for collaboration, including expected outcomes for faculty and student participants)

This project provides a platform for collaboration between faculty of Computer Science and the Teaching, Leadership, and Counseling department, the two departments that, based on our personal experience and reflections, rarely intersect in expertise and/or professional interests. This project would create an opportunity to highlight the strengths of the two very distinct fields of study through their unique symbiotic contributions. This project is expected to provide a great learning opportunity for students to be involved in a real-world project that follows business like design and development processes. Students will be able to develop and refine their team work skills. Faculty will learn about each others' disciplines and areas of expertise. CSU faculty and students will benefit from having a digital collaborative platform that can foster various levels of research collaborations.

**Project Timeline** (Target dates for planning, project activities, and project evaluation)

Dates	Meeting/Session Goals	Related Assignments
September 2021	<ul style="list-style-type: none"> <li>- Kickoff meeting</li> </ul>	<ul style="list-style-type: none"> <li>- Organize meeting times and decide on the milestones in the project.</li> <li>- Assign tasks</li> <li>- Research design</li> <li>- Explore programming environment options</li> </ul>
	<ul style="list-style-type: none"> <li>- Brainstorm and discussion on the main topics related to this project, such as software development cycle and various development platforms</li> </ul>	<ul style="list-style-type: none"> <li>- Work on a design for the platform (wire frame)</li> </ul>
October 2021	<ul style="list-style-type: none"> <li>- Students present their findings and share a preliminary design for the platform</li> </ul>	<ul style="list-style-type: none"> <li>- Students start the development of the platform</li> <li>- Students write an abstract for a conference paper</li> </ul>
	<ul style="list-style-type: none"> <li>- Students present a prototype for the platform</li> <li>- Students register for the ACM Mid-Southeast conference</li> </ul>	<ul style="list-style-type: none"> <li>- Create pilot study plan</li> <li>- Students address comments and fix any bugs in the system</li> </ul>
November 2021	<ul style="list-style-type: none"> <li>- Pilot study</li> </ul>	<ul style="list-style-type: none"> <li>- Run the pilot study</li> <li>- Analyze the results</li> </ul>
	<ul style="list-style-type: none"> <li>- Discuss the results and modify the platform accordingly</li> </ul>	<ul style="list-style-type: none"> <li>- Run the pilot study</li> </ul>
December 2021	<ul style="list-style-type: none"> <li>- Platform deployment</li> </ul>	<ul style="list-style-type: none"> <li>- Platform deployment</li> </ul>
	<ul style="list-style-type: none"> <li>- Final Report</li> </ul>	

### **Student Responsibilities**

This project will include three-four students (total) from Computer Science and Teacher Leadership majors.

#### **Computer Science students will complete the following tasks:**

- Attend all meetings and sessions related to their part in the project.
- Follow the QEP rubric for problem-solving processes.
- Develop a digital platform for students and faculty to share their research information
- Follow the SDLC while creating the platform
- Design a case study to evaluate the platform
- Complete NIH Human Subjects in research training.
- Present at an undergraduate research conference/symposium

#### **Teaching, Leadership, and Counseling students will complete the following tasks:**

- Attend all meetings and sessions related to the project.
- Follow the QEP rubric for problem-solving processes.
- Design digital platform for students and faculty to share their research information
- Complete NIH Human Subjects in research training.
- Assist the Computer science students in analyzing the results from testing the platform
- Present at an undergraduate research conference/symposium

**Individual Faculty Contributions to Project** (Duties and responsibilities of each member, with corresponding stipend request, not to exceed \$1000 per participant)

#### ***Dr. Jennifer Lovelace***

Dr. Lovelace is an assistant professor in the Department of Teaching, Leadership, and Counseling. She is a Ph.D. in Higher Education Administration. After more than a decade working in post-secondary administration, she has transitioned to a faculty role to pursue teaching and research. Her areas of research interests are retention, advising, and mentoring. She currently directs the research of several doctoral students and coordinates both the MED in Higher Education and the EdD programs at CSU.

For this project Dr. Lovelace will complete the following tasks:

- Subject matter expert.
- Guide the design of the application.
- Submit an IRB application
- Evaluate the end product.
- Assist students with the preparation of presentation materials (posters, PowerPoint).
- Attend required meetings and sessions.

#### ***Dr. Rania Hodhod***

Dr. Hodhod is a faculty member in the TSYS School of Computer Science. She has a PhD in Computer Science and an extensive background in serious games, machine learning and intelligent systems as well as many publications in this area. In addition to teaching a course on intelligent systems for CSU, she has led several successful projects related to machine learning, expert systems, and serious games.

For this project Dr. Hodhod will complete the following tasks:

- Subject matter expert.
- Assess similar software that exists in the market
- Guide the development of the digital platform following SDLC and Agile methodologies.
- Assist students with the preparation of papers for publication and with the preparation of presentation materials (posters, PowerPoint).
- 'Room' reservations for meetings and events.
- Attend required meetings and sessions.

**Additional Requests** Itemized Budget (event spaces, materials, guest experts, not to exceed \$1000)

\$1000/faculty member.

\$300 Conference registration and travel for students who have accepted works.

**Total cost of Additional Request = \$1000**

**TOTAL COST OF PROJECT = \$2300**