

Proposal PI: ***CONFIDENTIAL***

Evaluator: KM Smith, PhD

(Note: Evaluator's name is not revealed to proposal respondents)

Criteria for Grant Selection

Score

Innovation (10 points)

5

Evaluator Comments:

Your proposal represents an innovation that is a refinement of immersive technology and 3D modeling and applies a new approach and context to that pre-existing technology. Marin, Sanchez, & Sanz (2002) investigated the feasibility of applying several distance-based classifiers to remote object recognition tasks. Sklar & Richards (2010) outlined, and highlighted implementations that employ intelligent, autonomous agents tasked as facilitating systems that take an active perspective by directly involving the human learner as a user. More recently, Kruusamäe & Pryor (2016) designed a human-centered control interface that allows the operator to modify the user perspective, command via hand gestures and natural language, and scale human input motion to any suitable range on the robot.

Your proposal stated, "Another potential innovation from this study will design different learning models and applications for embodied engagement opportunities for online and differently abled students", who are unable or unlikely to attend campus physically. Toshiyuki et al (2013) proposed a Remote Open Campus System (ROCS) to provide campus tour services by controlling a robot at a campus through the Internet. Suzuki & Fukunaga (2016) proposed a service that enables users to visit a remote place by teleoperation of a robot, while the guide assists and supports the user.

As the available research provides a multitude of proposals regarding this technology and approach, there was limited literature displaying its successful deployment and implementation.

References

- Kruusamäe, K., & Pryor, M. (2016). High-precision telerobot with human-centered variable perspective and scalable gestural interface. In *Human System Interactions (HSI), 2016 9th International Conference on* (pp. 190-196). IEEE.
- Marin, R., Sanchez, J. S., & Sanz, P. J. (2002). Object recognition and incremental learning algorithms for a Web-based telerobotic system. In *Robotics and Automation, 2002. Proceedings. ICRA'02. IEEE International Conference on* (Vol. 3, pp. 2719-2724). IEEE.
- Sklar, E., & Richards, D. (2010). Agent-based systems for human learners. *The Knowledge Engineering Review*, 25(02), 111-135.
- Suzuki, S. J., & Fukunaga, T. (2015). Development of a web-based teleoperation system of mobile robot with duplicated control interface for guided online visit service. In *2015 IEEE/SICE International Symposium on System Integration (SII)* (pp. 656-661). IEEE.
- Toshiyuki, K., Takahashi, M., Nomoto, Y., Ito, Y., Tsuchiya, Y., Narita, M., & Kato, Y. (2013). An RPG-like campus tour service using remote control robots. In *Industrial Electronics Society, IECON 2013-39th Annual Conference of the IEEE* (pp. 8259-8264). IEEE.

Enhancing learning (10 points)

10

Evaluator Comments:

Your proposal has the potential to improve teaching and learning. It could possibly influence foreign language learning and research by providing more authentic language context to foreign language learners. I also agree that this technology could reduce language learners *“anxiety of interacting with native speakers, and helping increase their participation and motivation to practice”*.

Your proposal represent an issue of interest to the field of online learning. The industry is always seeking alternatives and options for distance learners to integrate with the on-campus community.

Alignment with Themes of Personalization and Student Retention (10 points)

10

Evaluator Comments:

Your proposal addresses both themes of increasing personalization in learning and student retention. You stated that in the findings of your initial cycles the robots mobility allowed students to explore the environment actively and select topics of personal interest, which reflects personalized learning.

Regarding learner retention, your proposal stated, *“Diverse engagement opportunities are sorely needed for online students, who often experience a sense of isolation from peers and the academic process”*. There is an unlimited amount of research regarding English language learners and its influence on student retention. Your proposal represents an innovation that has the potential for long-term impact in the organization’s thematic foci.

R&D team is well prepared to execute the project (5 points)

5

Evaluator Comments:

Your proposal explains the research method. The funds you are requesting will cover performing specific activities across three sites in Penn State. You outline your plan to recruit 20 potential International students in China and 4 English Foreign Language teachers in Penn State University for the pilot study. The pilot study will be conducted to examine if the research methodology is useful and effective. Next, your team will interview all participants to obtain feedback about the system, curriculum, and the activities. Lastly, pre-test and post-test will be distributed for remote students to measure their motivation, learning gains on communication skills and cultural awareness. Grant funds will be used to design the learning modules, conduct the pilot study, purchase an improved telepresence robot, recruit participants, and disseminate the results.

Based on the provided bios, your team has the skills required to perform these activities and spans departments, units, colleges, and campuses at Penn State and other institutions to diversity individuals contributing the project.

Applicability (5 points)

5

Evaluator Comments:

Your project has the potential for a beneficial impact beyond this initial context and application outside of Penn State. In reviewing the available literature, I appraised several proposals for use of this technology and approach. On-campus International students will have the opportunity to become familiar with the campus

prior to their actual arrival. Research has shown this prepares International students for transitioning into a new culture (Ruswick, 2011, p. 24; Prasolova-Forland, Sourin & Sourina, 2005; Olefson, 2001) and possibly improving their academic performance. Online learners can also benefit from this approach by improving their sense of community and belonging.

References

Olefson, S. (2001). *U.S. Patent Application No. 09/789,577*.

Prasolova-Forland, E., Sourin, A., & Sourina, O. (2005, November). Place metaphors in educational cyberworlds: a virtual campus case study. In *2005 International Conference on Cyberworlds (CW'05)* (pp. 8-pp). IEEE.

Ruswick, J. (2011). Engaging international students before welcome week. *International Students and Academic Libraries: Initiatives for Success*, 19-46.

Cost effectiveness (7 points)

5

Evaluator Comments:

The preliminary budget appropriately details expenditures of your proposal. The budget narrative clearly and succinctly explains the purpose of the requested funds. The funds you have requested are reasonable given the potential contributions of the project. It may be helpful to provide a synopsis detailing a comparison of this proposal's salary levels, benefits, and allowances to past salary levels, industry standards, market salary's and official benchmarks. Additionally, I would recommend an abridgement of the numbers of staff, level of effort and skill levels alignment with programmatic objectives and targets to justify that the numbers are appropriate for the activities proposed.

The budget narrative explains the purpose of the requested funds. Itemized unit costs would support judicious use of funds related to the proposal outcomes. While, non-normative, an additional level of limpidity could be accomplished if you were to exhibit unit costs to make certain they are reasonable and consistent with actual costs for similar expenditure and/ or external market information. I would be interested in exploring if the proposed costs are suitably allocated to its relevant objectives. The budget you have developed calls for a little more transparency.

Feasibility (5 points)

3

Evaluator Comments:

I was unable to locate in your proposal a plan describing how the impact of the implementation of the tool will be assessed. Moreover, your proposal only allocates 1 month to recruit learners and instructors, 1 month to identify research tools and submit IRB Application, and 1 month for Manuscript development. This submitted timeline seems constricted.

Although not impossible, it would be helpful to consider research participant often join a study and drop out or neglect to follow through, researchers may experience interruption during the IRB process, and depending on your analysis and manuscript development process, 4 weeks is very optimistic.

Research/Evaluation Plan (10 points)

3

Evaluator Comments:

Your proposal includes research questions:

- (1) What are the affordances of using telepresence robots to support foreign language learning and cultural sharing in authentic conversational scenarios?
- (2) How to design better foreign language learning activities via telepresence robots based on a transferable activity structure?

It would be helpful if the research questions were more clear and measurable. For example, in research question 1, you use the term “*affordances*”. This language is subjective and has a variety of definitions depending on context and individual evaluator.

The second research question, “*How to design better....*” is unclear. Are you seeking to discover an alternative design than the one you are currently presenting? How are you pursuing a “better design”, considering the current design is not fully investigated?

I was unable to locate any reference to your proposed assessment or method of assessment regarding the effectiveness of how your project addressed its goals and objectives.

Potential to generate subsequent research and funding (5 points)

5

Evaluator Comments:

It is likely that this project will stimulate other projects of value. I agree with your statement that, “*This research can be turned into an interdisciplinary and international project - the collaboration with fields such as educational leadership, second language acquisition, and informational technology*”.

If there are follow-up projects, I believe they will be attractive to foundations and agencies that fund educational innovations and research based on the organizations you have listed as potential future funders.

Dissemination Plan (3 points)

3

Evaluator Comments:

Your proposal includes a plan for informing others about the project. You described that the application will be available to all current and potential international students of the Penn State University and World Campus, your plans to submit the findings to peer reviewed journal publications and your team presenting this research at several conferences. Your dissemination plan engages appropriate audiences.