Developing a Reliable Method to Assess the Efficacy of OER in Lifelong Learning Competencies

East Central University's (ECU) Linscheid Library in partnership with Oklahoma State University Libraries (OSU) and the Oklahoma Community of Online Learning Excellence (COLE) requests $596,427 in grant funding for a three-year project to create and disseminate a research methodology for evaluating the efficacy of Open Educational Resources (OERs) in increasing lifelong learning competencies. This exploratory, research in service to practice project would answer the following research questions:

1. Can the known confounds of OER research be addressed by using a tool that evaluates lifelong learning competencies and student and teacher differences?
2. Are OERs effective in building students' lifelong learning competencies?

The project primarily aligns with the Lifelong Learning project category and all objectives in IMLS's Strategic Plan Goal 1. Adding lifelong learning to the current COUP model[1] for evaluating OERs is an important step in promoting lifelong learning to all OER users, in and outside formal education institutions. Providing a framework for librarians to do their own research encourages collaboration with faculty to assess the impact of teaching practices on lifelong learning.

The researchers will use the partnership with COLE to recruit one or more community colleges in Oklahoma to join the study. COLE is a professional organization of the Oklahoma State Regents for Higher Education (OSRHE). The collaboration between a research university, teaching university and community college is ideal for developing a methodology that will work in diverse populations and a framework that is practical for librarians at all levels. OSU, the research university, will provide research guidance and expertise through their OER Librarian who is an Open Education Group Research Fellow, is Creative Commons certified and is a Ph.D. candidate in Educational Technology. ECU, the teaching university, will serve as the PI and lead the grant activities. The community college will assist in ensuring the research methodology is practical for community college faculty and that the research guide is practical for community college librarians. OSU and ECU will contribute graduate assistants to help with the project and all three institutions will offer diverse student populations for the research studies.

Statement of National Need: Much OER research lacks rigorous methodology[2] and no known studies evaluate the efficacy of OERs on student learning beyond final exam grades and GPA. The Open Education Group has identified confounds that often accompany OER efficacy studies and the recommended solutions for controlling the confounds are impractical for most researchers[3]. By changing the measures from GPA or final exam grades to impact on lifelong learning, OER research can become more robust by reducing confounds and measuring a deeper level of learning. Many librarians lack formal training in research methodologies[4], especially in the fields of teaching and learning, which has complex confounds[5] and privacy concerns. The proposed creation of a framework would build librarians' capacity to contribute to the research conversation about teaching and learning. IMLS has previously funded projects to increase the availability of OERs. The proposed project would

[1] Hilton, J., Wiley, D., Fischer, L. & Nyland, R. (n.d.). Guidebook to research on open educational resources adoption. [PDF file]. Retrieved from http://openedgroup.org/wp-content/uploads/2016/08/OER-Research-Guidebook.pdf

[2] Hilton, J. (2019). Open educational resources, student efficacy, and user perceptions: A synthesis of research published between 2015 and 2018. *Educational Technology Research and Development*, 1-24. https://doi.org/10.1007/s11423-019-09700-4

[3] Hilton et al., (n.d.)

[4] Kennedy, M. R. & Brancolini, K. R. (2018). Academic librarian research: An update to a survey of attitudes, involvement, and perceived capabilities. *College & Research Libraries, 79*(6), 822. https://doi.org/10.5860/crl.79.6.822

[5] Gurung, R. A. R. (2018, Nov. 14). Open educational resources: What we don't know. Retrieved from https://www.insidehighered.com/digital-learning/views/2018/11/14/what-we-dont-yet-know-about-open-educational-resources-opinion

build on those projects by promoting the creation of OERs that impact lifelong learning and providing data to help inform faculty's decisions to adopt OER.

Project Design:

The project would result in two deliverables:

1. A robust research methodology for evaluating OER's effects on lifelong learning competencies.
2. A framework librarians can use to learn appropriate research methods to study a variety of questions about teaching and learning.

The theoretical framing for the project is Carneiro's generativism, which views learning as a "constant co-creation and re-creation of knowledge" (p.18)[6].This theory views learner competencies in lifelong learning in light of the potential of OERs to create a socially constructed, shared body of knowledge.

The researchers will use a mixed-method approach to:

- Conceptualize the constructs of lifelong learning competencies (Year 1).
- Identify measures to control for student and teacher differences in conducting OER research (Year 1).
- Conduct Q-sort analysis for face and content validity of the identified constructs (Year 1).
- Compile the lifelong learning competencies constructs and control measures for student/teacher differences into a measurement scale (Year 2).
- Conduct a pilot test and exploratory factor analysis to test for convergent/discriminant validity (Year 2).
- Conduct the pilot test with the same population to measure test-retest reliability (Year 2).
- Use the validated and reliable scale to conduct a multi-institutional correlational study testing the hypothesis that OERs are more effective in building students' lifelong learning competencies than commercial textbooks (Year 3).

Throughout the project, the researchers will be building a framework by documenting their research process and creating an OER for librarians that provides an overview of research methods, research design and special considerations for research in teaching and learning. The framework resource will be distributed through OER Commons, social media, and conferences in year 3. The measurement scale will be disseminated through the Open Education Group, which is the primary hub for OER researchers. The researchers will obtain IRB approval before gathering data. It may be necessary to gather students' GPA or course grades and demographic information in order to control for student and teacher differences. Any personally identifiable information will be aggregated or removed before disseminating.

National Impact: The goal of the project is to create a methodology that can be practically implemented on a national scale to measure the effectiveness of OERs over traditional materials and the effect of one OER over another. This will empower faculty and librarians to discern which learning materials promote lifelong learning in their students. The project's second deliverable will have practical application for librarians at all levels. This will be achieved through the collaboration of librarians at a research university, teaching university and community college.

Budget Summary: The total requested amount of $596,427 includes $45,393 in salaries, $9,782 in fringe benefits, $17,160 in travel, $15,000 in supplies and equipment, $324,137 in sub-awards and $163,437 in student support. The total indirect costs are $21,518.

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[6] Carneiro, R. (2011). Discovering the treasure of learning. In J. Yang & R. Valdés-Cotera (Eds.), Conceptual evolution and policy developments in lifelong learning (pp. 3–23). Hamburg: UNESCO Institute for Lifelong Learning.