Faculty's perceptions of embedded librarians

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Abstract

The pilot study evaluates the faculty's perception of embedded librarians in an online learning environment at a Southeastern public university. The data were collected through a purposeful sample (n=27) using an electronic survey instrument. The researchers obtained an institutional review board's (IRB) approval of the methodology, analysis method, and tool to increase the integrity and validation of the data. The data were organized, administered, and processed through Google's research tools and software. The pilot study concurs with the prior literature's three primary constructs: comfort, confidence, and self-efficacy. It also contends that the embedded librarian's open-educational knowledge-building resource instruments have value. Additionally, this study recognizes the need for faculty collaboration with an embedded librarian in coursework for student success. Finally, this study acknowledges its limitations and recommendations for future research.

Keywords: embedded librarian, course-integrated instruction, online instruction open educational resources, knowledge management.

Introduction

Christensen and Eyring (2011) foreshadowed the impending need for traditional brick-and-mortar universities to be digitally innovative in its academic pedagogy. The researchers understood a need for immediacy in the higher education system models for innovative changes. Fast forward to a decade later with the unprecedented pandemic far-reaching all corners of the globe, universities sparked creative and innovative teaching pedagogy movements to engage students and create success strategies. Today, 2023, teachers are furthering innovations in pedagogy by creating partnerships in academics. Faculty are joining their motivated peers in the libraries and student success centers to form new innovative digital means to foster student engagement, services extensions, anxiety reduction, and retention.

The rise of online education is not new in 2023, but it is now ever-present and has become a measure of meeting students' demands while reducing sunk costs. This cost reduction for sustainability and viability in the marketspace reaches all areas including the treasured university library. Knowledge has been transferred and stored through multiple mechanics including tacit exchanges and protected hallowed library shelves.

Russ (2021) explores theoretically the ever-present paradigm-shifting "tsunamis" in knowledge management. The scholar trumpets a nearing future "where the pace of change in the environment will be faster than the processing speed of the human brain, while machine intelligence is turning out to be 'smarter' than human intelligence and probably not controllable" confronting a paradoxical shift in knowledge's sustainability or relevance (para. 6). Particularly, the scholar assesses an extraordinary transition approaching requiring modifications in the digital workplaces and human computer interaction, skills set, and learning opportunities to incorporate knowledge transfer, sharing and growth. With the onset of the

knowledge "tsunami" looming, innovations in library science and knowledge transferal must too be attuned to the phenomena occurrence.

Librarians' roles have longstanding been managerial in storing, organization, cataloging, managing, and disseminating knowledge or data constructs. In essence, librarians have been the keepers, caretakers, and silo breakers of explicit knowledge and its transferal mechanism to students and wanting academics. Knowledge management itself–according to Girard & Girard (2015)–should focus on the "tools, techniques, and tactics for creating and exchanging" of knowledge (p. 1). Moreover, with the changes in information systems and library science delivery–expounded because of the pandemic and a need to sustain in an ever-changing academic landscape–librarians are steadfastly becoming open-educational resource concierges and the most innovative centers on university campuses.

One innovative approach is through changes in the librarians' roles to become fluent in interactive digital media tools. In consistence with a definition by O'Dell & Grayson (1998), librarians are creating "a conscious strategy of getting the right knowledge to the right people at the right time and helping people share and put information into action" (Girard & Girard, 2015, p. 2). Today, the knowledge keepers (embedded librarians) are resurfacing as collaborators with faculty to increase and foster student success and retention in the virtual classroom, and overall knowledge exchanges.

Spangler's (2019) study examined student perception of the effectiveness of embedded librarians in hybrid and online higher education courses. The research shadowed barrier-breaking innovations (Mayadas, 1997), congruent themes of observing student success, and changes in motivation (Xiao, 2010). Spangler's et al. (2020) findings reported that embedded librarians in online courses created student self-efficacy, and academic confidence, increases comfort, reduced plagiarism, and overall student success (Edwards et al., 2010; Xiao, 2010; Horn et al., 2013; Kumar & Edwards, 2013; Maddox, et al., 2013; Blake et al., 2016; Matlin & Lantzy, 2017; Pederseon-Summey & Akers-Kane, 2017).

Although the newer research focused on student perceptions of comfortability while working with embedded librarians in the online environment, it also followed measures to understand online tutorials acceptability (Matlin & Lantzy, 2017). Here, researchers uncovered the notion students perceived the embedded librarian's programs inserting confidence in their course work, academic abilities, and interpersonal confidence (Spangler, 2019). This finding was furthered in Spangler's et al. (2020) research on graduate students' perceptions of embedded librarians and their tools. The scholars' research again portrayed confidence-building and self-efficacy regards.

Today, embedded librarians are ubiquitous in online courses, thus requiring them to become concierges of open-educational resources (OER) and open-educational assignment developers (OERAD). In both studies, the researchers questioned the value and merit of the embedded librarians' OERAD tools. Tang's (2020) research dissected the faculty-embedded librarian relationships into four new paradigms like traditional face-to-face collaboration: "(1) re-design 'one-shot' library sessions; (2) develop a flipped classroom learning experience; (3) develop a compulsory module in information literacy; and (4) form a learning community" (p. 84). However, the researcher's remarks on collaboration showed the importance stating, "The librarians develop semester-based sessions on information literacy… developing interrelated common curricula. Students in the learning community have, in this approach, gained greater academic achievement and shown higher levels of motivation" (Tang, 2020, p. 81).

McNiff's (2021) study on librarian's relationships with faculty echoed Tang's (2020) findings. The researcher noted, "with the right approach" the joined forces can observe educational course-specific "gaps" and can create omitted information solutions (p. 126). The researcher stressed bridging the information

literacy gap is a fellowship and requires adjusting faculty members' attentions towards the needs (p. 126). Hence, with this newfound paradoxical shift, this paper will seek to advance the literature's findings and confirm some of its core themes. Particularly, the paper will seek to enhance Spangler's (2019), Spangler's (2020), and Spangler's et al. (2020) observations on embedded librarian's effectiveness with distance learning students, but from the faculty's perception. And finally, the paper will seek to validate McClure's (2023) findings on students' need and overall faculty's perceptions of program satisfaction. Additionally, it will discuss the researcher's findings to concur with a greater need for academic online assistance.

Literature

Online Education

The University System of Georgia (USG) has been an innovator in online/distance education. The USG and many other institutions launched its enrollment-centered actions toward furthering online education, which was highlighted in the literature prior to the pandemic's start in early 2020 (Connolly-Brown et al., 2016; Allen & Seaman, 2017). The USG system hosts its online environment under the BrightSpace/D2L umbrella. Prior to the start of the pandemic, the USG online learning platform supported some 300,000 students (about half the population of Wyoming) and over 100,000-course shells (University System of Georgia, 2020).

Online courses have fostered the learning experience despite time and location (Mayadas, 1997). As early as 2006, the Association for College & Research Libraries noted the need for online interaction with students and changes in knowledge transfer mechanics to include technology. Noting this change, the literature supported the need for libraries and librarians to seek new methods of teaching information literacy instruction (Edwards et al., 2010; Horn et al., 2013; Abrizah et al., 2016; Olesova & Melville, 2017; Pospelova et al. 2018; Alverson et al., 2019). Spangler et. al (2020) noted the online environment support was originally following the 2008 Association for College & Research Libraries Standards for Distance Library Services.

With the onset of the global pandemic, many students at all levels found themselves forced into online learning environments. Mishra (2020) suggested some 264 million students were not in school and some 195 million jobs were lost by May 2020. As K-12 institutions, colleges, and universities started shuttering, the COVID-19 pandemic forced educators and administrators to "gravely rethink, revamp and redesign our education system in much demanding need of unprecedented current situations…" (Mishra, 2020, para. 2). The changes fostered collaborative adventures with faculty and the opportunity for librarians to create online guides, directed video tutorials, and enhanced digital assets for student research goals (Tumbleson, 2016). The collaborative adventures with embedded librarians' tutorials fostered students' self-efficacy, confidence, and motivation to stay in courses (Spangler, et al. 2020).

Open educational resources and libraries

The literature described open educational resources (OER) and publishing best through the William and Flora Hewlett Foundation's description. The foundation notes that OERs goal is to "encompass the myriad of learning resources, teaching practices, and education policies… to provide learners with high-quality educational experiences…, [and open] teaching, learning, and research materials" (para. 4). The goal of utilizing OERs were more than equitable access. Its allowances were accommodations to give "faculty more freedom to customize their instructional material" (Crozier, 2018a) and librarians the impetus to integrate and collaborate with faculty. The Association of Colleges and Research Libraries (2019) touted an ever-

extended tuition line, and the creeping costs of textbooks was a call to aid students. The ACRL's tool kit for OERs expanded knowledge by shadowing the 2018 State Educational Technology Directors Association (SETDA) goals of digitally collaborating to circumnavigate historical rural, urban, and socio-economical barriers through dynamic information and knowledge engagement opportunities (p. 3).

Library's role in OER development

The feasibility to create fully open-educational resource textbooks was discriminately outside of the time management favor of faculty members. To generate socioeconomically feasible and course-direct responsible information, faculty members were collaborating with librarians to incorporate and directly establish course-specific needs from OERs into the curriculum. Fazzino & Turley (2019) called the OER regenerations "re-mixes" of established open-source material to curriculum-specific necessities.

Librarians seeking OER resources at SUNY (State University of New York) colleges fostered the new concept of collaborative remixes because of a lack of resources and feasibility issues with time considerations. The feasibility of the librarians to recreate an entire new textbook was unconventional and unnecessary. The researchers explained the librarians' motivations for collaboration were for "cost savings and first-day access, freeing students from financial burdens, particularly acute for urban-based learners" (p. 2).

Wiley, D. (n.d.) expressed that the central driving nature and meaning of OERs were to have other authors or faculty members engage, adapt, and freely reconstruct the resources for common use and distribution. Open-educational resources licensing directly allows for accredited remixing of material and the right and the ability to combine and revise content or mash together information into new knowledge. Much of the recent literature on OERs found the collaborative remixes or tailoring of OER knowledge was essential to learning and creating contextually localized material (Ross, 2015; Krelja, 2016; and Mishra, 2017).

Krelja's (2016) research foreshadowed the importance and ability of creative reconstruction of material and its population (nearly 80%) agreed with the importance of faculty or knowledge transmitters being able to freely localize and regenerate material to course-specific needs (p. 139). The repurposing of OER material and adoption of "generic or decontextualized information" created a medium for collaborators to fashion information [often called at MGA LibWizards or CamGuides at Cambridge] into explicit guides and instruments for "skills" that "students should adopt or should aim to master" (Murphy & Tilley, 2019, para. 10).

Library support for distance education

The literature was teeming with articles that expressed the importance of libraries providing equitable services to their distance education population (Tipton, 2001; Clark & Chinburg, 2010; Edwards et al., 2010; Olesova & Melville, 2017; Lysiak et al., 2018; Pospelova et al., 2018; Alverson et al., 2019; Ciccone & Hounslow, 2019). While the population of students educated online continues to explode, academic librarians have risen to the challenge and are now providing information literacy instruction at their students' point-of-need, the learning management system (Olesova & Melville, 2017; Paganelli & Paganelli, 2017; Pospelova et al., 2018; Alverson et al. 2019; Ciccone & Hounslow, 2019).

The Southern Association of Colleges and Schools (SACS), the regional accrediting body, also recognized the importance of library support requiring that institutions provide "(a) student and faculty access and user privileges to its library services and (b) access to regular and timely instruction in the use of the library and other learning/information resources" (Southern Association of Colleges and Schools [SACS] Commission on Colleges, 2018, p. 26). This support was especially crucial for distance students (Weber et al., 2018;

Weber et al., 2019). With a direct correlation between engagement in information literacy instruction and learning gains at the postsecondary level (Fosnacht, 2020), it was extremely important that academic librarians reached their distance education students.

Embedded librarians

Reference and instruction librarians may be called "consultants," liaisons," or "embedded librarians" but their essential goal has been helping patrons find and use information (Zanin-Yost, 2018; and Spangler et al. 2020). The "embedded librarian" as coined by Dewey in her seminal article (Dewey, 2004). The term itself was adapted from the journalistic practice of embedding oneself into the daily activities of a specific group to learn as much as possible about its members, and by doing so, offer better service and support (Dewey, 2004). The literature presents, the term "embedded librarian" being focused on understanding how targeted assistance aids student success (Sun et al., 2019; Wei & Peng, 2016; York & Vance, 2009).

Support provided by embedded librarians

Multiple studies have demonstrated that students who have access to a course designated, embedded librarian were more confident and successful in their academic endeavors (Kumar & Edwards, 2013; Heathcock, 2015; Blake et al., 2016; Gorman & Staley, 2018; Pospelova et al., 2018; Alverson et al., 2019; Spangler, 2019; Spangler et al., 2020). The studies have also reported that many students even preferred to receive their library instruction in the online format and online information literacy instruction has been proven to be as effective or more effective than its in-person counterpart (Silk et al., 2015; Matlin & Lantzy, 2017; Gorman & Staley, 2018).

Embedded librarians often participated in discussion boards, conducted asynchronous and synchronous instructional sessions, provided individual research appointments, designed library resource guides and tutorials, and communicated with students via class email (Tumbleson, 2016; Allen & Seaman, 2017; Matlin & Lantzy, 2017; Olesova & Melville, 2017; Alverson et al., 2019; Pati & Majhi, 2019; Spangler et al., 2020).

Collaborative relationship with faculty

For an embedded librarian to be present and effective within online courses, faculty members must be engaged with the embedded librarian to create effective learning environments (Xiao, 2010; Horn et al., 2013; Allen & Seaman, 2017; Olesova & Melville, 2017). Long-term benefits have resulted from the working relationships fostered with faculty members (Paganelli & Paganelli, 2017). Edwards et al. (2010) reasoned, "Collaboration" with faculty is essential for a successful experience (p. 279). Charles and DeFabiis (2021) examined the efficacy of working with an embedded librarian in a Teaching Assistant role within the LMS (Learning Management System) as a way to close the transactional distance within an online course. The coordinated instructor-librarian communication was crucial to student success and achieving the stated course goals.

This sentiment has been echoed throughout the professional literature as others have reported that the quality of student learning can be enhanced when faculty members collaborate (Horn et al., 2013; Silk et al., 2015; Abrizah et al., 2016; Lysiak et al., 2018; Pati & Majhi, 2019). Meaningful collaboration benefited students by allowing librarians to "easily connect to online students and establish truly effective learning interactions with them" (Olesova & Melville, 2017, p. 287). Instructional design changes and supplementary library resources the embedded in the classrooms enhance the learning outcomes (Paganelli & Paganelli, 2017). Collaborative efforts allowed embedded librarians to forge new roles for themselves

as co-instructors, research consultants, and part of the classroom community (Abrizah et al., 2016, Olesova & Melville; 2017; Pospelova et al., 2018; Zanin-Yost, 2018).

Faculty perceptions

The literature was limited on how faculty members perceived the benefits of using an embedded librarian. However, the literature notes faculty members recognized an improvement in their students' information literacy skills after they had access to an embedded librarian. Improvements were noted in the following areas: online research, incorporating scholarly sources, research abilities, research papers, source selection and citation, and group work (Tumbleson, 2016; Lysiak, 2018). A study at Emporia State University discovered faculty perceived student learning effectiveness of "50% 'very effective' and 0% ratings of 'not effective,' 'somewhat effective,' or 'neutral' for the question of 'How would you rate the effectiveness of the student learning experience with the librarian.'"

The study noted 70% of the faculty respondents rated the quality of collaboration between themselves and the librarian as excellent (Summey & Kane, 2016, p. 167). A web-based survey performed at Augusta University reported "The majority of faculty agreed or strongly agreed (97.6%) that embedded librarians saved them time and were an integral part of their groups (95.3%)" (p. 228). (Blake et al. 2016). After implementing a pilot, embedded librarian program, Lysiak (2018) and (Blake et al. (2016) received similar feedback.

McClure's (2023) research discovered that many faculty and students don't know about the liaison programs. The researchers questioned the need for a marketing program. Additionally, the researchers noted a need to support programs through the teaching and learning centers. Interestingly noted, online faculty their usage of embedded programs and instruments hadn't changed pre or post-pandemic. Only 31 of the 56-population indicated they were familiar with the university services.

Most importantly, the researcher notes faculty found the greatest need for online academic writing (n=38) and (n=31) in graduate-level writing. Overall, the faculty (n=35) agreed there is a need for embedded online support for citation assistance for students. The embedded librarians' assistance includes creating permanent links in assignments toward online articles, e-books, and other devices.

Methodology

The Middle Georgia State University Institutional Review Board (IRB) approved a pilot study on faculty' perceptions of the embedded librarian program. The methodology was adapted with permission from two sets of scholar's literature publications. Edwards' et al. (2010) survey model aided the researchers in constructing the literature and method. Spangler's (2019) study crafted the survey tool utilizing Edwards' et al. (2010) approach to questioning participants through anonymous responses for clarity and validity.

This study sought to understand the perceptions of faculty about the new embedded librarians' program. Similarly, to Spangler's (2019) study, the researchers' pilot study sought to understand if the literature's constructs: perception of comfort in experience, the perception of confidence, and enhanced perception in research abilities were present in the utilization of the embedded librarian pilot program. Additionally, it sought to understand the importance of the embedded librarians' open-educational developed assignment tools that work to decrease the knowledge gap in rural education areas of Georgia.

Procedure and research design

The researchers utilized a post-course electronic survey of volunteer participants (n=27) upon an Institutional Review board's approval. The participants were selected based on their history of having an embedded librarian in one or more of their online or face-to-face asynchronized BrightSpace (D2L) learning support course shells. The emailed anonymous survey link method offered greater validity in returns. Additionally, the method eliminated the likelihood of researchers' biases in gathering a participant population. The researchers adopted Spangler's (2019) tool to question participants. Google's electronic survey tool was utilized to administrate the instrument and the questionnaire forced participants to acknowledge and accepted electronic consent and confidentiality statement. Additionally, participants were offered the ability to stop at any point, noted there is no risk in participating and able to stop at any time voluntary prior to clicking "Next" to accept approved consent before starting.

Sample, reliability, and validity

The volunteer participants all gave 100% permission and satisfied the IRB's awareness conditions for protection. The volunteer population consisted of (52%) female and (48%), male, which were recruited through Edwards' et al. (2010) purposeful sampling methodology. Lingelbach's (2018) purposeful sampling method helped the researchers understand how to find and seek a population-based on sampling ease and met the study's criteria. All participants that received the survey tool were selected based on the criteria of having taught a concluded course that once offered an embedded librarian. A large majority of the population that were sent the survey (n=208) failed to respond.

The researchers created three separate attempts to reach the volunteer participants. All faculty participants (n=27) remaining had full access to embedded librarians and access to their specialized tools. Seventy-four percent of the faculty only taught undergraduate courses, and (26%) stated they taught both undergraduate and graduate courses that utilized the embedded librarian program. The highest number of participants came from the School of Arts and Letters (52%); School of Computing (22%); School of Education and Behavioral Sciences (18%); and the School of Business and the School of Health and Natural Sciences concluded with (4%) each. The researchers validated the data's credibility, authenticity, and accuracy of the findings following Edwards' et al. (2010) methods and by having an outside scholar examine the construct for authenticity in reporting. The researchers formulated and adopted the research question:

RQ1: *Do faculty members perceive embedded librarians' knowledge creating tools as having a positive effect on students' academic success?*

Results

The pilot study's data constructed (n=27) completed voluntary participant survey results. Faculty responders acknowledged a greater portion of their students (40%) were likely to utilize the library and a face-to-face librarian to help them study (30% neutral, 30% unlikely). But unfortunately, 58% of the responders considered their students lacking in library science knowledge (30% neutral and 11% likely to have some knowledge).

More interestingly noted, 22% of the participants believed their students were likely to ask a librarian for assistance (37% neutral, and 41% unlikely). Faculty members (55%) considered their students apt to use an embedded online librarian (26% neutral and 19% unlikely). These contrast the findings of McClure (2023) that considered the greatest need with services for citation help on assignments. Similarly, participants regarded students (55%) likely to use an embedded librarian's help directly for assignment knowledge (26%

neutral and 19% unlikely), but less likely to use their aid for research (48% likely and 30% neutral, and 22% unlikely). Faculty considered (48%) likely to use the LibWizards and (15%) not likely to utilize library research tools.

Participants considered (48%) of the students likely to utilize an embedded librarian's tool (Libwizard) as an aid in preventing plagiarism (30% neutral and 22% unlikely to use the OER tool). Interestingly noted, faculty considered that students would prefer working with the online embedded librarian (80%) and feel more comfortable and likely to use an embedded librarian for assignment knowledge assistance (78%) and research knowledge assistance (81%). The participants considered students having less value for using a face-to-face librarians' services (59%) especially for research knowledge assistance.

Faculty perceived students having a greater interest for embedded librarians' tutorials and videos embedded into assignments, especially if it helped reduce plagiarism (53% likely to utilize, 18% neutral, and 33% unlikely to use the OER tools). The faculty noted a likelihood for students to utilize OER research specific tools (41% likely to use, 22 neutral, and 37% slightly four percent different, less likely to use). Additionally, faculty suggested students are willing to utilize a tool designed to help understand APA Style constructions (45% likely to use, 26% neutral, and 33% unlikely to use the OER tools).

Faculty's views of student self-efficacy and retention regards

Faculty portrayed positive likeliness (55% likely, 15% neutral, and 30% unlikely) towards students gaining motivation from having an embedded librarian in their online course shells. Although, faculty considered their presence and OERAD knowledge building tools less likely to keep them from withdrawing from the course (22% likely, 18% neutral, and 60% unlikely). Interestingly noted, faculty forecasted greater strengths in students' abilities to research from the open-educational tools developed for the courses (78% likely, 4% neutral, and 18% unlikely). Faculty considered students having considerably higher levels of course success from the LibWizard embedded librarian OERAD tools in assignments (53% likely, 22% neutral, and 25% unlikely) and confidence for source citing abilities (55% likely, 22% neutral, and 23% unlikely).
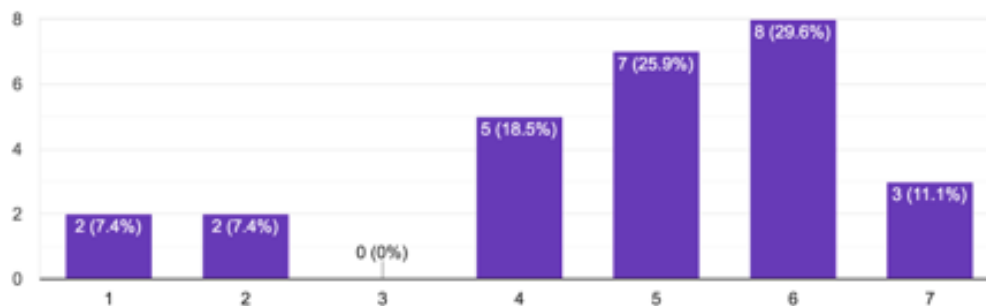

Figure 1: Embedded Librarians Student Confidence

Overall, the faculty demonstrated a constant level of appreciation for the embedded librarians. The participants portrayed an overall likeliness for student confidence approval (66%) overall likeliness (11.1% extremely likely, 29.6% moderately 25.9% likely, 18.5% neutral, 7.4% moderately unlikely, and 7.4% extremely unlikely) towards their assistance (*figure 1*). Faculty responses shadowed considerations that

students would be less likely to withdraw from a course with the presence of an embedded librarian (47% unlikely to withdraw in the last question, against 22%).

One question suggested a visual representation (photograph) of an embedded librarian in an online course shell would increase course success. The participants' perceptions noted some (59%) in agreement, (11%) disagreement, and (30%) neutral. Participants perceived embedded librarians do have a positive effect on students' motivation (55%). Although, the participants perceived embedded librarians don't keep students from withdrawing (47% likely to help), (21%) some likely impact, and (18%) neutral. Nevertheless, participants note embedded librarians build confidence (76%, likely to build confidence,) 20% neutral, 4% disagreeing.

Discussion

The pilot study agreed with the literature, pointedly towards Summey & Kane's (2016), Paganelli and Paganelli's (2017) and Lysiak's (2018) research and arousing approval of faculty's perceptions towards embedded librarian aid. This study's findings a need to grow faculty collaboration with library science professionals. Overall, the researchers can confirm RQ1. However, the researchers' prior works on students' perceptions of embedded librarians portrayed stronger sediments by students than faculty. Spangler's (2019) research, for instance, showed students perceive greater value with (80%) undergraduate approval rates. Interestingly noted, faculty weighed the collaboration similarly to Spangler et al. (2020) study's findings nearly equal (66% of faculty to student's perception 65%).

Participants stated that embedded librarians aid motivation nearly like students' perceptions (65% faculty to 65% students in 2020) and confidence building (66% faculty to students' 56%). The faculty consideration (61%) that an embedded librarian presence in a course aids retention, reduces anxiety, and their tools (LibWizards) are helpful to student success (52%), and their presence is a confidence booster (66%). This further confirms and concurs with Spangler's et al. (2020) research. Participants remarked that their students' confidence (76%) is expounded upon by the liaisons' aid in research. Consequently, the finding was similarly observed in Spangler's (2019, 2020) qualitative studies that observed students' increased abilities, course comfort, and confidence when they used embedded librarian's OER tools.

The researchers concluded that faculty members perceive students gaining a sense of self-efficacy, abilities (77%), motivation (65%), and confidence (76%), when librarians are embedded in courses. This is similar to the findings in Summey & Kane (2016) and Lysiak (2018) research contribution. In addition, the researchers shadowed the literature's findings (56% acceptance) that online students have a larger sense of confidence and desire to use an online embedded librarian over traditional face-to-face librarian (Spangler, 2019, 2020, and Spangler et al., 2020). The researchers' findings also observed faculty members value embedded librarians' open-educational assignment (specifically LibWizards 55%), were willing to ask for research assistance, assignment assistance (47% likely versus 22% unlikely to use assistance) and research assistance (48% likely versus 15% unlikely).

Furthermore, this research contrasts with Spangler, (2020) and Spangler et al. (2020) observation findings in one area that faculty consider an embedded librarian's virtual presence (photograph) in an online course unlikely to enhance comfort (59% unlikely). Students (63%) contended the visual element of an embedded librarian in a course shell made them feel more successful, confidence, and have greater motivation (Edwards et al., 2010; Xiao, 2010; Horn et al., 2013; Kumar & Edwards, 2013; Blake et al., 2016; Pederseon-Summey & Akers-Kane, 2017, Spangler 2019). Particularly, the study's findings on faculty's perceptions agree with Spangler's (2019) and Spangler et al. (2020) and McClure's (2023) research suggesting faculty perceptions are congruent with students' considerations that the virtual collaboration

creates online classroom comfort and interpersonal success. Particularly, the faculty and most recent literature (Murphy & Tilley, 2019; Spangler, 2019; and Spangler et al., 2020) construct congruent affirmations that the assignment or course-specific librarian generated OER knowledge building "remixes" create student success and regards to self-efficacy.

Conclusion

The past global pandemic has fostered new and innovative approaches to online education. In congruency of Girard and Girard's (2015) knowledge management consideration, embedded librarians have transformed into new innovators in knowledge management and transfer mechanics through the actions of "creating, using, sharing, and managing" knowledge (p. 14). The researchers' observations in this pilot study confirm the inquiry's questions, but more importantly, the study confirms faculty and students' perceptions of embedded librarians are positive. Faculty perceive students enrolled in courses with embedded librarians to exhibit slightly higher rates of comfort, motivation, confidence, and interpersonal academic success.

Nevertheless, the researchers acknowledge the pilot study's limitations in generalizing the data. This study, like Spangler's (2019, 2020) and Spangler et al. (2020), all have an extremely small population, geographic limitations, and a population more attuned to librarians' assistance. The researchers ascribe a need for a diverse population and an overall larger population to generalize anything. It also recognizes the university population is rich with graduate studies programs and innovative online teaching with strong research agendas. Also, the pilot study's findings are not generalizable to a cross-cultural population considering the instrument failed to question faculty's nationalities.

To further the study, the researchers contend a need for a larger and more diverse population. The researchers note the study's population is limited by its rural location and small populace. A larger urban study could note a significant difference in educational assistance needs. Additionally, larger population of study would further validate its findings and strengthen the considerations uncovered in the data. Furthermore, a larger study would allow for validation with its congruent themes found in past literature like online students prefer working with a virtual embedded librarian over face-to-face connections. This finding may be narrow considering access to the university campuses is limited by a critical infrastructure transportation gap. In urban areas, access to transportation is more adequate. Additionally, the researchers suggest furthering the study with a new instrument that incorporates McClure's (2023) qualitative questions about what universities can do to enhance and promote library services for writing and research assistance, permanent links to online articles, and the effectiveness of online librarian chats.

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