ONLINE STUDENTS' PERCEPTIONS OF EMBEDDED LIBRARIANS: A PILOT STUDY

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ABSTRACT

The purposefulness of this pilot study is to gauge students' perceptions of embedded librarians in an online learning environment. The data were collected through a random sample of volunteer participants (n=32) after course completion through an electronic survey tool. The study, with permission, uses key literature's methodology to analyze and validate the findings. Additionally, the researchers utilized the institutional research administrator to oversee the survey (post-courses) to further validate data, maintain integrity, and eliminate researcher biases. To form the research questions and survey tool, the past literature's models were paralleled with scholars' permissions. The data were organized and processed through Google's software. The pilot study concurs with prior literature's three main constructs: comfort, confidence, and recognition. Additionally, this study recognizes the need for the visualization of embedded librarians in online coursework and students' interpersonal growth. Finally, this study acknowledges its limitations and recommendations for future research.

Keywords: Embedded librarian, course-integrated instruction, online instruction.

INTRODUCTION

Academic librarians have traditionally held the role of facilitators and gatekeepers, uniting students and faculty with the information that they are seeking. This was typically done through personal interactions and the presentation of physical items to the user. However, with the rise of technology, resulting in the era of online education, academic librarians have had to pursue new pathways for connecting with students and faculty who oftentimes never even visit the physical library. Thus, academic librarians are moving into the digital environment in different capacities.

In 2019, a pilot study questioning students' perceptions of embedded librarians' effectiveness in hybrid and online higher education classes uncovered paradigm-shifting questions. First, the new literature observed congruent merits towards past literature's themes that embedded librarians created academic confidence, increased comfort, better grades, reduced plagiarism, and most importantly academic success (Xiao, 2010; Edwards Kumar & Ochoa, 2010; Horn, Maddox, Hagel, Currie, & Owen, 2013; Kumar & Edwards, 2013; Blake, Balance, Davies, Gaines, Mears, Shipman, Brown & Burchfield 2016; Matlin & Lantzy, 2017; Pederseon-Summey & Akers-Kane, 2017). Research on embedded librarians–ones that surpass time barriers and the physical space of a brick and mortar constraints (Mayadas, 1997, p.2)–observes motivation changes in students and their success rates in courses (Xiao, 2010).

This new research was feeding from Matlin and Lantzy's (2017) observations of students perceiving to have gained overall confidence, comfort, and academic successes from embedded librarians' online tutorials. Spangler's (2019) research focuses on how students' perceptions of the library liaisons may have changed with technology's innovations being implemented in online learning environments. Spangler's (2019) research posited the notion that in online learning management systems (LMS), the presence alone of an embedded librarian can increase student confidence, motivation, self-efficacy, and decrease everyday distance learning anxieties and uncertainties. The researcher's findings observed suggest a need for further investigation and clarity to understand the full effectiveness of virtual librarians' outreach contributions to education. This paper will seek to advance the literature's findings and confirm some of its core themes. Particularly, the paper will seek to confirm Spangler's (2019) observations on embedded librarian's effectiveness with distance learning students.

<div align="center">**LITERATURE**</div>

Online Education

The 2017 Distance Education Enrollment Report numbers the students enrolled in online courses at more than six million. This number has been steadily increasing each year, and "the most recent growth rates are impressive, as they come at a time of decreasing overall enrollments" (Allen & Seaman, 2017, p. 15). Students are accessing these online courses and the accompanying learning support materials through different types of technology. It has been reported that almost all students attending post-secondary institutions have access to the most crucial technologies that enable success in academic endeavors with "near-universal access to a desktop, laptop, tablet, or smartphone" for students in the United States (Galanek, Gierdowski, & Brooks, 2018, p. 5). These technologies assist students in the online environment, providing them access to their courses through the designated learning management system (LMS).

In a response to the growth of online education and the need to provide distance students with comparable library support, librarians have moved some of their instruction online and into the learning management system (Clark & Chinburg, 2010; Abrizah, Inuwa, & Afiqah-Izzati, 2016) with positive results (Edwards, Kumar, & Ochoa, 2010; Hoffman, 2011; Horn et al.,2013; Zhang, Goodman, & Xie, 2015; Olesova & Melville, 2017; Pospelova, Tsurtsumia, & Tsibulnikova, 2018; Alverson, Schwartz, & Shultz, 2019; Ciccone & Hounslow, 2019). Library support and access to library resources are vital for any academic program. Distance learning is no exception. The regional accrediting body, the Southern Association of Colleges and Schools (SACS) requires that "the institution provides (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). During the onset of online education, Tipton (2001) emphasized that "if distance-learning programs are to be credible and successful, the distance-learning student must have the same access to library support services as the on-campus student" (pp. 394-395). Tipton conducted a graduate student survey within the Texas A & M University System; this survey assessed the library support services for distance learning. Tipton's study noted that many of their respondents reported needing library support. In the years that followed, others have also confirmed the need for the library to provide specialized support to their ever-growing online student populations (Matthew & Schroeder, 2006; Clark & Chingburg, 2010; Edwards et al., 2010; Kumar & Edwards, 2013; Abrizah et al., 2016; Allen, 2017; Olesova & Melville, 2017; Lysiak, Mross, & Raish, 2018; Alverson et al., 2019; Ciccone & Hounslow, 2019). An increase in online enrollment combined with the SACS requirement to provide equitable service across the student base has made it increasingly important that the librarian role evolves to meet this need. One avenue for providing equitable library services for Middle Georgia State University's online students has been through embedding librarians into online and hybrid courses through the learning management system.

Embedded Librarians

In 2004 through her seminal article "The Embedded Librarian: Strategic Campus Collaboration," Barbara Dewey issued a clear charge to academic librarians. Dewey (2004) asserted that seeking opportunities to collaborate intensely with other campus departments is imperative as academic librarians have much to offer the campus community by providing "quality and depth to the total campus experience" and informing and improving "the mission of the university for excellence in teaching and research" (p. 16). Other professionals concurred with Dewey adding that with new technological capabilities and digital information resources that embedded librarianship is a major focus and critically important for the future of academic librarianship (Kesselman & Watstein, 2009; Edwards et al., 2010; Abrizah et al., 2016; Paganelli & Paganelli, 2017). These prophetic calls to action along with the advancements of technology and the continued growth of online course delivery have increased emerging embedded librarianship offerings; this is evidenced by the topic being reported with increasing frequency within the professional literature. (Abrizah et al., 2016; Allen, 2017; Pati & Majhi, 2019).

"Embedded librarianship" denotes direct participation of librarians in either the classroom or the learning management system and is a term that was coined based on the practice employed by journalists of embedding oneself into a specific group such as a military unit to build relationships and to learn more about the group through immersion (Dewey, 2004; Kesselman & Watstein, 2009; Olesova & Melville, 2017; Summey & Kane, 2017; Zanin-Yost, 2018). It is a proactive service model that places the librarian where the patrons are, whether that be in the face-to-face classroom, online in a learning management system or a hospital setting working with first-year residents and researchers, and it positions the librarian in an "expert information provider" or consultant role (Blake et al., 2016; Olesova & Melville,

2017; Pati & Majhi, 2019). Dewey (2004) envisioned the "embedded librarian" as one who engaged in direct and purposeful interaction with those whom they served. This idea of "direct interaction" is the signal in a shift like librarianship as a field and denotes a transition from the idea of library service as a transactional exchange to a model that is collaborative and built on shared responsibility and outcomes which leads to stronger connections and deeper relationships with those that they serve (Abrizah et al., 2016; Zanin-Yost, 2018).

Embedding can take many forms. Allen (2017) has proposed a three-tiered concept of "embeddedness" with varying levels of engagement that range from the minimum, such as requesting that a contact link for the library or librarian be added to the learning management system, to the more active level such as creating specific course-related learning objects, to the highest level of engagement and collaboration such as working with faculty to design courses or degree programs. Data has indicated that the presence of an embedded librarian in the LMS increases student awareness of and use of library resources, including the services of the librarian, and inspired an increase in their level of confidence (Heathcock, 2015). Interestingly, this positive reaction was observed even among students who did not use the services of the embedded librarian themselves (Hoffman, 2011; Heathcock, 2015). Perhaps this phenomenon could be due to the students' knowledge that someone is available to answer any questions that they might have. As one student stated, "Just knowing she is there and I now [sic] have her as a resource, is very, very helpful and motivating" (Spangler, 2019).

In the literature review conducted by Abrizah et al. (2016), four themes associated with embedded librarian roles were recurrent. These included "providing support and support materials in online learning, teaching information literacy, managing and providing access to information resources in the classrooms, assisting in research and other scholarly communication activities" (p. 640). Embedded librarians accomplish these tasks by promoting different activities in the learning management system. These can include monitoring discussion boards, conducting synchronous online workshops, engaging students through emails, giving individual research consultations, providing copyright assistance, designing library resource guides, and creating tutorials for use in the online learning environment (Allen, 2017; Olesova & Melville, 2017; Alverson et al., 2019).

Tutorials made for the Online Learning Environment
When developing and creating learning objects for the online classroom, "librarians must find a way to translate their important work, which is recognizable in face-to-face classes, to the online environment" (Alverson et al., 2019, p. 32). Information literacy is an important work that must be emphasized to distance education students. An effective way for embedded librarians to provide information literacy instruction to online students is through the creation of tutorials. Online information literacy instruction has been proven to be just as effective as its traditional counterpart, and even preferred by the students at some institutions (Clark & Chinburg, 2010; Silk, Perrault, Ladenson, & Nazione, 2015; Matlin & Lantzy, 2017). Online tutorials have the advantage of not only meeting students within the learning management system and at their point of need, but they are also self-paced and can be revisited multiple times if necessary. The literature demonstrates that students appreciate these advantages and often prefer this type of online instruction to the traditional face-to-face method (Johnston, 2010; Silk et al., 2015; Zhang et al., 2015). In a comparison of in-person versus online information literacy instruction, Gorman and Staley (2018) discovered that students favored the online instruction. The students who received online information literacy instruction employed a greater variation of databases during their research. "This result could indicate that the online library instruction made students more aware of all the databases available, or perhaps increased their confidence in using unfamiliar databases to a greater extent than the in-person students" (Gorman & Staley, 2018, p. 226).

Student Perception and Anxiety Reduction
Oftentimes research causes anxiety and stress in college students. This anxiety can be due to the students' inexperience with research in high school, which translates into an inability to use library resources and a lack of familiarity with the different types of formatting required for academic writing (Zanin-Yost, 2018). Mellon (1986) identified a grounded theory of library anxiety based in part on previous studies of math anxiety. The sense of "library anxiety" was characterized by four main factors: (1) fear of the size of the library; (2) lack of knowledge of where things were located; (3) uncertainty about where to begin their research and, (4) a lack of knowledge of what to do. Further examination of the data led to the finding that students felt a lack of competence and fear that asking questions would lead others to doubt their intelligence (Mellon, 1986). Although for online students "fear of size" of the library may seem outdated, this fear may even be more pronounced with the quantity of information that students must

encounter while undertaking online research (Pospelova et al., 2018). Instead of being overwhelmed by the card catalog, they are now faced with a computer screen filled with millions of articles, databases, and websites that they may have no idea how to determine either the usefulness or the veracity of. Studies have reported that both graduate and undergraduate students had reduced levels of library anxiety after working with embedded librarians (Kumar & Edwards, 2013; Paganelli & Paganelli, 2017; Spangler, 2019) This tracks with Mellon's original findings that library anxiety was considerably reduced by interaction with a librarian (Mellon, 1986).

Confidence
The research has reported that both undergraduate and graduate students who had exposure to an embedded librarian had a boost in their confidence as it related to their ability to find and use research (Heathcock, 2015 Kumar & Edwards, 2013; Blake et al., 2016; Burchfield, 2016; Matlin & Lantzy, 2017; Gorman & Staley, 2018; Spangler, 2019). After assessing an embedded librarian project in an online graduate educational technology course, Edwards et al. (2010) recorded a significant increase in graduate off-campus students' comfort level and confidence in using library resources. The students noted that they were more comfortable (23.9% overall increase) using library resources and specific databases (27.1% overall increase), especially those that the embedded librarians had featured in online videos and supplementary information (p. 284). These findings were echoed by Zhang et al. (2015) in their study of online library instruction for engineering students. "The majority of students reported that they gained confidence using library resources after completing the library module, with only a very small number of students indicating otherwise" (p. 944).

Higher perception of ability
Horn et al. (2013) reported that students' experiences using the library were positively impacted after exposure to an embedded librarian and that this resulted in a higher perception of ability. Two surveys were issued to students, one before the embedded librarian exposure and one after. When the survey results were compared "there were increases in the percentage of students reporting that they found using the library's online resources 'somewhat' or 'very' easy (71 to 87%)." Horn et al. (2013) also noted the increase in the percentage of students reporting that they "found what they wanted 'always' or 'most of the time' (71 to 81%)" (p. 242). After examining survey feedback from students concerning the efficacy of the embedded librarian program implemented at Royal Roads University, it was evidenced that students perceived their research abilities had improved after exposure to an embedded librarian in their online courses. Some of the areas of perceived improvement expressed included search strategies, evaluating credible sources, employing search tools, narrowing and broadening search results, and citation management (Meredith & Mussell, 2014).

Relationship building/personal attention/interpersonal connections
Through embedded librarianship, the academic librarian's role evolves from one of support to the partnership, thus promoting a strong connection and relationship with the students that they serve (Abrizah et al., 2016). No longer are academic librarians just the gatekeepers of information. Through embedded librarian programs, librarians are an integral part of the educational team. Embedded librarians can give personalized attention to the students in their courses efficiently because they are aware of the course's requirements and have access to the description of the assignments (Paganelli & Paganelli, 2017; Lysiak et al., 2018). Oftentimes, the embedded librarian for a course is the only librarian a student may interact with; this allows for personal connections to be established. In the online environment, personal connections can be difficult to make, but they are extremely important in terms of making distance students feel as if they are a part of the institution. Chesnut, Henderson, Schlipp, and Zai (2009) found that embedding librarians within the school's course management system provided students with "a library presence for distance learners otherwise disconnected from the library" (p. 11). This can be quite beneficial to the student and allow for interpersonal connections to be made between student and librarian which can result in students being comfortable enough to ask questions and seek library resources in future courses which may or may not have an embedded librarian (Hoffman, 2011; Dahlstrom, 2014; Spangler, 2019). At Augusta University, surveyed students agreed or strongly agreed that they were satisfied with the embedded librarian's services; most went on to also indicate that they would use these services again for future assignments or projects (Blake et al., 2016).

Middle Georgia State University has also experienced an upward trend in their online student enrollment. Considering all six of Middle Georgia State University's campuses, the Online Campus is now the largest and fastest-growing with over twenty-eight hundred students (Middle Georgia State University, n.d.). Middle Georgia State University is a

member of the University System of Georgia (USG). The USG designated Learning Management System (LMS) is Brightspace by D2L. This platform allows Georgia higher education institutions to support their student success and curriculum instruction by hosting "more than 100,000 courses" and supporting "more than 300,000 users" (University System of Georgia, 2019, para. 1).

For this study, embedded librarianship involves having professional librarians embedded directly into courses within the online learning management system (D2L). This is in keeping with current embedded librarianship practice as most embedded librarians today "utilize the online courses because the usage of CMSs is increasing in both distance learning and face to face (hybrid)" allowing for librarians to provide pathways that promote easier access to library resources and to professional research assistance at the students' point-of-need (Paganelli & Paganelli, 2017, p. 55).

METHODOLOGY

In 2018, the Middle Georgia State University Institutional Review Board (IRB) approved a pilot study on students' perceptions of the new embedded librarian program. The pilot study's methodology was adapted with permission from Edwards' et al. (2010) survey model to determine if students' perceptions of online embedded librarians have consistent findings with the literature. Particularly, the researchers' pilot study sought to understand if the literature's constructs: perception of comfort in experience, the perception of assignment confidence, and enhanced perception in research abilities are present in the online instructional format. To analyze the data and construct a new pilot conceptual model to study students' perceptions, Edwards' et al. (2010) survey model approach to questioning participants has once again been constructed. Google's software organized and constructed the findings.

Procedure and Research Design
The researchers fashioned a post-course survey of volunteer participants (n=32) upon an Institutional Review board's approval. The students were randomly selected through two electronic survey opportunities sent out by the Office of Institutional Research (OIR), which is the official source for information regarding Middle Georgia State University. The method offers greater validity in returns and eliminates the possibility of researchers' biasness in selecting participants. To construct the research methodology, Edwards' et al. (2010) survey model approach to questioning participants has been adopted with permission. To construct the research questions, the researchers adopted with permission Spangler's (2019) student perception questions. Additionally, the researchers allowed peer researchers to analyze the data to validate the findings.

To protect the participants' anonymity, volunteers entering the online electronic SurveyMonkey assessment tool, all read the electronic confidentiality statements and prior to entering the questionnaire must accept and acknowledge volunteer consent. Additionally, prior to participation, volunteers were instructed on their ability to stop the research at any time and leave the survey with no retribution or retaliation. Additionally, all participants must "Click Next" to accept entry into the voluntary survey–hence offering approved consent before starting. Data from the participants that failed to complete the survey were eliminated and destroyed prior to analysis.

Sample, Reliability, and Validity
The volunteer participants were (47%) female and (53%), male and recruited through Edwards' et al. (2010) purposeful sampling method to maintain consistency. The purposeful sampling method selects participants based on ease of finding participants that meet the study's criteria (Lingelbach, 2018). Similarly, to Edwards' et al. (2010), the research criteria shadowed a post-course examination to validate the instrument further and limit any participant fear of retribution from involvement. All students in the study were randomly selected to further gain validation. A large majority of the population, who were offered the ability to participate, dropped out of participation after the first question. The tool then thanked them for participation. A noted (n=72) voluntary participants dropped out after the first question recognizing they have not been engaged in a course that housed an embedded librarian online. All student participants remaining (n=32) had full access to an embedded librarian and option tools through the Brightspace Learning Management System (LMS). Forty-four percent of the participants stated they were graduate students; the remaining were various levels of undergraduate students (56%). The highest number of participants remarked they were information technology students (44%).

The researchers further validated the data's credibility, authenticity, and accuracy of the findings following Edwards' et al. (2010) methods. The researchers then utilized Google's software to collect, organize the data, and create visualization models. The analysis methodology allowed the researchers to concur with the literature visually, understand the outlier conditions, and present a follow up proposition or conclusion (Lingelbach, 2018). To validate the data analysis' themes, the researchers discussed the findings with peer researchers to ensure trustworthiness and confidence. The confidence in the data's construction provided the researchers' validity in the meanings and that the findings were transferable to other members. With this in mind and permission from the original scholars' literature, the researchers expressed the prior formulated and adopted research questions:

Research questions
RQ1: Does the presence of an online embedded librarian affect students' perceptions of course comfort?
RQ2: Does the assistance of an online embedded librarian's LibWizard tools affect students' perception of assignment confidence?
RQ3: Does the presence of an online embedded librarian create an enhanced perception of abilities from the presence of an embedded librarian?

RESULTS

The pilot study demonstrated (n=32) completed participant survey results. The majority of the original responders (57%) noted that they did not ever take a course that offered an embedded librarian or liaison instructor. Because of the low number of courses that supported an embedded librarian in the pilot university program, many participants withdrew from the survey after noting they did not have knowledge of the overall university program. However, interestingly noted in the demographical results, graduate information technology students' participation (44%) ranked interest in the program overshadowed undergraduate student participant responders and other master's degree programs on campus. Males participants (53%) led over females (47%), but equal findings suggest an overall "likeliness" to participating with an online librarian over a traditional physical library space. Additionally, both genders regard themselves as only moderately sophisticated (46%) in understanding or utilizing library research tools, and only (34%) stated they would utilize a traditional brick and mortar library or stationed librarian for assistance in research or studying.

Comparatively, only three percent of participants stated they would not use an online embedded librarian while 83% considered themselves very or extremely likely to utilize online embedded liaisons. Similar results (only three percent of the participants stated that they were not likely to utilize the embedded librarians) were shadowed in participants' willingness to engage the embedded librarians for research help. Although, fifty percent of the participants stated being extremely or very likely to utilize the librarians for assignment aid. Willingness to utilize the embedded librarians' services in a virtual context shows acceptance (81%), and participants remarked a slight decrease in interests to use their tools (19%) alone. The results also mirrored the intention to use the embedded librarians to help reduce citation errors (81%) and eliminate the possibility of accidentally plagiarizing a document (94%).

The willingness for program participation in an online setting outshined traditional library services. Participants (68%) stated a willingness overall to make use of directly linked embedded librarians to their specific courses of study. Interestingly noted, participants in online settings remarked a willingness to use the embedded librarian's tutorials and videos (72%), and others majority undecided (16%) or unfavorable (12%). Similarly, only (21%) of the participants remarked they did not make use of embedded librarians' tutorials to avoid plagiarism. Additionally, online student participants stated the same findings (72%) to make use of embedded librarians for academic research aid and felt similar in comfort to using an online embedded librarian. Participants (66%) found greater interest to use online embedded librarians over traditional brick and mortar situated librarians (18%).

Participants overall agreed to finding embedded librarians are paramount to academic success and motivation (65%), with (22%) disagreeing they help, and the remainder neutral. Conversely, participants only (12%) remarked that without the embedded librarians' aid they would have withdrawn from a course, but (56%) stated their aid did build confidence in abilities to research for sources. However, participants remarked (63%) embedded librarian tutorials help them receive higher assignment grades while only (25%) were disinterested in the use or abilities of the tools to increase academic marks. Students found, interestingly, nearly equal opinions about the confidence-building

effectiveness to cite sources in assignments correctly (56%), (44%) disagreeing with effectiveness, and 18% undecided of the value. Although, (62%) participants stated having greater confidence in courses that did register an online embedded librarian versus (22%) disagreeing with the effectiveness, and the remainder neutral. But the majority did state (58%) the virtual presence in a course made them feel more confident to stay in a course and less likely to withdraw. Additionally, participants remarked the stimulus of an embedded librarian's portrait (63%) in a course shell made them feel more likely to have success in passing a course versus (22%) that completely disagreed with the concept, and the remainder neutral.

DISCUSSION

Overall, the pilot study agrees with the majority of the literature and pointedly participants express interest towards online participation and library science tools. The findings inside of this observation confirm RQ1. Clarity in the RQ1 is observed in participants' data observing participants stating embedded librarians in online-course shells are paramount to academic success (65%), motivation (65%), and (56%) stated their confidence. This further confirms RQ2 and RQ3 with participants remarking their confidence in abilities to research are expounded upon from the liaisons' aid and tools. This finding was similarly observed in Spangler's (2019) qualitative study that observed a large affirmation from participants in increased abilities, the knowledge gained from utilizing their tools, course comfort, and confidence. Additionally, participants remarked (63%) receiving higher assignment grades and confidence to cite sources in assignments correctly (56%), while working with embedded librarian tutorials, which again confirms both RQ2 and RQ3.

The most interesting observation came from the downfall of participants' interest in utilizing traditional brick-and-mortar librarian aid while demonstrating larger confidence and desire for an online embedded librarian. This observation again confirms further RQ1's question of whether or not the visualization and virtual presence of an online embedded librarian affect students' perceptions of course comfort. Here the data constructs a positive observation noted earlier that the visual stimulus of an embedded librarian's portrait (63%) in a course shell made them feel more likely to have success in passing a course. Thus, the observation is consistent with the literature (Edwards et al., 2010; Xiao, 2010; Horn et al., 2013; Kumar & Edwards, 2013; Blake et al., 2016; Pederseon-Summey & Akers-Kane, 2017). Additionally, Spangler's (2019) research presented congruent findings observing participants' remarking to have gained higher levels of comfort, assignment confidence, and interpersonal confidence from embedded librarian recognition in a course. Particularly, the researcher's participants stated embedded librarians in the study were collaborating with the students and their presence in the course created sentiments of comfort and interpersonal success. This was also demonstrated in Kumar & Edwards's (2013) research and similarly noted in Edwards et al., (2010) despite not conclusively affirming the interpersonal growth declaration. Interestingly noted, participants in this study observed a large likelihood and desire to use an online embedded librarian. Overall, eighty-three percent of participants considered themselves very or extremely likely to utilize online embedded liaisons and especially having a willingness to engage the embedded librarians for research help.

CONCLUSION AND FURTHERING THE RESEARCH

Overall, the observations in this pilot study have confirmed the three research questions. Students enrolled in courses that have embedded librarians demonstrate higher rates of comfort, interpersonal academic confidence, confidence in abilities, and confidence in researching and citing sources for assignments. Although this study is a pilot project, the researchers must remark that its findings have limited abilities to generalize the data because of an extremely small population, limited geographical limitations, and large population of graduate students that are more attune for research help from librarians. These factors alone may have caused irregular findings. Additionally, the researchers suggest the need–based on the limited findings–for further research in the field. The researchers understand the pilot study's findings are not generalizable to a greater regional population and the cross-cultural population too. To further the study and understand the finding deeper, the researchers contend qualitative notes from participants in the original survey (or a future study) would add greater validation to the findings. But the study can demonstrate a limited affirmation towards the encouraging effects of having embedded librarians in online courses.

Overall, the research observes and concurs with Spangler's (2019) observations that online students have a desire to work with embedded librarians. Nevertheless, the research presented here particularly agrees with literature that

suggests students have greater success, self-efficacy, and confidence when combined with embedded library instruction (Silke et al.2015). Additionally, the study uncovered congruent themes with scholars in the field that state students gain from having an embedded librarian in a course no matter the format (Xiao, 2010; Edwards et al., 2010; Horn et al., 2013; Kumar & Edwards, 2013; Blake et al., 2016; Pederseon-Summey & Akers-Kane, 2017). Finally, the researchers find congruent themes with the literature's three main constructs: comfort, confidence, and recognition.

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