USING AN INFORMATION LITERACY PROGRAM TO INCREASE STUDENT RETENTION

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ABSTRACT

The present research examines how an information literacy program can increase institutional retention rates. The study relies on existing data and seeks to understand if any similarities are evident in the way colleges and universities are approaching information literacy. Importance is placed on non-traditional students (>24 years old) and how emerging library technologies factor into their research success and their effectiveness as information literate individuals. The study is useful to academicians and library professionals who are interested in the dispositions and attitudes of non-traditional students, their perception of library technology and how information literacy programs may contribute to their academic success.

Keywords: Information Literacy, Non-traditional Students, Higher Education, Retention, Student success, Teaching, Education.

INTRODUCTION

A strong information literacy program is crucial for students not only in strengthening their understanding of the available library resources but also for relaying confidence in their specific academic disciplines. Having strong information literacy skills will give students a competitive advantage when entering the workforce or in pursuing further study and attaining a higher academic degree.

The concept of information literacy is essential for student success and studying the concept will greatly benefit the field of education. Analysing the effects of an information literacy program on the success rates of non-traditional students, minority groups and those with other socioeconomic factors, for instance, will lead to ideas being incorporated by other institutions which are seeking new methods and ideas for increasing their student retention rates. The purpose of this study is to analyse the respective research that has been conducted on student retention and explain the significance of implementing an effective information literacy program for increasing student retention rates.

The role of the academic librarian is always in a state of flux and requires adaptability to an ever-increasing number of changes. More and more, academia is experiencing new forms of technology and librarians are required to have an understanding of emerging technology. Librarians are tasked with teaching the best research methods to students while also gauging their fluency towards new technology. With new technology come new challenges. An area for discussion and research focuses on the academic world and how an influx of non-traditional, adult students entering institutions of higher learning after many years of separation from any form of schooling (Cooke, 2010; Cannady, King & Blendinger, 2012; Turcotte, 2015). In the context of this research, existing information acquired by Rapchak, Lewis, Motyka and Balmert (2015) will be used to define that non-traditional students are those individuals aged older than 24 years. Clark (2014) adds to this comparison between traditional and non-traditional students

by exploring the anxieties and the ability to process information amongst the two groups of students.

Non-traditional students enrolling in today's educational system are bringing with them additional challenges, such as being introduced to new forms of technology. Information literacy involving new technological concepts is particularly important to these individuals (Rapchak et al., 2015). Using existing evidence, it is with hope that a determination can be made as to how these adults cope with a different educational landscape that includes more technology-driven applications and the importance of information literacy instruction and how the roles of librarians and faculty members will show that these two parties are equally responsible for creating successful, information-literate adult learners.

The importance of having a firm grasp on information literacy and being considered information-literate is essential for one's academic and career success. Individuals will utilize information-seeking skills learned in college throughout their entire life. As an academic librarian, it is assured great lengths and measures are employed to get this point across to students. According to Boger, Dybvik, Eng and Norheim (2015), librarians have the responsibility of teaching such academic skills as information searching. The goal is to analyse how an effective information literacy program can lead to increases in student (non-traditional and traditional) retention numbers. There are correlations to library instructional programs and overall success rates when it comes to institutions matriculating their students. The overarching goal involves studying how non-traditional students adapt to information literacy and gauge their graduation rates from participating in these instructional workshops.

Studying the effects of an information literacy program on non-traditional, adult learners in a higher education setting will have profound effects on the field of education. Vast amounts of research has been conducted discussing information literacy and the vast array of techniques utilized by various colleges and universities to convey these methods to students (Barnhart & Stanfield, 2013; Cook, 2014; Hess, Greer, Lombardo & Lim, 2015; Rapchak & Behary, 2013; Stewart-Mailhiot, 2014; Talbert, 2012). Studying adult learners transitioning back into an academic setting, and how information literacy instruction provides the important foundations for their academic and life successes, important assessment measures will be created so that others may conduct research on this existing data.

Having an understanding of information literacy is proving crucial not only in an academic setting but also as students venture into their respective careers. More and more, studies on information literacy are being conducted, and academic librarians throughout the United States stress its importance towards student retention. A student that possesses information literacy skills has a heightened chance of seeing academic and professional goals reach fruition (Needham, Nurse, Parker, Scantlebury and Dick, 2013). Rapchak and Behary (2013) warn that adult learners bring with them different dynamics and skill sets. Librarians need to understand this notion and plan accordingly for different skill sets. The following paper addresses the research designs and methodologies concerning a hypothetical information literacy study at Small Town College.

UNDERSTANDING INFORMATION LITERACY AND STUDENT RETENTION

To understand the goal of increasing student retention rates through the utilization of an effective information literacy program, it is essential to understand the meanings of the terms information literacy and student retention. More and more, academic institutions are paying particular attention to information literacy and devoting resources to libraries for the

advancement of information literacy on campuses nationwide. In turn, academic administrators are crediting increases in student retention rates because of strong information literacy programs at their respective institutions.

Librarians are proving their worth to these individuals and are implementing creative methods and programs for students to learn the concepts of information literacy. They are also trying to prove that a more information literate student will also have better opportunities upon graduating and in their respective careers. As the saying goes, learning is lifelong and does not stop upon matriculation. The educational landscape is also noticing an influx of more adult learners deciding to enter the higher education arena and they are bringing with them additional challenges, such as with being introduced to new forms of technology and requiring specific hours and days for their classes. Information literacy is particularly important to these individuals (Rapchak et al., 2015).

What is Information Literacy?

Information literacy does not constitute a single idea and understanding it involves being able to follow a logical path from start to finish. To put the concept in simple terms, information literacy begins by understanding the need to acquire information and then delves into using the vast amount of resources that are available to find, access, evaluate and properly use the information (Rapchak et al., 2015). As we all are familiar with, the internet provides information on virtually every topic and area of interest and this information is retrieved easily by conducting a few simple keyword searches in Google. Nevertheless, as a caveat, students need to have an awareness of the information being presented. Not all information is reliable information. Having a firm grasp on the concepts of information literacy will show students that the internet will not always provide the best and most credible information. This is why it is up to a larger body of individuals, namely all educators and information providers and not just librarians, to provide information literacy education and awareness to students by showing how information literacy is relevant to specific assignments and course outcomes. (Stewart-Mailhiot, 2014; Guo, Goh, Luyt, Sin & Ang, 2015). It is vital for collaborations to exist between the academic library and faculty for fostering growth in academic success (Sanabria, 2013).

Information Literacy Today

As more higher education institutions are recognizing the importance in creating information literate students, libraries are implementing information literacy programs that challenge these students to become the best information-seeking individuals. At institutions, such as the University of West Georgia, Pacific Lutheran University, Duquesne University and Oakland University, librarians are installing creative methods for keeping information literacy instruction exciting and engaging. From reaching students through online instruction or with electronic devices such as clickers and other supportive devices, academic librarians are at the forefront of the information literacy movement. Librarians are recognizing that students are coming from all educational, professional and personal backgrounds. An area of particular notice is the rise of more non-traditional students entering college. These students are those classified in this instance as being separated from school for five years or more. These students are enrolling for a variety of reasons such as unemployment, job displacement or career advancement. Close attention needs to be paid to the students who are unable to be on campus during normal business hours. Offering online-based programs can be vital to their success (Hess et al., 2015). With this

influx of non-traditional students, more technology disparities are evident however. It is important to remember that information literacy skills are valuable to everyone (Rapchak & Behary, 2013).

Librarians at various universities have created intriguing programs for bridging the information literacy gap and reaching students in effective manners. The librarians at Duquesne University realize that adult, non-traditional students need more flexibility in their academic schedules. For a multitude of reasons, these students are unable to conform to the standard academic schedule and usually look for times in the evening and on weekends to attend school. Rapchak and Behary (2013) discuss that it is essential to offer flexible library instruction sessions through an online environment and that it is vital to understand that adult students are participating in other activities while attending school. Educators across all formats need to recognize that adult students will have different learning styles. At the University of West Georgia, Barnhart and Stanfield (2013) examine first year students in general and call for the inception of information literacy instruction early in a student's academic career. The university offers a summer transition program that equips students with required First Year Experience programming for increasing their student retention, progression and graduation rates (Barnhart & Stanfield, 2013). At Pacific Lutheran University, Stewart-Mailhiot (2014) reports that information literacy can take place in not only the library, but in the classroom as well with low stakes research assignments, such as locating articles pertaining to course content and selecting a topic that was discussed during a particular lecture. The library staff and university faculty must work together in creating some low stakes assignments for addressing the learning outcomes of a specific course.

WHAT IS STUDENT RETENTION AND WHY IS IT IMPORTANT?

Student retention is the rate at which students in an educational setting decide to stay enrolled in the school. Academic libraries have a vital role in helping their respective institution have strong student retention rates. The concept of student retention is at the forefront of many administrative meetings and colleges and universities are implementing methods for keeping students enrolled. The reason for this is that student retention is a major problem for schools as they are seeing their graduation rates decline (Talbert, 2012). Funding opportunities rely on an institution's overall institutional effectiveness determined by respective accrediting bodies. If retention rates continue to decrease, institutional funding will also decrease (Schroeder, 2013). Graduation rates and student retention data are an overall indicator of institutional effectiveness (Mezick, 2015). Haddow (2013) reports that student retention is a strong indicator of student progression and is shown in the on-going enrolment reporting data of a college or university.

Colleges and universities are making student retention the primary focus of many campus initiatives and college administrators are relying on all members of campus communities to aid in seeing these initiatives reach fruition. From academic affairs to student services, universities are seeing departments work together in developing coordinated and integrated efforts for maximizing the impact on student success rates (Hess et al., 2015). They present that Oakland University's implementation of certain programs is leading to increased student retention and argue that measures such as information literacy instructional sessions and having a proper electronic and print collection are important contributors to student success and student retention. One particular area that is proven to aid in student retention is the academic library. Academic libraries are at the forefront in recognizing the importance of student engagement and student

retention rates (Haddow, 2013). They see the most students on a daily basis and are always assessing the best methods to put in place for student development.

STUDENT RETENTION AND THE ROLE OF THE LIBRARY

Mezick (2015) points out the importance of libraries and the impact that they have on student retention. The major underlying factor for student withdrawals is poor academic performance. Introducing students to information literacy concepts, such as conducting research using print and electronic sources, early in their academic careers is essential to student academic engagement (Mezick, 2015). Cook (2014) discusses that students enrolled in the library credit course at the University of West Georgia have greater graduation rates and offers that in 1999 students enrolled in this course had a 68% graduation rate compared to the 29% rate for those not enrolled.

The role of the academic library is not limited to information literacy and teaching students how to retrieve the best information. Hess et al. (2015) take Mezick's (2015) ideas further and explain that the role of the academic library is not only being an information hub, but also for providing student self-efficacy. An academic library then serves two dimensions such as the traditional forms of student success like grade point average, retention and graduation rates. The library also serves as a meeting place for students and gives them a sense of connectedness and self-worth. Crawford (2014) shows how certain institutional factors lead to student success and student retention rates. Data gathered from the Integrated Postsecondary Educational Data System (IPEDS) and the academic library survey show that libraries are contributors to student success. Meaning that the author had limited their focus to Pennsylvania, data focused on these four-year colleges. An analysis of the IPEDS data and the library survey of 89 institutions were used in this study. Findings from the data yield has shown that libraries contribute to overall student success, but the author warns that this study was extremely limited based on using one year of data.

The academic library is also a motivational force that pushes for student engagement and student success. Guo et al. (2015) discuss information-literacy program vitality and their importance regarding increasing students' motivation levels. The authors focus on the online education environment and the high dropout rates and lacking motivational levels for students in such environments. They show that a strong information literacy program will increase motivation levels and retention rates. Haddow (2013) explains that with students logging into and utilizing library databases more than 29 times, they will have better retention numbers than those students with fewer than 29 log-ins. The author cautions and ascertains that other factors such as financial and personal reasons may be contributing to increases in retention. Soria, Fransen and Nackerud (2013a) provide data that suggests students who rely on the library and log in to their databases have a higher grade point average in their first semester and have higher retention rates than students who choose not to use the library.

Academic libraries play important roles in helping students make a comfortable transition into college and have a better overall experience. Because of the role libraries play, institutions are seeing higher retention rates with their students. Students also rely on the library for many other forms of information as well. Most of the time, students are seeking the library in order to find other buildings on campus or for other non-research-related questions. Grallo, Chalmers and Baker (2012) point out that 47% of the questions asked by students do not relate to their research or involve reference help and that they more typically involve issues with computer software and hardware, where things are located on campus and the remaining balance on their print accounts.

The authors mention that libraries are focal points where students can feel free to ask questions relating to the overall institution. They argue that libraries are pivotal in easing students into the whole college experience, which will ultimately boost student retention rates.

It is cautioned that libraries need assessment tools in place to understand fully the impact of the library towards student retention. Implementing assessment measures is vital. Universities and colleges are seeing increased retention rates where libraries had proper assessment measures in place for many years (Mezick, 2015).

EVIDENCE TO SUPPORT AN INFORMATION LITERACY PROGRAM

Many studies concerning the importance of information literacy towards student retention are available. Several articles analysing the claim that effectively incorporating an information literacy program into the Student Success Seminar (or First Year Foundations) will be a valuable tool for increasing the college's student retention numbers.

Starting Information Literacy Early

Studies show that students presented with information literacy concepts early in their academic careers will have less anxiety when conducting future research assignments. Offering an assignment such as this to freshmen, comprising traditional and non-traditional students, within the first weeks of the fall semester will contribute to their overall future success and the college's student retention numbers will improve (Mezick, 2015). It is anticipated that the college will see an overall improvement in student grades. Needham et al. (2013) show that grade averages for students never using library resources is 55 and that students utilizing library resources have a grade average of 61. Students build a rapport with the library by using its resources and a comfort level ensues. Effective information literacy instruction helps eliminate anxiety and lower stress levels when conducting future research (Stewart-Mailhiot, 2014).

Students and Emerging Technologies

The library has seen significant technological advances within the last two decades. With an increase in several different online source options, students face the challenge of finding a proper starting place when doing research. The college's non-traditional students are a particular group that may be disadvantaged. The last time many of these students used a library, a physical search of a card catalog was necessary for finding a particular book or they would rely on a periodical index for pointing them in the direction of a certain scholarly article. Today, these students are not only using a computer but are using said computer to search through several databases and across millions of articles for the best available source. Hagel, Horn, Owen and Currie (2012) show students have different learning preferences and that it is important for libraries to ensure that these individuals are not disadvantaged. The information literacy program allows non-traditional students the opportunity to explore the library's databases in a stress-free fashion. They will have less anxiety and be more successful when conducting future research for assignments. This will lead to excellent student retention numbers.

REASONS FOR IMPLEMENTING INFORMATION LITERACY PROGRAM AS A SUCCESS MEASURE

Therefore, in relation to information literacy and adult students, it is important to understand the motivational forces for implementing an information literacy program. The concept of information literacy is essential for student success and studying the concept will greatly benefit the field of education. Analysing the effects of an information literacy program on the success rates of non-traditional students, will lead to ideas being incorporated by other institutions seeking methods for increasing their student retention rates. Colleges and universities will recognize that offering information literacy programs will shape students into successful researchers (Rapchak et al., 2015). Assessments of non-traditional, adult learners also would be possible because of studying the effects of information literacy on retention. Rapchak et al. (2015) call for increased awareness and improved data sets on adult learners and their information literacy perceptions. As Knowles (1980) asserts, adult learners seek relevance in their learning experiences and look for experiences where they can used their learned knowledge. Donovant, Daniel and MacKewn (2013) show that adult learner experiences are vital resources for their own academic success as they put course content into context. As a caveat, adult students also are less open-minded than their traditional counterparts are when it comes to learning (Knowles, 1980). Other individuals will act on my study of non-traditional students ultimately leading to increases in information available for this ever-important topic.

Presented is the rationale and justification for adding a more intensive information literacy program to post-secondary education curricula. As Soria, Nackerud and Peterson (2015) relate, information literacy is a crucial student success measure. In their article, they correlate socioeconomic standing with academic success and how these individuals from financially disadvantaged backgrounds are less inclined to utilize library resources. In this aspect, Student Success Seminars or First Year Foundations classes would be ideal situations for presenting this enhanced content and explaining the library offerings available to students. Students in these classes comprise both a traditional and non-traditional classification and the program will allow them the opportunity to examine library resources and think critically about topic selection, properly citing sources and computer functionality. The program is considered low-stakes as it is designed not to dissuade, discourage or bring out a heightened level of anxiety among students. Stewart-Mailhiot (2014) found that today's students face an exorbitant amount of source possibilities and easing them into the library will prove vital before assigning a resource-rich, high-stakes assignment. It is important to show the non-traditional student how emerging technologies have transformed the library into an expansive research hub while presenting traditional students with additional measures for honing their research skills.

TECHNOLOGICAL CHANGES IN ACADEMIC LIBRARIES

Exploring how non-traditional students adapt to the college landscape is also crucial in fully understanding how information literacy instruction leads to increases in student retention. It is important to keep in mind that non-traditional, adult learners are facing a dramatically different educational landscape featuring new and emerging technologies. These technologies are constantly changing and keeping pace with them may often act as a deterrent to students.

Gone are the days of multiple-row card catalogs and searching through various alphabetical subjects of interest. Today, students are required to have an acclimation to computers and have a comfort level for performing searches for information retrieval. An

effective information literacy program teaching non-traditional students how to conduct proper searches, manipulate search terms and perform other library-related activities will ease frustrations and increase productivity. In all, these students will be motivated to learn.

In an academic library, librarians have many personal experiences with helping non-traditional students in all aspects of the library and analysing how they benefit from understanding information literacy. They see non-traditional students struggling with general computer functionalities such as typing in a searchable web address to even making simple modifications to a Word document. On top of these occurrences, these students also need to be perceptive enough to search various library databases for information. It is clear how this would be a daunting task for someone that is not computer literate and how their frustrations would, at worst, lead to their ultimate withdrawal from school. Having a library instructional program teaching proper search term selection, modifying search results with limiters and showing the plethora of resources that are available to help with research would hopefully take one less burden off of these students struggling with computers. Rapchak and Behary (2013) discuss an effective tool called the Adult Transition Seminar, employed at Duquesne University, which helps non-traditional students ease into a college environment and relays the importance and application of assignments. Guo et al. (2015) address student motivation and call for the use of embodied agents to increase student success levels. They maintain that online students who learn the material with the help of an embodied agent are more knowledgeable of the subject matter and that using computer-generated embodied agents in an online information literacy program can be beneficial to students' appreciation of the material being taught. These students tend to pay more attention to the material. Guo et al. (2015) caution that students that are not computer literate may have difficulties with using the embodied agents' platform.

Aside from these technological disadvantages of students and the methods that librarians are employing to increase student success, understanding socioeconomic indicators are also vital in studying academic success rates. Soria, Nackerud and Peterson (2015) presented a study analysing different socioeconomic backgrounds. The authors focused on patterns of library use among these classes and if any correlation exists between a student's socioeconomic status and their use of a college library. It was found that students from lower socioeconomic situations were less likely to utilize certain library resources such as academic journals and online database applications. Students who were expected to work full-time jobs while in school were less likely to use the library's resources such as borrowing books and online reference tools. The authors make some recommendations for reaching students from lower socioeconomic backgrounds, such as providing textbooks as part of the circulating collection of the library and calling for faculty to use more open access textbooks.

RESEARCH METHODOLOGY AND DESIGN

In the hypothetical study, the preferred method would follow an exploratory narrative inquiry format. According to Creswell (2013), in a narrative study, the focus is directed to participants' stories and experiences and the systematic ordering of these experiences. The desired outcome will offer an explanation as to whether students utilize the information literacy instructional materials embedded in their course's Desire 2 Learn page.

The narrative research method was chosen because of the potential information and openness that it brings to the study. Creswell (2013) explains that this method is beneficial to researchers who look for real-life experiences of individuals. Through people's stories, the study presents a human element and allows for a vivid interpretation of the gathered data. The narrative

research approach using data examines the following question as it pertains to certain non-traditional students enrolled in English classes at Small Town College. Non-traditional students' views on technology and information seeking, as well as common themes, will be analysed.

Q1. *What are the common themes that non-traditional students describe from their interviews while they are using library technology to seek information for their English papers?*

Data Collection

Data gathering is based on the concepts of purposive sampling (Krathwohl, 2009). Dane (2011) explains that purposive sampling is appropriate in instances where a researcher is looking to gather data on specific individuals. In this study, individuals will be chosen based on their enrolment in the college's five English 101 classes. Each member of these five English classes will be asked whether they have used the information literacy instructional materials embedded into their course's Desire 2 Learn page, if these materials were seen as being useful for the students, if the material was presented in a clear and logical fashion and what were the key lessons learned from utilizing the embedded instructional sessions.

Qualitatively, the data will be gathered by conducting interviews and recording the conversations in a transcript. The dialogues concerning the embedded instructional materials will take place early in the semester, after the completion of the initial research paper and then again before the final paper is due. Field notes will also be kept to serve as additional supplementary data. Field notes provide a thorough look at a researcher's work by including verbatim conversations and notes on context (Krathwohl, 2009). They also allow researchers to have the ability to trace events back chronologically.

Data Analysis

Qualitatively, the students' interview transcripts will be analysed using a line-by-line coding process. As Dane (2011) shows, coding gives the researcher an avenue for applying meaning to an intended observation. Krathwohl (2009) warns that a researcher should not lose sight of the intended scope of the research and fall into the coding trap. The coding trap entails placing codes on everything and missing the intended purpose of the study. In the case of this study, emphasis will be placed on ensuring that themes are properly identified and that they relate to students utilization of the embedded information literacy instructional materials. Also, if they view these materials as being useful when acquiring sources for their research projects and what key items were learned from using the embedded service. The common themes identified will be analysed (through axial coding) relying on the interview transcripts and the corresponding field notes.

TEST DEVELOPMENT

It is important to maintain clear focus and proper organization throughout the intended research. The tool, a decision chart, utilized in this regard was provided courtesy of Holt Interactive Graphic Organizers. The graphic organizer aided in developing a pre-test and post-test information.

The specific chart was selected because it identifies the pros and cons of issues and helps people make informed decisions based on the chart's content. The decision chart proves to be a valuable tool when dealing with certain issues in my senior leadership role at Small Town College. For example, an issue can be presented at a meeting without a clear path to solution.

The decision chart will help in this area because it allows a group to discuss the pros and cons of implementing a certain policy or procedure.

The basic aim of test development is to construct a test of desired quality by choosing the appropriate items, no matter what type of tool is used. There are two main theories called classical test theory (CTT) and item response theory (IRT) that can be used in test development. In CTT, analyses are the easiest and most widely used form of evaluation. Statistics can be computed by using readily available packages or even by hand. Classical analyses are performed on the test as a whole rather than on the item and although item statistics can be generated, they apply only to that group of students on a specific collection of items. On the other hand, IRT refers to a family of latent trait models used to establish psychometric properties of items and scales. In large-scale educational assessment, IRT has almost completely replaced CTT as method of choice. IRT has many advantages over CTT that have brought IRT into more frequent use (Erguven (n.d); Magno, (2009). The main advantage of using CTT is that relatively weak theoretical assumptions make it easy to apply in many testing situations. The benefits of using CTT in test development compared to item response theory models, is that analyses can be performed with smaller representative samples of examinees. This is particularly important when field-testing a measuring instrument. Classical test analysis employs relatively simple mathematical procedures and model parameter estimations are conceptually straightforward. Classical test analysis is often referred to as "weak models" because the assumptions are easily met by traditional testing procedures. As its name indicates, IRT primarily focuses on the item-level information in contrast to the CTT which primarily focuses on test-level information (Erguven (n.d); Magno, (2009).

The major limitation of CTT can be summarized as circular dependency: (a) The person statistic (i.e., observed score) is (item) sample dependent and (b) the item statistics (i.e., item difficulty and item discrimination) are (examinee) sample dependent. This circular dependency poses some theoretical difficulties in CTT's application in some measurement situations (e.g., test equating, computerized adaptive testing). IRT, on the other hand, is more theory-grounded and models the probabilistic distribution of examinees' success at the item level. Theoretically, IRT overcomes the major weakness of CTT, that is, the circular dependency of CTT's item/person statistics. The IRT framework encompasses a group of models and the applicability of each model in a particular situation depends on the nature of the test items and the viability of different theoretical assumptions about the test items. For test items that are dichotomously scored, there are three IRT models, known as three-, two- and one-parameter IRT models (Erguven (n.d); Magno, (2009).

Qualitative Short Answer Questions in Measurement

Short answer questions have their advantages and limitations in their impact on measurement. The advantages to using short answer questions in measurement are that these types of questions offer flexibility, minimize guessing, lend themselves to computational items, they are easy to write and they allow for a multitude of items to be used. On the other hand, short answer questions have their disadvantages and limitations as well. Machine scoring these types of questions proves to be very difficult, if not impossible. Also, scoring them is subjective, a limited scope of cognitive skills is assessable and one-answer questions prove difficult to formulate (Salkind, 2013).

In regards to providing flexibility, shorts answer questions can be used to cover virtually any content area. Short answer questions rule out the idea of guessing as well. Test takers need to

have some sort of knowledge concerning the material. The probability of guessing correctly is much lower compared to true-false and multiple choice questions. Short answer questions are easy to construct and offer a quick way to assess knowledge of a certain content area. Finally, short answer questions provide a broader sample of items being tested.

Aside from these advantages and benefits to using short answer questions in measurement, disadvantages will likely come. Short answer tests require the instructor/teacher to read each response carefully, which can be a time-consuming endeavour. Scoring these types of exams is subjective. People may write illegibly and questions can possible have multiple answers in some format. In general, short answer tests are best when examining basic information. Complex areas are best utilized on multiple choice and essay tests (Salkind, 2013).

Qualitative Essay Questions in Measurement

As in the case with short answer questions, essay questions also have their advantages and limitations in test development and measurement. Essay questions allow a test developer the most unrestricted type of written assessment measure (Salkind, 2013). Essay tests can capture higher-level and complex skills of test takers. Essay questions are designed in two formats that elicit open-ended and close-ended responses.

Essay questions offer many advantages to a test developer. Essay questions allow for finding out how ideas are related to one another. They also increase security, provide greater flexibility in test design and provide an easy path for test creation. On the other hand, essay questions have limitations. Essay questions place a greater emphasis on writing ability. They also prove difficult to write, they provide an inadequate sampling of certain subject matter, they prove difficult to grade and they emphasize writing over content (Salkind, 2013). Essay questions allow an instructor or teacher to truly understand a class's grasp on specific content. They offer the teacher a greater assurance of test security. It is harder to plagiarize on essay tests and it is almost impossible to guess in this format. Essay tests are easier to design and construct compared to other formats. For example, it is easier to create four essay questions compared to 100 multiple choice questions. On the other hand, a limitation to essay tests is that an instructor is limited to time constraints because essay tests take longer to complete. The teacher loses some flexibility in testing a class's true mastery of a certain content area (Salkind, 2013).

Qualitative Portfolios

Portfolios are a relatively new concept for assessing student learning outcomes. Portfolios provide a performance-based collection of work that shows student efforts, progress and accomplishments in multiple areas (Salkind, 2013). As in the cases concerning short answer tests and essay questions, portfolios have advantages and limitations concerning measurement. The advantages of portfolios are that they are both formative and summative. The learning involved in creating portfolios is continuous and student efforts are evaluated as the project progresses. Also, they reflect a broad scope of academic and school-related tasks, they allow for direct participation and they provide methods for teachers to have direct input when designing curricula (Salkind, 2013). Portfolios help teachers understand the "what" and the "how" when they are teaching. On the other hand, portfolios are difficult and time-consuming to evaluate. Portfolios have broad ranges from one student to the next and properly evaluating their content can be time consuming. Also, portfolios do not cover all subjects well and they may not feasible for some curriculum types. Finally, they can be subjective. Portfolios can lack the ability to gauge

someone's understanding of a certain concept. Portfolios relate more to student experiences (Salkind, 2013).

Document Reviews and Their Impact on Research

Document reviews offer a way of collecting data by reviewing existing documents. Document reviews can include internal and external documents that help researcher gather background information assess a current situation and to help to formulate other collection tools for evaluation. Document reviews offer advantages and disadvantages as with short answer tests, essay questions, and portfolios. The advantages to document reviews are that they are relatively inexpensive and are a good source of background information. Also, they are unobtrusive and may bring up issues not related by other means. Limitations to document reviews are that information may be inapplicable, disorganized, unavailable or out of date. The information could have bias based on the content that was determined to be saved and the information can be time consuming to collect, review and analyse.

Interviewing

Interviewing is an important measure in qualitative research because of the breadth of obtainable information. Interviews allow researchers to truly hone in on how people may view a particular situation. In this case, how non-traditional students see their technological deficiencies as standing in the way of their academic success. For this particular interview, the role of the non-traditional student was played by me and a library colleague was the interviewer. The interview turned into a rather frank discussion about the importance of the library's role in bridging the information literacy gap that non-traditional students face. It is imperative for librarians to understand their roles as those who clear any technological doubts when it comes to conducting research. The interview/discussion lasted for about one hour and was conducted in the colleague's office.

Interviewing is conducted on an individual, face-to-face basis because of the comfort level that it fosters between interviewer and interviewee. Another reason that individual interviews would work best centres on the difficulties of getting an entire focus group to meet at a particular time and place. As Krathwohl (2009) explains, focus groups bring scheduling challenges and group moderators have less control over the discussion.

Group discussions can sway the thought processes of individuals who may be only following the assertions made by their fellow peers. These face-to-face interviews would also follow a structured format because it will ensure that participants understand what is being asked of them (Dane, 2011). Krathwohl (2009) offers a comparison table that speaks of the differences between a relatively unstructured and structured interview. In the case, with a predetermined sample, a structured interview will allow for an emphasis to be placed on a target population and a generalization can then be applied to a larger group (my answers can be generalized to a larger population of non-traditional students). Creswell (2013) and Krathwohl (2009) show that it is critical that an interviewer builds a rapport with participants and understands their information so that a researcher's "restorying" accurately reflects the interview. Rapport building will also elicit truthful responses and a comfortable conversational exchange. As the respondent in this interview, knowing the interviewer made me more inclined to answer the ten predetermined qualitative questions truthfully. As described, face-to-face, structured interviews work best to enhance the comfort level of interviewees.

Qualitative Questions Discussion

According to Fowler (2009), data validity is essential and it is important to remember that all respondents should view given questions with the same understanding. In other words, validity concerns if the research measures what it was intended to measure. Golafshani (2003) pays homage to good question development as a means to strengthen data validity. In order to see that respondents are equally capable at responding to questions, Fowler (2009) recommends that good question development and instrument evaluation should be critical parts to survey development. Rubin and Rubin (2005) recommend scaffolding interview/survey questions around more main questions where main questions answer the pieces of information. These questions, like those listed above, illicit responses that are usually more than a few words and carry greater meaning. Rubin and Rubin (2005) note that main questions give answers that better address the overall concerns of a research problem.

Quantitative Research Variables

$H1_0$. *There is not a direct relationship between the manipulation of non-traditional students' knowledge of information literacy concepts and their ability to identify appropriate resources for their English projects.*

$H1_a$. *There is a direct relationship between the manipulation of non-traditional students' knowledge of information literacy concepts and their ability to identify appropriate resources for their English projects.*

With this particular case, a longitudinal study with a basic pre-test design will be employed to see how much the independent variable changes over the course of the study. The design was chosen because it allows for the most effective testing of the hypothesis. According to Dane (2011), this specific design is credited to Campbell's and Stanley's Pretest-Posttest Control Group Design. The design follows a simple concept where a pretest is conducted between a dependent and independent variable and before the independent variable is manipulated. The posttest follows the same pattern and is analysed after the independent variable is manipulated. In the case of this study, the dependent variable is students' information literacy competence pertaining to acquiring appropriate resources for a research project. The independent variable (or the predictor variable) involves embedding information literacy instructional materials into each English class's Desire 2 Learn page. As Dane (2011) simplifies, the data is analysed by subtracting pretest responses from posttest responses. The pretest and posttest method looks to examine any differences in students' knowledge of acquiring appropriate resources before using the embedded information literacy instructional materials and after students have had the opportunity to examine this service.

The pretest and posttest would be comprised of questions consisting of multiple choice questions and items with Likert scales. The Likert scales would be useful in determining students' perception of information literacy concepts and evaluating web resources. The dependent variable would be ordinal because participants are being asked to rank their understanding of information literacy competencies. A *t* test would be most appropriate because it looks to identify the differences in the participants' pretests and posttests. Dane (2011) cites that basic pretest designs allow a researcher to test participants' knowledge before the manipulation state.

Whether a researcher is conducting a qualitative, quantitative or mixed methods study, the results from these studies cannot be skewed in any fashion. Krathwohl (2009) calls these extreme cases, outliers and surprise findings. It is imperative not to ignore the results of research

but, in turn, use them to seek possible causes and enhance data validity. Data triangulation can also be employed to strengthen data validity, such as where questions in the pretests and posttests can be phrased differently but garner the same answer. The idea is to have cross-validation between the results received from both tests. Koksal, Ertekin and Colakoglu (2014) stress that a researcher should fully acquaint themselves with the intricacies of designing a Likert scale. A researcher's training will change the reliability and validity of the data collected from the application of a Likert scale.

It is important for a researcher to act ethically and remain this way throughout a research study. Krathwohl (2009) warns that a researcher should not be swayed by trying to achieve the best research findings. Researchers may be tempted to turn a blind eye to possible illegal activity when receiving their data. Such activity is unethical and the illegal action should always be reported. Dane (2011) cautions that data collection should not cause any hardships to anyone and that measure should be put in place to safeguard people's information. Krathwohl (2009) describes that participants should always be kept in the loop when it comes to the researcher's data interpretation. Member checking strengthens a researcher's credibility and eliminates bias by allowing individuals the opportunity to ensure that the researcher has portrayed them accurately and justly. Researcher truthfulness and elimination of bias enhance validity and reliability (Golafshani, 2003).

SUMMARY AND DIRECTIONS FOR ADDITIONAL RESEARCH

A vast amount of research has been conducted on information literacy and the effects it has on student retention, student grade point averages and graduation rates. To understand these concepts fully, articles focusing on student retention and the library as a contributor were analysed. In doing so, specific groups started to emerge from the research such as non-traditional students and students with different socioeconomic backgrounds. Taking these groups further, technological disadvantages and faculty and library staff reluctance to participate in information literacy programs emerged. In an academic setting, one would assume that everyone would be active participants in any program that was trying to contribute to student success.

According to Mezick (2015), there is little evidence available that truly offers an assessment of how well information literacy programs are acting as contributors to student retention rates. Corley and Gioia (2011) discuss developing a scholarly stance and show that it is imperative for scholars to give purposeful studies that include more groups within a society's makeup. As with every study, it is important to have assessment measures in place showing how the data is relevant and to prove that the study was successful. It is recommended that research be conducted in areas where a mixture of student backgrounds is evident. Two-year community colleges and trade schools would offer a mixture of both traditional and non-traditional students from all different professional and socioeconomic backgrounds. Librarians need to establish strategic partnerships on campus and garner the support of college administrators and faculty. Based on the available research, it is evident that new research needs to be applied showing the importance of information literacy towards student retention.

CONCLUSION

The concept of information literacy is essential for student success and studying the concept will greatly benefit the field of education. Analysing the effects of an information

literacy program on the success rates of non-traditional students, will lead to ideas being incorporated by other institutions seeking methods for increasing their student retention rates. Colleges and universities will recognize that offering information literacy workshops and assignments will shape students into successful researchers (Rapchak et al., 2015). Assessments of non-traditional, adult learners would also be possible because of studying the effects of information literacy on retention. Rapchak et al. (2015) call for increased awareness and improved data sets on adult learners and their information literacy perceptions. It is the intention that other individuals will develop additional studies of non-traditional students ultimately leading to increases in information available for this ever-important topic.

Studying the effects of an information literacy program on non-traditional, adult learners in a higher education setting will have profound effects on the field of education and will garner much interest upon completion of the dissertation research process. Many articles are written discussing information literacy and the vast array of techniques utilized by various colleges and universities to convey these methods to students. Studying adult learners transitioning back into an academic setting and how information literacy instruction provides the important foundations for their academic and life successes, important assessment measures will be created so that others may conduct research on this existing data.

The common topic throughout the research dealt with gauging how non-traditional adult students adjusted to the ever-changing college landscape and the emergence of new technologies. The creation of effective information literacy instruction sessions designed to clear these students of technology hurdles will ultimately lead to an increase in overall student retention rates. Faculty and library staff both play an important role in ensuring that adult learners have an active engagement with their assignments and that an information literacy program is successfully incorporated into courses through library instruction or integration into a course's curriculum.

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