EPORTFOLIOS FOR ACCREDITATION? PREVALENCE, INSTITUTIONAL CHARACTERISTICS, AND PERCEPTIONS AT UNITED STATES REGIONALLY ACCREDITED INSTITUTIONS

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Submitted to the Graduate Faculty of

the University of Pittsburgh

in partial fulfillment

of the requirements for the degree of

Doctor of Education

University of Pittsburgh

2014

UNIVERSITY OF PITTSBURGH

SCHOOL OF EDUCATION

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Little is known about the prevalence of institution-level eportfolios for supporting regional accreditation or reaffirmation at higher education institutions across the United States. A literature review uncovered no data identifying the relative proportions of institution-level electronic portfolio implementation based upon the regional accreditor of the institution. Additionally, characteristics (such as Basic Carnegie Classification) of institutions that implement eportfolios for accreditation were unexplored, as were the perceptions held by institutions' accreditation liaison officers (ALOs).

Building upon the existing literature, the researcher developed a definition of institution-level eportfolios, then used a quasi-experimental design and a stratified random sampling probability method to sample 100 ALOs from each of the six regional accreditation agencies (N = 600). Data gathered by a Web-based survey questionnaire were explored using SAS and Excel to answer questions of prevalence, institutional characteristics, and perceptions of ALOs. The researcher hypothesized no difference in prevalence among the six regional accreditation agencies.

Response rates were not sufficient to generalize the findings to the population of regionally accredited U. S. higher education institutions. Within these limitations, the researcher is 95% confident that the true proportion of institutions that implement institution-level

eportfolios for the purpose of accreditation is between .245 and .375 (n = 193) and concludes that support for eportfolios in the literature is not carried over into practice. Reasons for this result are discussed; a possible cause is unclear messaging from regional accreditors. Only ALOs in the Southern Association of Colleges and Schools, Commission on Colleges reported a majority of their institutions implemented institution-level eportfolios: 55% versus 45%. To test the study's hypothesis, a difference in multiple proportions test was performed. This yielded a chi-squared test statistic, $\chi^2 = 7.71$ with 5 degrees of freedom, with a *p*-value of 0.173. At a 5% significance level, the researcher failed to reject the null hypothesis; thus, there is not sufficient evidence to suggest a difference in the proportion of institution-level eportfolio implementation among the six regional accrediting agencies.

This study owes much to previously published research; however, it is unique in in its population, sample, and method.

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PREFACE

We have all heard the adage that it takes a village to raise a child. I propose that it takes a village to complete a dissertation.

The citizens of my village include my dissertation chair, Mary Margaret Kerr, and the members of my committee: Cynthia Golden, Stu Sutin, Charlene Trovato, and Jennifer Woodward, who gave generously of their time and expertise, and who by their questions and advice greatly improved this work. Thank you, so very much. Many thanks are owed to my co-workers, who are also my dear friends, for their unflagging support, patience, and encouragement: Steven Kanter, MD, Lindsay Evanish, Victoria Groce, Katie Rossi, and Hollie Ulanowicz. I am indebted to Matt Falcioni and Jennifer Murphy from the University of Pittsburgh's Statistics Consulting Center for holding my hand through the statistical testing and for contributing to the precision of the statistical language. Finally, I'd like to thank my family: my husband Al, who cheered me on and who uncomplainingly did way more than his share of the housework for over a year; my children Victoria, Justine, and John, for their support and able research assistance, and my parents, Carl and Nancy McBane, who always believed I would turn out well, despite ample evidence to the contrary.

1.0 INTRODUCTION

Electronic portfolios, or eportfolios, serve many purposes in higher education. Most often, they are implemented at the level of an individual student, a course, or a program; these types of eportfolios help make individual learning visible (Wetzel & Strudler, 2005). Others are used as tools to assist with academic advising, curricular development at the department level, career planning and development (Reese & Levy, 2009), and formative student assessment. Rather than focusing on individual student learning, or as a tool for departments or programs, this research focused at the institution level and studied electronic portfolios implemented to support regional accreditation or reaffirmation. The purpose of this research is to assess the current state of institution-level eportfolio implementation, for support of regional accreditation or reaffirmation, at accredited United States universities; and to contribute foundational information to the current body of knowledge. Throughout, the terms "electronic portfolio" and "eportfolio" are used interchangeably.

This introductory chapter will serve to introduce the study, define and clarify two important concepts, and outline the balance of the work contained in Chapters 2 through 5.

1.1 DEFINITIONS

1.1.1 Electronic portfolio.

What exactly an eportfolio is and what it can be used for is the subject of much writing and debate. Section 2.1 explores the multiple definitions put forth by eportfolio experts; however, despite a thorough literature review, none was exactly right for this study.

Because existing definitions were different and sometimes incompatible, it became important to craft one common definition that could be presented to those participating in the survey described in Chapter 3. The definition developed for this study builds directly upon two articles: “Electronic Portfolios for Accreditation?” (Banta, 2003), in which Banta describes the experience of creating an institution-level eportfolio for her institution’s site visit in 2002, and “Database E-portfolio Systems: A Critical Appraisal” (Kimball, 2005), in which Kimball explains why collections of both database-driven and static HTML pages can be considered electronic portfolios. These articles suggest institution-level eportfolios should be accessible to the public, open and transparent, (Banta, 2003) and Web-based (Banta, 2003; Kimball, 2005) but not necessarily database-driven (Kimball, 2005). According to Banta (2003), evidence presented in an institution-level electronic portfolio can be current or show growth and development over time. See Figure 1 for the definition developed for the survey.

For purposes of this study, please consider this definition.

INSTITUTION-LEVEL ELECTRONIC PORTFOLIO (eportfolio): An institution-level electronic portfolio is a Web-based tool designed to help document and organize a college or university's story, goals, and standards. It is created for the purpose of collecting and showcasing evidence of the academic and operational happenings of an institution, in support of regional accreditation or reaffirmation. It documents institution-specific outcomes and provides a means by which an institution can verify to regional accreditors and the public that it has met its standards in accordance with its philosophy and mission.

EXAMPLE:
A dedicated Web site or Web page created for the purpose of collecting and showcasing information such as enrollment or graduation data, an institution's self-study, or other data that are of interest to regional accrediting agencies and the public. It may be composed of static HTML pages that contain narrative text, and/or links to other Web pages or documents (PDF, Word, Excel, or rich media, for example).

These WOULD NOT be considered to be institution-level eportfolios:

- A wholly self-contained electronic-format self-study (like a PDF) that is provided to accreditors on a DVD or flash drive, with no Web presence.
- Instances where the self-study or showcase information is not organized on a dedicated Web site or page, but instead is scattered throughout an institution's Web site.
- A paper portfolio that is shared in hard copy printed form only.

Figure 1. Definition of institution-level eportfolio developed for the survey.

This definition allowed the researcher to define an eportfolio very broadly—as a vehicle to display information, documentation, and resources for institutional accreditation or reaffirmation purposes—without specifying file format, software, or any number of other limiting features. Importantly, it takes into account the call for increased transparency of institutional effectiveness data called for by the Spellings Commission's report, "A Test of Leadership: Charting the Future of US Higher Education[1]" (U.S. Department of Education, 2006). Examples of eportfolios that meet this definition are provided in Appendix B.

[1] Hereafter referred to as the "Spellings Report"

1.1.2 Scholarly researchers and scholarly practitioners.

There is a growing body of literature devoted to the study of electronic portfolios. Much of this work is being performed and published by two communities—scholarly researchers and scholarly practitioners. While there is much potential for overlap, scholarly practitioners may be thought of as those in the trenches whose job descriptions do not require that they publish—yet they choose to do so anyway. This group publishes best practices, success stories, and cautionary tales based on hands-on, first-person experiences of launching and implementing eportfolios. This also is the group that most often supports the technology and teaches others to use it. They are not likely to find themselves on the tenure track. Scholarly researchers' careers most often encompass researching, uncovering, describing, and promulgating theories and knowledge related to purposes and uses of electronic portfolios. The contributions of both scholarly researchers and scholarly practitioners are equally valued within this dissertation. For ease of reading, these two groups will be referred to as "researchers" and "practitioners" throughout the balance of this work.

For other important definitions and acronyms, please consult the Glossary, located in Appendix A.

1.2 CHAPTERS TWO THROUGH FIVE

How does an institution-level eportfolio used for regional accreditation or reaffirmation fit into the conversation about what eportfolios are and how they should be used? A significant portion of Chapter 2 is devoted to answering that question, and while doing so uncovers tensions

between the positions of researchers and practitioners relative to that topic. Section 2.1 explores multiple definitions put forth by eportfolio experts. As discussed in Section 1.1.1, none was quite right for this study, and a new definition was developed to describe the characteristics of an institution-level electronic portfolio created for the purpose of supporting regional accreditation and/or reaffirmation (see Figure 1).

The balance of Chapter 2 accomplishes two things. It:

1. Tracks the literature to create an historical timeline of institution-level eportfolio milestones and implementation efforts—and finds solid evidence that this function of eportfolios is well established in higher education;
2. Reviews the literature published about successful, and to a lesser extent, unsuccessful implementations.

Chapter 2 includes a discussion of publication bias as it might affect reports of unsuccessful implementations, and concludes with a summary of best practices and "lessons learned" gleaned from the literature.

Chapter 3 relies on the methodical search and careful reading of the literature to inform the development of a survey questionnaire and drive the formulation of a study that builds upon the six surveys described in these publications: Chatham-Carpenter, Seawel, and Raschig, (2010); Lee, (2007); Mayowski and Golden, (2012); Olson, (2008); Phillips, Easterling, Patton, Peet, Fritz, and Johnson, (2008) and Willbanks (n.d.); and the work of Banta (2003), Buzzetto-More (2010), DeGeorge (2010), Lorenzo and Ittelson, (2005), Middaugh, (2008), and Reynolds and Patton, (2012). At every turn, the method for this study, and the questions it hoped to explore and resolve, are tied back to the literature and to the gaps identified during the literature review.

Chapter 4 reports on the data gathered through administration of the Web-based survey questionnaire, and offers visualizations of these data when appropriate. Chapter 4 concludes with a discussion of the limitations of this study. Chapter 5 is composed of a discussion of the findings related to the research questions and the hypothesis posed in Section 1.4, recommendations for future research, and the researcher's conclusions.

1.3 PROBLEM STATEMENT

Despite a growing body of literature, little is known about the prevalence of institution-level eportfolios for supporting regional accreditation or reaffirmation efforts at higher education institutions across the United States. An extensive literature review uncovered no data that described the relative proportions of institution-level electronic portfolio implementation based upon the regional accreditor[2] of the institution. Additionally, little is known about characteristics (such as Basic Carnegie Classification and institution size) of institutions that implement institution-level eportfolios for the purpose of supporting regional accreditation or reaffirmation. The perceptions of key players in the regional accreditation process, accreditation liaison officers (ALOs), are unexplored. In short, there is a lack of basic, foundational information about the

[2] The six regional accreditors are: Middle States Association of Colleges and Schools, Middle States Commission on Higher Education (MSCHE); New England Association of Schools and Colleges, Commission on Institutions of Higher Education (NEASC-CIHE); North Central Association of Colleges and Schools, Higher Learning Commission (NCA/HLC); Northwest Association of Schools and Colleges, Northwest Commission on Colleges and Universities (NWCCU); Southern Association of Colleges and Schools, Commission on Colleges (SACS/COC), Western Association of Schools and Colleges (WASC).

implementation of institution-level electronic portfolios at regionally accredited higher education institutions.

1.4 RESEARCH QUESTIONS

The gaps in knowledge identified through the literature review led to these unresolved questions:

1. What is the prevalence of institution-level eportfolio implementation at accredited United States colleges and universities for support of regional accreditation and/or reaffirmation?
2. What is the relationship between U.S. higher education institutions' regional accrediting agency, selected characteristics such as Basic Carnegie Classification or institution size, and the likelihood that the institution is using institution-level eportfolios to manage regional accreditation/reaffirmation?

This study puts forth the following hypothesis:

H_0: There is no difference in the proportion of institution-level eportfolio implementation (for support of regional accreditation/reaffirmation) among the six regional accrediting agencies.

1.5 IMPORTANCE OF THE PROBLEM

Researchers and practitioners alike recognize the potential of institution-level electronic portfolios to facilitate the regional accreditation process. Despite evidence that accrediting agencies are driving the implementation of eportfolios for this purpose (Buzzetto-More, 2010; Kahn, 2001; Lorenzo & Ittelson, 2005a; Provezis, 2012; Reynolds & Patton, 2012; Willbanks,

n.d.), the possible relationship between an institution's accrediting agency and the likelihood that the institution has implemented an institution-level electronic portfolio to manage regional accreditation efforts is unexplored. It would be useful to researchers and practitioners alike to know more about the prevalence of institutional eportfolios implemented for the purpose of supporting regional accreditation, and some of the characteristics of the institutions that implement institution-level eportfolios for this reason. This study aims to provide findings that will help regional accreditors and higher education institutions alike understand the prevalence of institution-level eportfolio adoption, and identify characteristics that could help all parties take advantage of eportfolios' potential to build a culture or evidence, or "eporticulture" (Kelly & Cox, 2012, p. 56).

1.6 PRACTICAL IMPLICATIONS OF THE PROBLEM

"The current interest in electronic institutional eportfolios arises from their capacity to respond to pressing issues confronting higher education" (Kahn, 2001, p. 137).

Institutions of higher education are being required to respond to calls for greater accountability (Batson, 2007; Clark & Enyon, 2009; Cummings & Maddux, 2010; Kahn, 2001; Ketcheson, 2001; Middaugh, 2008; Strudler & Wetzel, 2005; U.S. Department of Education, 2006). These pressures come from multiple directions: The federal government is pressuring colleges and universities to develop accountability measures that describe institutional outcomes, such as student retention and graduation rates, and post-graduation job placement rates. The public wants to ensure their tax dollars are well spent. Of greatest interest to this study, however, is the pressure from regional accrediting agencies.

Regional accrediting agencies are non-profit commissions that validate the quality of academically oriented, degree-granting colleges and universities. Schools that are accredited by one of the six regional agencies are eligible to offer federal financial aid and to receive federal research grants. Students planning to attend a regionally accredited graduate school must earn their undergraduate degree from a regionally accredited higher education institution.

Accrediting agencies increasingly are seeking evidence that higher education institutions are setting and meeting standards and are focusing on issues of assessment and institutional effectiveness. Most institutions can generate these types of campus data (Middaugh, 2008). The challenge is to present them in a fashion that is easy for regional accrediting agencies to evaluate and understand. Eportfolios provide one solution for capturing, storing, and presenting information requested by accrediting agencies (Reese & Levy, 2009b, p. 4).

"The eportfolio is a powerful tool for assessment, and accreditation is a frequent impetus for eportfolio adoption" (Buzzetto-More, 2001, p. 11). An institution-level portfolio is capable of presenting "a focused selection of authentic work, data, and analysis that demonstrates institutional accountability and serves as a vehicle for institution-wide reflection, learning, and improvement" (Kahn, cited in Lorenzo & Ittelson, 2005a, p. 5). Ketcheson (2001) notes, "Electronic institutional portfolios can provide detailed accountability information in response to accrediting standards, as well as authentic examples of student learning and faculty research and scholarship" (p. 89).

These statements imply that eportfolios could provide significant benefits to higher education institutions seeking accreditation or reaffirmation. Foundational information about the current state of practice, such as this study hopes to identify, may be valuable both to institutions

considering the implementation of an institution-level eportfolio for this purpose, and to their regional accreditors.

1.7 RELATIONSHIP TO PREVIOUS SCHOLARSHIP

The gaps in knowledge identified through the literature review led to these unresolved questions:

1. What is the prevalence of institution-level eportfolio implementation at accredited United States colleges and universities for support of regional accreditation and/or reaffirmation?
2. What is the relationship between U.S. higher education institutions' regional accrediting agency, selected characteristics such as Basic Carnegie Classification or institution size, and the likelihood that the institution is using institution-level eportfolios to manage regional accreditation/reaffirmation?

This study puts forth the following hypothesis:

H_0: There is no difference in the proportion of institution-level eportfolio implementation (for support of regional accreditation/reaffirmation) among the six regional accrediting agencies.

The literature review described in Chapter 2 revealed significant gaps in knowledge related to these research questions. Butler (2010) notes that formal research on eportfolio adoption by institutions of higher education is just beginning to emerge; however, several publications of particular interest were identified. This study builds upon the work of Banta (2003), Buzzetto-More (2010), DeGeorge (2010), Lorenzo and Ittelson, (2005), Middaugh, (2008), and Reynolds and Patton, (2012), and especially the six surveys described in these publications: Chatham-Carpenter et al., (2010); Lee, (2007); Mayowski and Golden, (2012); Olson, (2008); Phillips et al., (2008) and Willbanks (n.d.). The Banta article asks important

questions about the future of eportfolios for accreditation, and the six survey publications describe the design and administration of surveys designed to capture specific characteristics of eportfolio implementation.

1.8 LEVEL OF CHARACTERISTICS STUDIED

"At the broadest level, student and teaching eportfolios can be aggregated into an institutional eportfolio containing a wide variety of digitized representations that provide evidence for self-study and accreditation" (Lorenzo & Ittelson, 2005a, p. 3). This study focuses squarely on electronic portfolios at Lorenzo and Ittelson's "broadest level."

Inside this institution-level electronic portfolio might be items such as an institution's self-study document; links to dashboards displaying enrollment, diversity, or graduation rates; evidence of community engagement; rubrics that demonstrate how faculty are teaching general education goals across the curriculum; or how many of the institution's graduates land jobs in their fields. Borden (2001) states, "For example, a university can show its commitment to access for traditionally underserved populations by comparing its ethnic and racial composition with the ethnic and racial composition of its service region" (p. 193). Susan Kahn (2001) describes an institution-level eportfolio in this way:

> "Like individual student and faculty portfolios, institutional portfolios feature authentic work and evidence in a context of learning, reflection, and assessment. Like other portfolios, they can serve purposes of both internal improvement and external accountability. *But institutional portfolios differ from individual ones in that they address these purposes at the level of the whole institution.* (p. 135) [emphasis added]

2.0 LITERATURE REVIEW

Before beginning any discussion, it is important that all participants have a common understanding of the terminology used by researchers and practitioners in the community. For example, it is important to understand what is meant when one says "electronic portfolio." While this might seem to be a matter of common sense, both eportfolio researchers and practitioners cite the lack of a common definition and the resulting lack of shared understanding of purpose as a major source of tension (Hassall, 2007). This tension is widely acknowledged by the eportfolio community and is discussed later in depth. In an attempt to short-circuit any misunderstanding, the first section of this literature review concentrates on reviewing existing definitions proposed in the literature, and then moves on to explore the various roles eportfolios can and do play in higher education. The reviewed publications informed the development of the definition created for the survey questionnaire, shown earlier in Figure 1.

The second section of this literature review is a chronological narrative that concentrates on selected key points in the history of eportfolios in higher education, with a concentration on their historical use to facilitate accreditation. Selected eportfolio initiatives and publications are presented and discussed.

Finally, the third section of this literature review investigates efforts to implement eportfolios, concentrating on efforts at the institutional level. While not claiming to be an exhaustive examination of implementation efforts, this section presents important stories of both

successful implementations and unexpected and/or disappointing results. The third section concludes with a compilation of best practices and challenges gleaned from the scholarly and professional literature examined for this review.

The three questions proposed for the literature review were chosen to provide an understanding of the conversations taking place in the researchers' and practitioners' eportfolio communities. The understanding gained from the review also provided a foundation from which to choose a methodological approach and develop a survey to answer the questions that arose from the readings.

As an aid to comprehension, there is a summary at the end of Sections 2.1, 2.2, and 2.3. A glossary of acronyms and terms is available in Appendix A.

2.1 HOW DOES THE EXISTING SCHOLARLY AND PROFESSIONAL LITERATURE MAKE DISTINCTIONS BETWEEN THE ROLES EPORTFOLIOS SERVE IN HIGHER EDUCATION?

Eportfolios are notoriously difficult to define. It may be helpful to begin with an analogy to a familiar object.

In a 2007 presentation to the Multimedia Educational Resources for Learning and Online Teaching (MERLOT) International Conference, Lori Schroeder from Minnesota State Colleges and Universities suggested it is helpful to imagine an institution-level eportfolio as an institution's electronic filing cabinet (Schroeder, 2007). While not a very sophisticated visualization, it is quite apt, and provides a useful place to start. However, not everyone in the eportfolio community would agree that this is an appropriate mental image of eportfolios.

Depending upon one's stance as to what eportfolios actually are, what they are not, and how they can or should be used (discussed in depth later in this section), the definition is likely to vary. While there is no one accepted definition for what exactly constitutes an eportfolio, there are a few that are widely cited in addition to Schroeder's electronic filing cabinet analogy. Cooper and Love (2007, p. 1) defined eportfolios as:

> An organized compilation of artifacts (such as documents, images, video files, podcasts, audio files, PowerPoint presentations, spreadsheets and databases, case studies, resumes, etc.) that demonstrate knowledge, skills, values, or achievements, and that articulates the relevance, credibility, and meaning of the artifacts being organized and presented.

Abrami and Barrett's definition is similar: "An eportfolio is a digital container capable of storing visual content including text, images, video, and sound" (Abrami & Barrett, 2005, p. 2).

Several published definitions specifically mention the possibility of an institution-wide application. In 2005, Lorenzo and Ittelson said, "An eportfolio is a digitized collection of artifacts, including demonstrations, resources, and accomplishments that represent an individual, group, community, organization, or institution" (Lorenzo & Ittelson, 2005, p. 2). They go on to say "Overall, the [institutional eportfolio] is meant for assessment, evaluation, and improvement; their intended audience is university administrators, faculty, and accrediting bodies" (Lorenzo & Ittelson, 2005, p. 6). Lorenzo and Ittelson's definition is one of the best known, but it is not the first to include an institutional component. In 2001, Susan Kahn, then national project director for the Urban Universities Portfolio Project (UUPP), a three-year national collaboration among six urban public universities (1998-2001), described institutional eportfolios as "a focused selection of authentic work, data, and analysis that demonstrates institutional accountability and serves as a vehicle for institution-wide reflection, learning, and improvement" (Kahn, 2001, p.

136). Ketcheson's 2002 article, "Public Accountability and Reporting: What Should Be the Public Part of Accreditation?" also quotes Kahn, but in 2002 she had slightly revised her definition of eportfolios. In Ketcheson's (2002) article, Kahn describes institutional eportfolios as "a focused selection of authentic work, data, and reflection intended to demonstrate accountability and serve as a system for monitoring performance" (p. 84).

Another definition that represents a broad understanding of institution-level eportfolios is from the eFolio Minnesota Institutional Electronic Portfolio Project (eFolioWorld™, Institutional Electronic Portfolio Center, n.d., para. 2):

> An institutional electronic portfolio is an efficient tool to present an electronic snapshot on the academic and operational happenings of an institution. It is also a vehicle to display information, documentation, and resources for program, discipline, or institutional accreditation purposes.

In the reviewed literature, the two loudest voices opposing eFolio Minnesota's definition, and the other definitions that accept the inclusion of artifacts emphasizing summative rather than formative assessment, are Helen Barrett and Trent Batson. Barrett generally weighs in from the scholarly researcher side of the argument—at this writing, she is Professor Emerita, University of Alaska; while Batson, in his role as president and CEO of the Association for Authentic, Experiential and Evidence-Based Learning (AAEEBL), offers expertise from the professional/practitioner viewpoint. Trent Batson also has scholarly credentials—he has been a professor of English and a director of academic computing—but his "eportfolio voice" has been most clearly heard in his role at AAEEBL, a nonprofit, professional organization for the world eportfolio community. AAEEBL's mission is to deepen learning and to transform institutions with electronic portfolios ("About AAEEBL," 2014, para.1). His views are supported widely in

the literature (Barrett, 2011; Barrett & Carney, 2005; Barrett & Wilkerson, 2004; Batson, 2007, 2010, 2012a, 2012b; Johnson, Barrett, Jones, Parry, & Wade, 2008; "e-Portfolio Basics," n.d.) alongside those who maintain that eportfolios are and must always be a learner-centered "digital repository that is used to develop reflective and integrative critical thinking skills" (Batson, 2010, para. 3). Barrett (2004) summarizes these opposing stances as the difference between people who support electronic portfolios used *as* assessment of learning versus those that support assessment *for* learning—in other words, the tension between eportfolios used for summative versus formative assessment. This argument has at its root the very definition of eportfolios and is the basis for the acknowledged tension between those who define eportfolios solely as a vehicle for student learning and reflection, and those who see great opportunities for assessment and evaluation. This tension is a major part of the "types and purposes" section, discussed next.

Before exploring this important subsection of the literature, it will be helpful to think more deeply about the various ways eportfolios are characterized in the literature, and their commonly understood functions.

2.1.1 Characterizing eportfolios in higher education.

A survey of the literature revealed a variety of eportfolio types and purposes currently in use at higher education institutions. The following discussion will clarify the descriptions and consider ways of classifying eportfolios.

2.1.1.1 *Eportfolios characterized by purpose.*

The many purposes eportfolios can serve are widely acknowledged in the literature (Abrami & Barrett, 2005; Barrett, 2004a; Barrett & Wilkerson, 2004; Cambridge, Kahn, Tompkins, &

Yancey, 2001; Chatham-Carpenter et al., 2010; Fagin, Hand, & Boyd, 2004; Greenberg, 2004; Hassall, 2007; Kahn & Scott, 2011; Lorenzo & Ittelson, 2005b; Reese & Levy, 2009; Wetzel & Strudler, 2005; Zeichner & Wray, 2001, cited in Butler, 2010). The list of potential uses includes support for learning, program assessment, and institutional accountability (Barrett, 2004a; Fagin, Hand, & Boyd, 2004); to make individual learning visible, to help programs and institutions identify areas that need improvement, and to demonstrate the alignment of curriculum and student outcomes with state and national standards (Wetzel & Strudler, 2005); academic advising, institutional accreditation, and departmental review, curricular development at the department level, career planning and development, and alumni development (lifelong learning) (Reese & Levy, 2009). Hassall (2007, p. 139) specifically mentions institutional accountability in higher education. Other purposes are to facilitate reflection on learning in a course(s); to showcase career skills, to aid in program review and assessment, and to showcase professional standards (Chatham-Carpenter et al., 2010); for authentic assessment in professional disciplines/documentation of professional competencies; service learning (including reflection and assessment of "civic-mindedness"; senior capstone experiences, including the components of reflection and integration of learning, and personal development plans (Kahn & Scott, 2011).

2.1.1.2 *Eportfolios characterized by timing*.

Another interesting way of classifying eportfolios is by looking at the timing of the organization of the reflection and artifacts. The best example of this is offered in "The Digital Convergence: Extending the Portfolio Model" (Greenberg, 2004). Although his labels are not unique, the way he explains the characteristics of the eportfolios is a bit unusual and is worth mentioning in this review. Greenberg says that it is helpful to think of eportfolios "in terms of when the work is organized relative to when the work is created" (p. 31).

- The *showcase ePortfolio*: organization occurs after the work has been created.
- The *structured ePortfolio*: a predefined organization exists for work that is yet to be created.
- The *learning ePortfolio*: organization of the work evolves as the work is created. (p. 31)

2.1.1.3 *Eportfolios characterized by type.*

Because there are so many purposes eportfolios can serve, some might find it more helpful to classify them in more than one way. One popular way is in terms of "type" rather than "purpose." Importantly, most researchers and practitioners accept the existence of eportfolio "hybrids," which are composed of elements selected from the distinct types. The acceptance of eportfolio hybrids will become important as we consider institution-level eportfolios for regional accreditation and/or reaffirmation.

The Web site of the Regis University Electronic Portfolio Project provides a succinct list of eportfolio types. This project ran from January 2000 to March 2003 as part of the three-year Learning Anytime, Anywhere Partnership (LAAP) project ("e-Portfolio Basics: Types of e-portfolios," n.d.).

- Development Portfolios: demonstrate the advancement and development of student skills over a period of time. Developmental portfolios are considered works-in-progress and include both self-assessment and reflection/feedback elements. The primary purpose is to provide communication between students and faculty.
- Assessment Portfolios: demonstrate student competence and skill for well-defined areas. These may be end-of-course or program assessments primarily for evaluating student

performance. The primary purpose is to evaluate student competency as defined by program standards and outcomes.

- Showcase Portfolios: demonstrate exemplary work and student skills. This type of portfolio is created at the end of a program to highlight the quality of student work. Students typically show this portfolio to potential employers to gain employment at the end of a degree program.
- Hybrids: Most portfolios are hybrids of the three types of portfolios listed above. Rarely will you find a portfolio that is strictly used for assessment, development, or showcase purposes. (paras. 1-4)

Other types of eportfolios are sometimes suggested in the literature, but they can be logically situated within one of the three types listed above, or considered a hybrid.

2.1.1.4 *Eportfolios characterized by audience.*

In her literature review, Philippa Butler (2010) notes that the attention researchers and practitioners pay to typifying eportfolios reinforces the importance of identifying the purpose and audience of the eportfolio. Butler correctly notes that an eportfolio "developed to show change and progress in a student's learning will not be appropriate for use when applying for a job, just as an eportfolio displaying only exemplary pieces of work will not be useful for assessing reflective learning" (p. 114). A list of potential audiences, gleaned from this literature review but not intended to be exhaustive, might include faculty, university administrators, accrediting bodies, the public, future employers, and all levels of government.

2.1.2 How can eportfolios for institutional accreditation be characterized?

What are the attributes of eportfolios used for institutional accreditation when mapped against the characteristics discussed above? This survey of the literature failed to find only one suitable slot. Not only are institutional eportfolios hybrids, they contain elements of all three types identified by the Regis Electronic Portfolio Project ("e-Portfolio Basics: Types of e-portfolios," n.d.). Depending on the process and timing of the particular institution, an institutional eportfolio could be considered showcase, structured, or learning when measured against Greenberg's typology (2004). Audiences can be varied as well. The primary audience is often the regional accrediting agency, but an eportfolio built to facilitate institutional accreditation or reaffirmation will be of great interest to internal audiences at the institution as well as to local, state, and national governing bodies, not to mention the public, whose tax dollars are often allocated to the support of an institution's mission.

2.1.3 Tension.

Eportfolios have long struggled with multiple meanings. Unless the purpose for the eportfolio is carefully defined, confusion about the implementation effort can result. The effect of this confusion is a widely acknowledged tension in the higher education community (Hassall, 2007). Typically, this tension is exhibited by educators, researchers, and practitioners who inhabit different pedagogical camps. As understood from the previous discussion on definition, purpose, type, timing, and audience, there are those who value eportfolios as a pedagogical tool for supporting student learning; those who see them as a mother lode of data to be mined for assessment/accreditation purposes; and those who believe both masters can be served. In

addition to Hassall's dissertation (2007), which focused on describing the tensions that arose in one department, the literature clearly demonstrates this existence of tension among those who advocate for eportfolios from varied positions. In fact, there are those who argue that some uses change the eportfolio's very "eportfolioness" and morph it into an assessment management system. These individuals deny that eportfolios used for assessment/accreditation are eportfolios at all. They generally base their argument on whether or not an eportfolio contains reflective artifacts. Readers of the literature will come across eportfolios that do not show evidence of self-reflection, rubrics to provide standards, or feedback. Helen Barrett says of these: "a portfolio without standards, goals and/or reflection is just a fancy resume, not an electronic portfolio" ("e-Portfolio Basics: Types of e-portfolios," n.d., para. 4). Those who support the "electronic filing cabinet" definition might disagree. But first, a look at the literature that supports Barrett's position.

2.1.3.1 *Separation of systems is necessary*.

Barrett has devoted a large part of her career to defining and discussing the differences between electronic portfolios and assessment management systems. Her recommendation is to keep the systems separate, but with connections between them. Barrett and Wilkerson (2004) describe the ideal: three different, yet connected, systems. They summarize their argument this way: "Three interconnected systems are actually needed: an archive of student work, an assessment management system to document achievement of standards, and an authoring environment where students can construct their own electronic portfolios and reflective, digital stories of learning" (para. 30). Barrett, in "Electronic Portfolios as Digital Stories of Deep Learning" reiterates: "It is a rare system that supports those multiple needs. That is why I [Barrett] often advocate for three interconnected systems: an archive of student work, an assessment management system to

document achievement of standards, and an authoring environment where students can construct their own electronic portfolios and reflective, digital stories of learning" (Barrett, 2004, para 4). Barrett and Wilkerson (2004) argue that establishing a culture of evidence does not mean simply compiling a selection of artifacts. They believe that, in order to be considered evidence, artifacts must be accompanied by the learner's rationale (in other words, reflections). They cite Barrett's equation for eportfolio evidence:

Evidence = Artifacts + Reflection (Rationale) + Validation (for example, through a validated rubric, used by a trained evaluator: Feedback) (Barrett, 2003, cited in Barrett & Wilkerson, 2004, para. 5).

In 2005, Barrett and Carney drew the distinction between assessment management systems and eportfolios. In this publication, the stance is especially strong:

> A portfolio that closely emulates a paper version and just happens to be stored in an electronic container is a very different document from one that is part of an online database system, a system that focuses on portfolios as a means to conduct high stakes evaluations. In fact, *some commercial software systems should really be called 'assessment management systems' rather than 'electronic portfolios.'* [emphasis added] (para. 26)

Barrett and Carney (2005) note that products are coming to market that claim to support both student learning and also provide a means to aggregate assessment data to meet accreditation requirements. In 2005, though, they are not hopeful of success: "Our analysis suggests there are enormous challenges in trying to meet these two diverse needs with a single product, for the purposes imply different paradigms, which, by their very nature are often in conflict with each other" (para. 25).

Trent Batson, president and CEO of the Association for Authentic, Experiential and Evidence-Based Learning (AAEEBL), is seated in Barrett's camp in 2007. In "The ePortfolio Hijacked," (2007) Batson opens his argument by making two very strong statements: "The idea of the eportfolio in higher education in the United States has transmuted from a focus on learning to a focus on accountability" (Batson, 2007, para. 1) and "A learning idea that had been hijacked by the need for accountability" (Batson, 2007, para. 2). Batson continues in this vein, stating that what he was observing in the higher education community was "replacing a learning tool with a management tool and believing the two are the same" (Batson, 2007, para. 3). Batson suggested "Rather than think of these two instantiations of the portfolio idea as a duality, however, let's separate out 'eportfolios' by their purpose and function: learning portfolios, advising portfolios (or student development portfolios), student showcase portfolios, *assessment management systems*" [emphasis added] (Trent Batson, 2007, para. 4). In a nod to his friend and colleague Helen Barrett, Batson remarks:

> Colleges and universities have no choice but to participate in assessment management in one way or another and to a different degree, depending on which professions are represented at the school. Given this necessity, assessment management systems will most likely be a part of campus life from now on. *But don't call them 'eportfolios.' They are assessment management systems, or what a friend said really should be called 'accreditation management systems.'* [emphasis added] (Trent Batson, 2007, para. 6)

The findings of this portion of the literature review show that Barrett and Batson, especially, call for a separation of systems. However, the evidence suggesting one eportfolio system can serve multiple purposes is quite strong and is examined next.

2.1.3.2 *The case for multiple purposes*.

Despite sometimes vehement disagreement, there are signs that some thought leaders on this topic are beginning to soften their stances (Barrett & Wilkerson, 2004; Barrett & Carney, 2005; Barrett, 2007; Batson, 2012a; Batson, 2012b; Cambridge, 2012). Even in 2005, Barrett and Carney seemed resigned to the inevitability of eportfolios, or one eportfolio system, serving multiple purposes: "However, it is unrealistic to expect such a separation. The key to using portfolios for both purposes is to recognize the conflicting paradigms and purposes underlying each, and to devise a balanced electronic portfolio system for assessment and learning" (Barrett & Carney, 2005, para. 34). Darrell Cambridge, co-leader of the Inter/National Coalition for Electronic Portfolio Research, through which 60 teams at institutions of higher education in six countries are investigating the impact of eportfolio use on teaching, learning, and assessment, accepts this duality, with qualifications:

> At the departmental level, the most common use of eportfolios is to gather artifacts of student work to demonstrate fulfillment of standards as a component of programmatic assessment. Although this is certainly an improvement on less-authentic forms of assessment, experts generally agree that such applications of eportfolios usually do little to further learning and may actively work at cross-purposes with the use of eportfolios to support learning. *It is an oversimplification to say that eportfolios cannot be used simultaneously for learning and assessment,* [emphasis added] but such use requires the integration of eportfolio activities across the curriculum at a scale almost never attempted by programs invested only in meeting the demands of external accountability. (Cambridge, 2012, para. 4)

Supporters for multiple uses include Kelly and Cox (2005) who acknowledged that "Inevitably, campuses are finding a need to balance tensions between using eportfolios for institutional and program assessment or for student-centered, reflective learning" (p. 61).

Virginia Tech (Van Dyke, Culver, & Watson, n.d., slide 13) reported using one eportfolio system with two goals:

- Student-centered, to facilitate learning, reflection, self-knowledge, and career development
- Institution-centered, to enable retrieval of student-produced artifacts for student and or outcomes assessment

In "Can We Do Both? Eportfolios for Student Learning and Assessment: Lessons Learned at an American University," Candyce Reynolds and Judith Patton (2012) found that both the goals of student learning and assessment are served well through the use of eportfolios. Lorenzo and Ittelson (2005) remarked, "numerous eportfolio models combine these categories and functions" (p. 2).

Other thought leaders distance themselves from the "single or multiple use" fray and consider eportfolios as simply a logical development from classic portfolio uses to showcase student work and demonstrate the achievement of competencies (Cambridge et al., 2001).

Perhaps the clearest indicators of a shift in thinking are Trent Batson's recent publications on this topic. As discussed extensively earlier in this review, Batson has long been publically supportive of eportfolios for student learning, reflection, and formative assessment, and an opponent of eportfolios as vehicles for summative assessment or accreditation purposes. He is also on the record as a proponent of separate systems for separate purposes. In 2012, Batson published at least two articles (Batson, 2012a, 2012b) that seem to indicate a change in

his mindset. Although Batson still believes "the two functions, one institution-centered and the other student-centered, were and are incompatible" (Batson, 2012a, para. 10) he begins "A Survey of the Electronic Portfolio Market Sector: Analysis and Surprising Trends" by saying:

> Since I published "Eportfolios Hijacked" [sic] in 2007 in *Campus Technology*, electronic portfolios have moved away from what I, then, considered an over-emphasis on institutional tracking of student progress toward learning outcomes in a traditional curricular structure. Now, electronic portfolios offer a more broad-based and exciting architecture. They've moved from institution-centered to multi-centered; from assessment-centered to learning *and* assessment-centered" (para. 1).

Batson has observed a dramatic improvement in eportfolio functionality and interface design in the years since he published "The ePortfolio Hijacked,"—it is this improvement, along with the change in focus as quoted above, that caused his shift in position.

Based upon this review of the literature, eportfolio practitioners and researchers seem to have reached a consensus that eportfolios can indeed serve multiple functions, and that an institution-level eportfolio designed for the purposes of institutional accreditation and the assessment of institutional effectiveness can, indeed, be called an eportfolio. Batson's wish, spoken as his parting shot in 2007's "The ePortfolio Hijacked"—"And let us hope that the days of confusing the term 'eportfolio' with 'assessment management system' are also numbered" (para. 10) has not been granted. Instead, eportfolio vendors, and those who design in-house systems at colleges and universities, have begun to re-imagine eportfolios in ways that allow those who see eportfolios as a pedagogical tool, and those who see them as a means for harvesting accountability data, to coexist.

It is likely that some will continue to insist that reflection must be an included component before a collection of artifacts is an eportfolio rather than an assessment management system. It may be possible to convince even these adherents that artifacts compiled to support an institution's accreditation or reaffirmation effort truly are eportfolios—because reflection is indeed an element of the institution-level eportfolio. For what else is an institution's self-study document other than a reflective artifact, albeit writ very large?

Are there examples in the literature of successful eportfolio use for the purposes of institutional accreditation? If so, are there reported best practices that influenced this success? Conversely, are there examples of failure, or unexpected and/or disappointing results? Before addressing these questions, it makes sense to begin with a look at the history of eportfolios used for institutional accreditation.

2.1.4 Summary.

In Section 2.1, several fundamental questions were addressed in the course of answering the overarching question: How does the existing scholarly and professional literature make distinctions between the roles eportfolios serve in higher education?

In order to begin answering this question, the related literature was reviewed, and a selection of existing definitions was presented. These existing definitions suggested important components that, along with Banta's (2003) and Kimball's (2005) contributions, enabled this researcher to create a definition suited for the survey questionnaire developed for this study (see Figure 1).

Next, through a close reading of the literature, useful ways of classifying eportfolios and described their attributes were identified. This research answered the substance of the

overarching question and yielded the understanding that institutional eportfolios are hybrids of purpose, type, timing, and audience classifications. See Table 1 to aid with visualizing and internalizing the large amount of information generated by the research on this topic.

Table 1. Characterizing Eportfolios in Higher Education

Characterizing Eportfolios in Higher Education

Characterization	Attributes	Literature Support
Purpose	Support for learning; facilitate reflection on learning; program assessment; institutional accountability/institutional accreditation; curriculum development; career planning; lifelong learning	Barrett, 2004a; Fagin, Hand, & Boyd, 2004; Wetzel & Strudler, 2005; Reese & Levy, 2009; Hassall, 2007; Chatham-Carpenter, Seawel, & Raschig, 2010; Kahn & Scott, 2012
Type	Development; assessment; showcase; hybrid	Regis University Electronic Portfolio Project, n.d.
Timing	Organized after the work is created; organized for work yet to be created; organized as the work is created	Greenberg, 2004
Audience	Faculty; university administrators; accrediting bodies; the public; future employers; all levels of government	Butler, 2010

The importance of the definition and classification was addressed in the discussion of the tensions that result from leaving these stones unturned.

Finally, the review traced the "separate versus multi-purpose" and "assessment/accreditation system versus genuine eportfolio" arguments that are integral to answering the first literature review question, and noted the apparent evolution of thought leaders

toward a more flexible stance. Based upon this review of the literature, eportfolio practitioners and researchers seem to have reached a consensus that eportfolios can indeed serve multiple functions, and that an eportfolio designed for the purposes of institutional accreditation and the assessment of institutional effectiveness can, indeed, be called an eportfolio.

The foundation laid by answering question one is instrumental in addressing question three, "Are there examples in the existing research literature of implementation successes or reports of unexpected and/or disappointing results?" Before addressing that question, though, it makes sense to look at the history of eportfolios used for institutional accreditation.

2.2 HOW DOES THE EXISTING RESEARCH LITERATURE DESCRIBE THE HISTORY OF EPORTFOLIO USE FOR INSTITUTIONAL ACCREDITATION?

In 2005, Lorenzo and Ittelson called institutional eportfolios a "relatively new development that promises to streamline academic planning and development…and possibly reduce the cost of accreditation processes. In short, institutional eportfolios can catalyze institution-wide improvements" (Lorenzo & Ittelson, 2005, p. 10).

2.2.1 Chronology.

Whether or not a practice is "relatively new" is, of course, relative, and it is also related to the "technology uptake rate" of a given field. It is true that higher education institutions sometimes are accused of being slow to adopt new technology (Batson, 2012a). While this contention has been supported with regard to implementation of institution-level eportfolios at Association of

American Universities (AAU) member institutions (Mayowski & Golden, 2012), and with regard to program-level eportfolios at large public research universities (Paoletti, 2006), the literature also provides evidence of early adoption.

In 1997, Rose-Hulman Institute of Technology, a private, undergraduate college, responded to accreditation demands by beginning to develop an institution-wide assessment process. In addition to defining a set of institutional learning outcomes, the Rose-Hulman electronic portfolio program (REPS) began to take shape (Williams, 2010) and was piloted in the 1996-97 academic year. Rose-Hulman Institute of Technology is accredited by the North Central Association of the Higher Learning Commission (NCA/HLC).

There is evidence that the idea of using eportfolios at the institution level to manage regional accreditation began to take root on a national level in the late 1990s with the Urban Universities Portfolio Project (UUPP). This national collaboration among six urban public universities ran from 1998–2001. The UUPP was funded by a three-year grant through The Pew Charitable Trusts. Based on findings from this review of the literature, the UUPP was likely the first institutional eportfolio initiative. The UUPP was composed of California State University, Sacramento (CSUS); Georgia State University; Indiana University-Purdue University Indianapolis (IUPUI); Portland State University (PSU); the University of Illinois at Chicago; and the University of Massachusetts at Boston. Several of these institutions are important to the upcoming discussion of implementation successes and challenges.

The American Association for Higher Education (AAHE) participated in UUPP, along with two accrediting bodies, the Western Association of Schools and Colleges (WASC) and the North Central Association of the Higher Learning Commission (NCA/HLC) (DeGeorge, 2010, p. 69).

In their discussion of UUPP, Lorenzo and Ittelson (2005) stated that UUPP had two basic goals:

- To enhance understanding, among internal and external audiences, of an institution's distinguishing features, mission, and goals through a public institutional eportfolio; and
- To use the process of building and updating an institutional eportfolio to enhance and maintain an institution's ability to communicate, plan, and achieve its mission and goals on a continuous basis. (p. 2)

The project ended in 2001. At about the time UUPP was drawing to a close, Ketcheson (2001) noted that "Governing boards, accrediting agencies, and the public have increased their demands for accountability in higher education, placing pressure on colleges and universities to produce more data, often in new forms" (p. 83). Ketcheson traced the organization of the UUPP to national discussions on the reform of self-study practices and accreditation. She lauded UUPP's benefits to the higher education community, namely the project's goals related to "design[ing] a new medium for communicating quality assurance and institutional improvement information to the public" (Ketcheson, 2001, p. 84).

In 1999, the Higher Learning Commission of the North Central Association launched an alternative accreditation process for colleges and universities: the Academic Quality Improvement Program (AQIP). One of the goals of AQIP was "to make the entire accreditation process paperless" (Lorenzo & Ittelson, 2005, p. 7). Another goal was to "infuse the principles and benefits of continuous improvement into the culture of colleges and universities by providing an alternative process through which an already-accredited institution can maintain its accreditation" ("AQIP Pathway," n.d., para. 1). By 2005, 150 institutions had volunteered to be

a part of AQIP. In 2006, AQIP endorsed the electronic systems portfolio as a method to provide access to accreditation materials.

In 2001, Susan Kahn noted that the interest in electronic institution-level portfolios at that time arose from their capacity to respond to pressing accountability issues. She listed four compelling reasons why an increasing number of universities were building and refining institutional eportfolios:

- To demonstrate accountability
- To highlight institutional effectiveness
- To stimulate internal improvement
- To put the spotlight on student learning (Kahn, 2001, p. 137)

In 2002, one of the members of UUPP, Indiana University-Purdue University Indianapolis (IUPUI), became the first institution to submit an eportfolio version of its re-accreditation self-study to its regional accrediting body (the North Central Association of Colleges and Schools). According to Lorenzo and Ittelson (Lorenzo & Ittelson, 2005), the observations of the team of visitors from the Higher Learning Commission of the North Central Association related to the effectiveness of the eportfolio were sometimes conflicting[3]. Unfortunately, the comments Lorenzo and Ittelson cite—which would likely be instructive to those considering an electronic eportfolio submission—are no longer accessible online.

In 2005-06, the Minnesota State Colleges and Universities System launched the Institutional Electronic Portfolio Project. The purpose of this project was to "develop a template and resource site that supports institutions interested in building an electronic means to display

[3] For a very interesting account of this site visit, read Trudy Banta's editorial: Banta, T. W. (2003). Electronic portfolios for accreditation? *Assessment Update*, 14(4), pp. 3-4, 14.

their Systems Portfolios" (eFolioWorld™ Institutional Electronic Portfolio Center, (n.d.). This project was a logical progression from the previously introduced eFolio Minnesota in 2002 (eFolio Minnesota is a statewide eportfolio infrastructure system that allows institutions in the state system to display their campus profiles and accreditation materials).

Portland State University, another UUPP member, became the first institution to submit an electronic version of its self-study to the Northwest Commission on Colleges and Universities (NWCCUU) in 2005.

Because of their participation in UUPP, three regional accrediting agencies can be considered early adopters. These three agencies are the Western Association of Schools and Colleges (WASC), the North Central Association of the Higher Learning Commission (NCA/HLC), and the Northwest Commission on Colleges and Universities (NWCCUU). Other regional accreditors were taking a "wait-and-see" approach; even though some in the eportfolio community considered using eportfolios for accreditation—especially specialized accreditation, such as for professional licensure—to be "low-hanging fruit" (Kahn & Scott, 2011, slide 16).

Watson (2012) recognized the impact the publication of the "Spellings Report" (U.S. Department of Education, 2006) had on the proliferation of institution-level eportfolios. The report proposed:

> A series of six far-reaching recommendations aimed at all the parties whose efforts will be needed to ensure that reform takes root: colleges and universities; accrediting bodies and governing boards; state and federal policymakers; elementary and secondary schools; the business community; and parents and students themselves. (p. xiii)

Watson noted that the report "ushered in a new age of accountability in higher education and further accelerated interest in eportfolio[s] as a holistic assessment alternative to a prospective

future containing pervasive standardized testing" (p. 3968). He finished this thought by noting, "Accreditation expectations became increasingly more stringent during this time period as well" (p. 3968). In 2009, Reese and Levy also acknowledged the impact of the "Spellings Report" (U.S. Department of Education, 2006) relative to understanding the history of eportfolios used for institutional accreditation. "Eportfolios can help respond to the new era of accountability, that, according to the Spellings Commission, will place additional pressures on higher education" (Reese & Levy, 2009, p. 3).

Watson and Reese and Levy are correct to note the impact of the "Spellings Report" (U.S. Department of Education, 2006), and to comment upon its effect on the emphasis higher education institutions began to place on accountability as a result. Accountability is, in fact, a recurring theme in the "Spellings Report" (U.S. Department of Education, 2006). Alongside accountability, the authors of the "Spellings Report" (U.S. Department of Education, 2006) pinpoint transparency as a vital component of improved institutional effectiveness and accountability. The report called 2006 levels of transparency "inadequate" (p. 14) and noted that transparency was "more and more necessary to maintaining public trust in higher education" (p. 14). Without specifically suggesting institution-level eportfolios as a delivery system, the authors state:

> Higher education institutions should make aggregate summary results of all postsecondary learning measures, e.g., test scores, certification and licensure attainment, time to degree, graduation rates, and other relevant measures, publicly available in a consumer-friendly form as a condition of accreditation. (p. 24)

On page 4, the "Spellings Report" (U.S. Department of Education, 2006) unequivocally calls for public reporting of these data—a non-negotiable component of the definition developed for this

study. With stakes so high, standards, standardization, and the need for quantifiable outcomes drove eportfolio development at the institution level, where they are used primarily for summative assessment and to provide evidence of institutional effectiveness.

Similarly, in 2009 Clark and Enyon listed the call for accountability as a major driver of eportfolio use (Clark & Enyon, 2009). In 2012, Kelly and Cox cited Clark and Enyon's drivers and note these "highlight key needs related to changing the culture at an educational institution: balancing tensions between using eportfolios for institutional program assessment or for student-centered, reflective learning" (Kelly & Cox, 2012, p. 58).

There is continued interest in eportfolios as a means for assessing institutional effectiveness and supporting accreditation and reaffirmation efforts: in 2010, Chatham-Carpenter et al., of the University of Northern Iowa, Cedar Falls, conducted a survey to discover the current rate of eportfolio adoption. To obtain their sample, they did an Internet search to identify institutions who had reported at least some level of eportfolio activity, then contacted those institutions (N = 108). They received 43 responses to their survey. Nineteen of the 43 institutions responded that when their eportfolio initiatives began [in various years], they had intended to use eportfolios for program review and institutional assessment. By 2010, when the survey took place, 25 institutions reported using eportfolios for those purposes (Chatham-Carpenter et al., 2010, p. 443). This finding may indicate that in at least some cases, successful eportfolio initiatives at the course or program level are extended to the institutional level. In 2011, Mayowski and Golden surveyed all Association of American Universities (AAU) members (N = 62) to identify characteristics of eportfolio use at those leading research-intensive institutions (Mayowski & Golden, 2012). The response rate was 50%. Of the responders, 77% reported using eportfolios, but none currently was implementing them at the institutional level—

although 10% indicated an interest in using eportfolios for institutional assessment. Paoletti's (2006) research describes the challenges inherent to implementing eportfolios at public research universities, so the 10% level of interest is encouraging, and may be indicative of a shift in attitude among large research-intensive institutions.

2.2.2 Summary.

The second section of this literature review is a chronological narrative that concentrates on selected key points in the history of eportfolios in higher education, with a focus on their historical use to facilitate accreditation. Data of this sort benefit by a visual presentation. See Figure 2 for a timeline as a way to visualize these data.

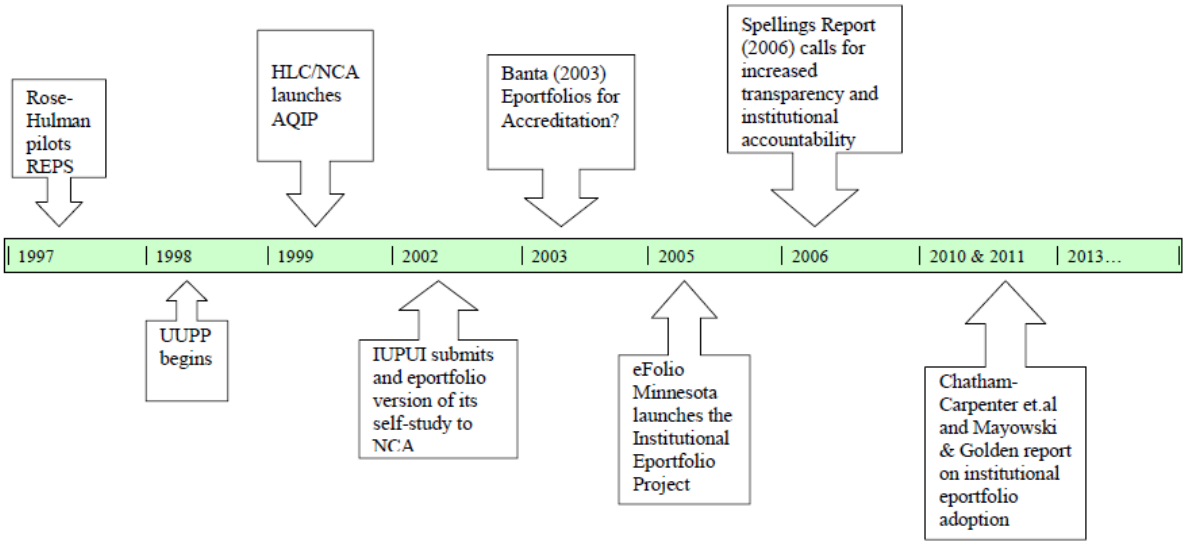

Figure 2. Timeline of selected key events and publications.

With stakes so high, standards, standardization, and the need for quantifiable outcomes drove eportfolio development at the institution level, where they are used primarily for summative assessment and for evidence of institutional effectiveness. This understanding of the historical perspective provides a foundation for addressing literature review question three: Are

there examples in the existing research literature of implementation successes or reports of unexpected and/or disappointing results?

2.3 ARE THERE EXAMPLES IN THE EXISTING RESEARCH LITERATURE OF IMPLEMENTATION SUCCESSES OR REPORTS OF UNEXPECTED AND/OR DISAPPOINTING RESULTS?

What does the literature have to say about those higher education institutions that have attempted eportfolio implementation? Are there examples in the existing research literature of implementation successes or reports of unexpected and/or disappointing results? Has there been any attempt to understand the factors that might affect the outcome?

This portion of the literature review raised additional questions about the attributes of institutional eportfolios. Does any or all of the eportfolio have to be available to the public? Does the eportfolio "live" on a more-or-less self-contained Web site with links to institutional dashboards or online fact books describing recruitment and retention? What if the self-study and the documents that support it are simply PDFs posted to a site? For the purpose of this literature review, and for the implementation results described below, all of these products are considered acceptable formats.

2.3.1 Publication bias.

The research literature describing eportfolio implementation is a good source for finding stories of success; it is not quite as useful when trying to delve into why an implementation effort may

have failed. This should not be unexpected; it has long been acknowledged that a strong publication bias exists against the publication of data that refute an investigator's initial hypothesis or do not show statistically significant results. Publication bias is the tendency on the parts of investigators, reviewers, and editors to submit or accept manuscripts for publication based on the direction or strength of the study (Dickersin, 1990). This means that a researcher who frames a study by hypothesizing a successful institution-wide implementation, but then meets with disappointment, is less likely to be published—or, the researcher may not even submit the manuscript.

Publication bias is well documented in medicine and the so-called "hard" sciences, such as chemistry or physics—to the extent that at least one journal has introduced a "Negative Results" section. Here, the journal invites authors to submit data that did not substantiate their alternative hypotheses and/or did not reproduce published findings (Dirnagl & Lauritzen, 2010). However, publication bias occurs in social sciences research as well (Weiss & Wagner, 2011). Since scholarly and professional journals are a valuable source of information for those trying to replicate successes and/or prevent failures, the lack of published negative findings is an obstacle. Nevertheless, this literature review identified several studies whose result was not what the researcher conducting that study would have hoped for—despite best efforts—along with substantially more research reporting success. Following is a description of both successful and disappointing implementation efforts and a summary of best practices and challenges.

2.3.2 Reports of successful implementation.

Among other things, accrediting bodies review an institution's mission, goals and objectives, resources and resource allocation, student admission requirements, student support services, and

the quality of the faculty and educational offerings when deciding to accredit or reaffirm. Institutions that have long been training students to create eportfolios for work, course or program assessment, and professional showcasing are beginning to develop institution-level eportfolios to assess and showcase their own programs in order to meet demands of their accrediting bodies (DeGeorge, 2010).

An unknown number of higher education institutions use some type of electronic system for assembling and storing student work. In 2008, Basken reported that a few dozen, acting without federal direction and with little other outside coordination, have developed more sophisticated versions that guide assessment and curriculum development (Basken, 2008). Also in 2008, Kathleen Willbanks surveyed the Electronic Portfolio Action and Communication (ePAC) group. The survey consisted of two questions: (a) What eportfolio products are you using? and (b) Have eportfolios helped you through accreditation? Fourteen responses were received. Of these, five institutions reported that they felt eportfolios had helped in some way (Willbanks, 2008).

Much eportfolio research is situated in unique academic settings where the purposes of eportfolios vary, making comparison difficult (Hassall, 2007). This is true of much of the research reviewed for this study; nevertheless, it is valuable and instructive to review broad descriptions of implementation successes found in the literature, and tease out the bits relevant to institution-level implementation or regional accreditation. The researcher made an earnest effort to visit the Web sites of these institutions and view their institution-level eportfolios. In some cases, indications of success were evident on the institution's Web sites; however, in others, links provided in the literature were broken and sometimes untraceable, which complicated efforts to evaluate the usefulness or impact of eportfolios on the institution's accreditation

process. Ideally, institutions who had successfully used eportfolios to facilitate accreditation would continue to update the eportfolios even in non-accreditation years; one of the most widely cited advantages of using eportfolios is that they can facilitate continuous assessment and improvement so that, when an accreditation self-study is due and an accreditation visit looms, panic need not ensue. Where possible, these instances are identified as well.

Multiple sources indicated that institutions of higher education are being required to respond to calls for greater accountability (Batson, 2007; Clark & Enyon, 2009; Cummings & Maddux, 2010; Kahn, 2001; Ketcheson, 2001; Middaugh, 2008; Provezis, 2012; Strudler & Wetzel, 2005; U.S. Department of Education, 2006). "These recent calls for enhancing accountability in higher education have increasingly emphasized performance and results—as opposed to such traditional criteria as prestige, selectivity, and resources—to ensure institutional quality and effectiveness" (Cambridge et al., 2001, p. 137). In response, institutions are looking for ways to demonstrate to their accreditors their processes for improving and assuring learning through implementation of assessment procedures. This includes a shifting away from course grades as the primary form of assessment of institutional effectiveness. Following are selected accounts of institutional eportfolio implementations that can claim success.

Lorenzo and Ittelson (2005) reported that Indiana University-Purdue University Indianapolis (IUPUI), accredited by the North Central Association of the Higher Learning Commission (NCA/HLC), used its institutional eportfolio to support a successful reaccreditation review in 2002. The 2002 self-study document remains available at http://iport.iupui.edu/selfstudy/. IUPUI is an example of an early adopter that continues to leverage its institutional eportfolio to demonstrate that it is not only achieving its mission but has strategies, policies, and procedures in place to continue improving its level of achievement.

Every 10 years, the North Central Association of the Higher Learning Commission (NCA/HLC) reviews IUPUI for reaffirmation of accreditation. IUPUI specifically targets accrediting agencies in a message on the institution's Web site: "You will want evidence to support the claims we make of achievements in this area. And you will want to know what ongoing procedures are in place to evaluate achievement and to use this evaluation to improve achievement" ("Who Is the Portfolio for?," n.d., para 8). The institutional eportfolio, available to the public at http://iport.iupui.edu/, provides a link to the materials developed and provided to the regional accrediting agency for its 2012 self-study and site visit.

Based on the literature surveyed for this review, IUPUI's institutional eportfolio is the gold standard against which all institutional eportfolios can be measured. This may be due in part to IUPUI's early involvement in Urban Universities Portfolio Project (UUPP) and continuous effort toward eportfolio best practices once that initiative ended. IUPUI benefits from strong top-level support—an identified characteristic for success, discussed later—for the institutional eportfolio initiative as evidenced by the chancellor's message to site visitors available in both video and PDF formats here: http://www.iupui.edu/2012/. Indiana University-Purdue University Indianapolis benefits as well from a cadre of well-published eportfolio experts on staff, both in the past and at present. However, it is important to note that even this very successful example of an institutional eportfolio implementation did not come about without its share of disappointments, as will be discussed in Section 2.3.3.

Like IUPUI, a number of institutions of higher education have used eportfolios as components of their assessment and accreditation processes. An interesting example is California State University at Sacramento (CSUS), which has developed and maintained an ongoing eportfolio site related to institutional accreditation. California State University at

Sacramento is accredited by the Western Association for Schools and Colleges (WASC), a regional accrediting agency that encourages the creation of institutional eportfolios (DeGeorge, 2010). In a 1988 revision of the agency's standards, WASC called on schools and colleges to focus on assessment as a means to assure institutional and program quality and effectiveness. Universities were expected to build a "culture of evidence" to use in their decision-making processes. Like IUPUI, California State University Sacramento was a member of the Urban Universities Portfolio Project (UUPP).

California State University Sacramento is quite transparent and makes a great deal of institutional data available on its Web site, a characteristic shared with IUPUI, although it is a bit more difficult to locate the institutional electronic portfolio. However, a search on the CSUS Web site for "institutional eportfolio" does land a visitor on a page labeled "Institutional Assessment Portfolio" which can be viewed here: http://www.csus.edu/Programassessment/Institutional-Assessment.html. A link from this page leads to regional accreditation information. A review of this and related pages indicates that accreditation documents such as the self-study are prepared and submitted electronically. The Web page for the current re-assessment effort was hidden at the time of this writing.

Another example is the Florida State University (FSU) Career eportfolio. While initially one might wonder if this "student career eportfolio" is an eportfolio created to support institutional accreditation efforts, Garis (2007) reported that FSU academic administrators have found the career eportfolio to be a valuable component in the accreditation process. Florida State University is using the career eportfolio, which is implemented institution-wide, to help meet accreditation requirements of the Southern Association of Colleges and Schools (SACS).

The FSU Career Portfolio was implemented campus wide in April 2002. Five years after implementation, over 47,000 students are using these eportfolios. The FSU Career Portfolio was made possible through the initiative of the university president and the support of key administrators in both student and academic affairs (Lumsden, 2007).

Florida State University's effective institution-wide implementation relied on identified success factors; for example, top-down, university-wide support, vision, and leadership; partnership with the FSU instructional technology department; and gaining buy-in (and eventually, feedback) from key stakeholders (students, staff, faculty, and employers) (Reardon, Lumsden, & Meyer, cited in Lumsden, 2007).

Another effective campus-wide implementation exists at the University of Nebraska at Omaha (UNO). The University of Nebraska at Omaha chose the Academic Quality Improvement Program (AQIP) path for accreditation. As mentioned earlier, AQIP provides an alternative evaluation process for institutions already accredited by the North Central Association of the Higher Learning Commission (NCA/HLC). The UNO eportfolio addresses the nine AQIP categories, describing context, processes, results, and improvement in each system. The Academic Quality Improvement Program is structured around quality improvement principles and processes and involves a structured set of goal setting, networking, and accountability activities. This eportfolio is aligned with the institution's strategic plan, and is aimed at identifying and communicating how UNO is using its strategic plan to guide its progress. Further, it is structured around institutional indicators for the university's colleges and administrative units. In 2005, the National Coalition for Electronic Portfolio Research (NCEPR) newsletter stated, "currently, this eportfolio is being revised and will soon include a narrative-type reflection for each artifact" ("Coalition Member Spotlight," 2005, p. 10). Reflection is

widely incorporated into student learning portfolios and is much less likely to be incorporated into an eportfolio designed to support institutional accreditation, so the inclusion of reflective artifacts in UNO's eportfolio would be somewhat unusual. A visit to UNO's eportfolio site http://unoportfolio.unomaha.edu/ in April 2013 was unsuccessful in revealing evidence of narrative-type reflection. The UNO eportfolio is intended to be a valuable resource, both internally and externally. The University of Nebraska at Omaha's 2012 and 2008 AQIP systems eportfolios are available as PDF files on the Office of Institutional Effectiveness's site: http://www.unomaha.edu/oie/tabs/accreditation/aqip.php. The University of Nebraska at Omaha is accredited by the NCA/HLC.

While not exhaustive by any means, these examples, culled from an extensive literature review, clearly show that eportfolios can be effectively used as tools for facilitating institutional accreditation, and that some institutions have had marked success.

As mentioned earlier, success stories are more common than stories describing unexpected and/or disappointing results, probably due to the effect of publication bias as discussed in Section 2.3.1. This does not imply that there is less to be learned from an unexpected result or disappointing effort, or that the published accounts were any less valuable to this study.

2.3.3 Reports of unexpected and/or disappointing results.

While there are fewer examples of unsuccessful implementation, three very instructive pieces in the literature are useful to examine. Gaffin-Wexler's chapter and Banta's article are not specifically tied to a failed institution-level implementation; rather, they discuss disappointing reactions received from site visitors during reaffirmation visits. These types of reports are

extremely rare in the literature—in fact, these are the only two found, although the search was quite exhaustive. It is very important to include and consider this perspective, thereby revealing facts that will hopefully enable others to avoid disappointing Gaffin-Wexler's and Banta's experiences. Paoletti's chapter examines a failed effort at eportfolio implementation at the "major" rather than institution level.

The first example can be found in Judie Gaffin-Wexler's chapter in 2001's *Electronic Portfolios: Emerging Practices in Student, Faculty, and Institutional Learning*. In the introduction to this book, Susan Kahn noted, "The ability of eportfolios to respond to a more evidence-and-performance-based concept of accountability and quality has already attracted the interest of several regional accrediting associations" (Kahn, 2001, p. 138). In fact, regional accreditors are emerging as a primary audience for institutional eportfolios (Butler, 2010; DeGeorge, 2010). Gaffin-Wexler's essay discussed the Western Association of Schools and Colleges' (WASC) experiments with using eportfolios for accreditation and the association's decision, recent at that time, to require institutional portfolios rather than traditional self-studies. Her chapter, "The Role of Institutional Portfolios in the Revised WASC Accreditation Process," recorded Gaffin-Wexler's reactions to a site visit from a WASC accreditation team. Gaffin-Wexler related: "After decades of using self-studies for accreditation, institutions and reviewers have difficulty moving out of the mind-set that features a self-study and supporting documents in appendices" (Gaffin-Wexler, 2001, p. 215). While it is important to remember that Gaffin-Wexler's chapter was published in 2001, it is still unsettling to hear Gaffin-Wexler say of her experience: "Some evaluators have requested a printout of the Web pages. We are not yet certain whether evaluators will use the eportfolios without printing out large portions of them" (p. 215). Gaffin-Wexler noted that the site visitors may not have been used to following

interlinked, hyperlinked strands of evidence and may have lacked the time to sit in front of the computer and examine the institutional eportfolio site. She further noted that evaluators often read self-studies when they have a spare moment and are not used to sitting down for dedicated computer reading.

In 2013, most site visitors are probably more comfortable with reading online. Certainly, it is no longer a requirement that one make time to sit in front of a computer. Mobile devices and laptops are likely to be employed so that members of a site visit team can review evidence in places that were unavailable in the past; for example, while waiting in an airport. Perhaps Gaffin-Wexler's observations can be ascribed to a generational issue.

The second chapter of note is Paoletti's chapter in *Handbook of Research on ePortfolios* (2006) titled "ePortfolio Thinking: The Challenge of the Public Research University." Paoletti examined publicly available information describing eportfolio initiatives at large public research universities and "untold stories of trial and error, of disappointment, and perhaps even failure" (p. 567); including the story of her own failed bid to implement eportfolios at the "major" level. Although not an effort at an institution-level implementation, Paoletti's observations about her experience are applicable to a larger-scale effort, and her remarks provide helpful insights into the "dos and don'ts" of eportfolio implementation.

Paoletti noted that eportfolios are a form of assessment currently still uncommon at large research institutions, with the exception of a few disciplines such as teacher education programs. She stated, "This essentially marginal existence is the backdrop for the introduction of eportfolios at large public research institutions" (p. 568). Her most telling observations about the challenges to eportfolio acceptance revolve around campus culture:

> These challenges stem from not only the size and diversity of their undergraduate populations, but from their administrative structure and *campus culture*. … Large public research universities often concentrate considerable power at the college/professional school level, resulting in administrative 'silos' which can impede campus-wide initiatives, especially those which originate at the grass-roots level." (p. 573)

Interestingly, in the quote above, Paoletti zeroes in on the administrative level of support required for a successful eportfolio implementation. High-level administrative support is consistently included in lists of best practices. Other important environmental factors include a level of comfort with openness and transparency—both internally among schools, programs, and "administrative silos," and externally, to enable the sharing of accountability and effectiveness results with the public.

Paoletti also noted that some eportfolio initiatives start strong and then stall. According to Paoletti, the reason for this can be as simple as the original campus project leader leaving for another institution, with no one interested enough to pick up the thread. In effect, without a strong leader or high level of interest, the project is simply abandoned.

Trudy Banta's article (2003) is especially instructive. She was involved in IUPUI's participation in the Urban Universities Portfolio Project (UUPP), described in detail earlier. As mentioned previously in the "successful implementation" section of this review, IUPUI's institutional electronic portfolio implementation is most commonly discussed in the literature as a success. Helpfully, Banta provided some vital details about the early visit that, while not disputing its overall success, demonstrated that the visit was not without drama. Unlike Paoletti, there were few or no problems with administrative support, and faculty buy-in was strong. Like Gaffin-Wexler's chapter, Banta described a learning curve for the site visit team.

When the UUPP ended in 2001, IUPUI was about to undergo a regional accreditation review. Accordingly, Banta, along with others, began working to adapt the IUPUI eportfolio to a Web-based self-study that they planned to present to the site visit team as evidence for reaffirmation.

> We [IUPUI] provided access via the Web to almost every document identified in the NCA criteria for accreditation. When members of the visiting team arrived on campus, they found, in addition to a laptop for each, only about six inches of shelf space devoted to printed materials—some financial audit reports not made available electronically—in contrast to the bookcases full of documents than at institution of our size usually makes available to reviewers. (Banta, 2003, p. 4)

Banta's group thought they were "building a better mousetrap" (p. 4) by providing an institutional electronic portfolio as IUPUI's self-study document. The NCA/HLC review team confirmed some of the beliefs Banta and her team held about the benefit and value of the institutional electronic portfolio. Banta and her team were surprised and disappointed, though, by feedback received through a questionnaire distributed to the review team after the visit. Despite the fact that the reviewers selected for IUPUI's site visit team were told beforehand that the self-study "document" would be Web-based, and the team members agreed to work within that format, they requested a paper copy of the self-study as well as the Web version. As those who write Web and "hard copy" content know, the writing styles, organization, and content requirements of those two forms of communication are not at all similar. Banta's team thought the Web-based version would save the visitors time and that this would allow them to spend more time with IUPUI stakeholders. The site visitors did not agree. They did not find the site's functionality, for example, the search capability, to be useful. They were confused by the lack of

self-study "boundaries" on the Web, and were confused when they were able to follow links that led off the self-study. The questionnaire responses indicated that almost half of the visiting team relied primarily on the paper version.

Banta concluded her article with important questions. Her disappointment at the reactions of the site visitors is evident within them:

> Is the electronic institutional portfolio really the way accreditation self-studies will be presented in the future? Does having more material available on the Web increase the time required for review prior to the visit beyond that which most reviewers can commit? Must we continue to prepare a traditional narrative with links, so that in the end we can print it and send a paper copy to the review team? …. Or might we be allowed to take full advantage of the capacity of the Web to use a picture to convey a thousand words? (p.14)

These questions remain relevant today and provided the foundation for Questions 3, 11, 15, and 22 in the survey questionnaire developed for this study (refer to Table 3 and Appendix C0).

The three sources cited in this section provide important information for those seeking to avoid a disappointing result to their attempt at an institutional eportfolio implementation, or site visit for institutional accreditation. Taken together with the "success stories" cited earlier, as well as other articles and chapters available via a literature search, can the reader construct a framework of best practices and challenges? The answer is yes—this will be discussed in depth in Section 2.3.4. There is another, intriguing option: are there institutions of higher education that have implemented institution-level eportfolios, but then abandoned the practice? No literature was discovered that could provide an answer. A question addressing that possibility was added to the survey and will be discussed in Chapters 4 and 5.

2.3.4 Best practices and challenges.

In 2004, Ali Jafari first talked about the notion on eportfolio "stickiness" and defined this notion very simply: a "sticky" eportfolio is one that "works and is adopted by users" (Jafari, 2004, p. 38). In other words, a sticky eportfolio system is implemented, solves a problem (for example, helps manage institutional accreditation, serves as a vehicle to demonstrate institutional effectiveness to the public; effectively showcases student achievement), and gathers and maintains momentum. He identified an algorithm for eportfolio stickiness (Jafari, 2004):

Successful ePortfolio Project=I+J+K+L+M+N+O

Where:

I=ease of use;

J=sustainable business plan;

K=advanced features;

L=robust integrated technology architecture;

M=lifelong support;

N=standards and transportability; and

O=X (miscellaneous). (p. 42)

In this same article, Jafari noted the need for higher education to identify what makes an eportfolio project sticky beyond this algorithm. Others have taken up this task. "Central to successful implementation of eportfolios, is the consideration of the perspectives of the multiple stakeholders involved in the process, the collaboration of pedagogical, administrative and technical processes and integration of technologies into effective frameworks" (Roberts et. al, 2005, cited in Lambert & Corrin, 2007, p. 3). A frequent theme for success, according to survey

results reported by Meyer and Latham (Meyer & Latham, 2008), is the importance of understanding the difference between the eportfolio system and the assessment plan:

> An e-folio platform does not constitute an assessment plan. Institutions should work to develop an authentic assessment plan to meet accreditation standards and provide meaningful feedback at all levels. The choice of an e-folio platform should serve as a tool in the implementation of that assessment plan, not as the plan itself. (p. 39)

Abrami and Barrett suggested a broader picture of success with the inclusion of criteria such as scalability, described as "the extent to which eportfolios are in wide use throughout Canada and the United States, and the rest of the world" (Abrami & Barrett, 2005, p. 10) and agree with Jafari on criteria such as sustainability, dedication to long-term maintenance, and the additional criterion of cost/benefit and return on investment (Abrami & Barrett, 2005). Paoletti confirmed the need for sufficient technology infrastructure as well as sufficient faculty infrastructure "to support the increased amount of reading/commenting for student eportfolios" (Paoletti, 2006, p. 574) which can be used as evidence of learning outcomes in institution-level eportfolios. She believed that most successful initiatives begin at the campus-wide level (Paoletti, 2006).

Participants in the Urban Universities Portfolio Project (UUPP) suggested these elements for a successful implementation: strong, explicit support from institutional leaders, a clearly articulated vision and plan for completion of the eportfolio, availability of technological and artistic resources, inclusion of faculty in decision making, the direct involvement of an institutional research office[4] and involvement of the community and other external stakeholders in shaping the portfolio design and content (Ketcheson, 2001).

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[4] Middaugh (2008) goes so far as to warn institutions without a defined institutional research office that efforts to establish a culture of evidence will likely fail.

Wetzel and Strudler awarded high importance to having a strong project leader and leadership support (Wetzel & Strudler, 2005). They also recommended allowing an appropriate time element—at least two to three years. When speaking of Florida State University's successful implementation, Lumsden (2007) cited Reardon, Lumsden, and Meyer (2005):

> Its success is due to several factors, including top-down, university-wide support; the vision and leadership of the Career Center; partnership with University Information Systems; feedback and buy-in from key stakeholders (students, staff, faculty, and employers); effective marketing and implementation activities; and target evaluation since implementation. (p.44)

A recurring theme is strong support from university administration and strong high-level leadership. Meyer and Latham concurred, and were careful to include the need for "substantial allocation of resources to support faculty and students in their use of eportfolios" (Meyer & Latham, 2008, p. 35). Resources in this case are not only financial but include the technology training and support cited by others (Kahn & Scott, 2012; Ketcheson, 2001; Lumsden, 2007).

The lack of a common definition, the first topic addressed in this literature review, and a coordinated implementation/support strategy can derail an otherwise solid plan (Reese & Levy, 2009). Chatham-Carpenter et al. (2010) cited cultural issues, the impression of both faculty and students that eportfolios are extra work with little point or benefit—what Barrett would call return on investment—(Abrami & Barrett, 2005) and lack of top-down support as serious challenges.

2.3.5 Summary.

The question that drove the research for this section was, “Are there examples in the existing research literature of implementation successes or reports of unexpected and/or disappointing results?” Answering this question first required an examination of publication bias in order to explain the dearth of unexpected and/or disappointing results. Then, published accounts of successes and disappointments were reviewed and best practices and/or necessary conditions for success were compiled into Table 2, presented as a visual aid to complement the summary for this section.

Table 2. List of Best Practices and Conditions for Success

Best Practices and Conditions for Success

Practice/Condition	Literature Support
Establish a common definition	Hassall, 2007
Supportive accreditation site visit team	Banta, 2003; Gaffin-Wexler, 2001
High-level administrative support; supportive administrative structure	Kahn & Scott, 2012; Ketcheson, 2001; Lumsden, 2007; Meyer & Latham, 2008; Paoletti, 2006; Wetzel & Strudler, 2005
Faculty buy-in	Banta, 2003; Kahn & Scott, 2012; Ketcheson, 2001; Paoletti, 2006
Consideration of perspectives of multiple stakeholders	Jafari, 2004; Ketcheson, 2001; Lumsden, 2007
Integration of technological support	Kahn & Scott, 2012; Ketcheson, 2001; Lambert & Corrin, 2007; Lumsden, 2007; Meyer & Latham, 2008; Paoletti, 2006
Clarify difference between eportfolio system & the assessment plan	Meyer & Latham, 2008
Allow sufficient time	Wetzel & Strudler, 2005
Dedicated institutional research office	Ketcheson, 2001; Middaugh, 2008
Supportive campus culture; culture of collaboration	Chatham-Carpenter, Seawel, & Raschig, 2010; Lambert & Corrin, 2007; Paoletti, 2006

As this review of the literature has shown, not every attempt at eportfolio implementation succeeds, but even accounts of disappointing results make valuable contributions to the literature. Recently, Susan Kahn and Susan Scott (2012) summarized their extensive experience with IUPUI's institutional eportfolio at a session at the Association of American Colleges and University's (AAC&U) 2012 E-Portfolio Forum. Kahn and Scott suggest:

- Know your institutional context; assess needs and wants and determine strategy, including technology, accordingly
- Begin with and sustain support from both faculty and administration
- Listen and communicate in all directions
- Ensure that faculty development is in place
- Provide strategic financial incentives, if possible
- Don't assume anything! (Kahn & Scott, 2012, slide 17)

3.0 METHOD

One aim of this research is to contribute to the existing body of knowledge by adding to the emergent literature and by filling gaps in knowledge identified during the literature review. At the outset, the overarching goal of the literature review was to provide a foundation for answering the following question: "What can we say about the prevalence of institution-level eportfolio implementation for the purpose of managing regional accreditation?" The survey of the literature addressed supporting questions of definition, history, and implementation. The gaps in knowledge identified through the literature review led to these unresolved research questions first mentioned in Section 1.4, which this study will examine:

1. What is the prevalence of institution-level eportfolio implementation at accredited United States colleges and universities for support of regional accreditation and/or reaffirmation?
2. What is the relationship between U.S. higher education institutions' regional accrediting agency, selected characteristics such as Basic Carnegie Classification or institution size, and the likelihood that the institution is using an institution-level eportfolio to manage regional accreditation/reaffirmation?

This study also puts forth the following null hypothesis:

H_0: There is no difference in the proportion of institution-level eportfolio implementation (for support of regional accreditation/reaffirmation) among the six regional accrediting agencies.

These research questions and the null hypothesis guided the choice of research design, survey questions, population, sampling frame, sample, sampling procedure, and data analysis.

3.1 RESEARCH DESIGN

Postpositivists believe "researchers can discover 'reality' within a certain level of probability. They cannot 'prove' a theory, but they can make a stronger case by eliminating alternative explanations" (Mertens, 2010, p. 14). Postpositivist researchers tend to favor studies where the researcher has the ability to gather responses by using a fixed-response format—the goal is to "ask exactly the same question, in the same way, to each participant" (Mertens, 2010, p. 15). Postpositivist thinkers recognize the challenges inherent in applying a rigorous scientific method to educational research; for example, it is often not possible, or ethical, to assign people to conditions. This realization led to the development of quasi-experimental methods, which Mertens (2010) defines as "those that are 'almost' true experimental designs, except that the participants are not randomly assigned to groups" (p. 138).

This study is situated within the postpositivist paradigm and followed a quasi-experimental method. This research is classically quasi-experimental because the sample for the study is drawn from equivalent intact groups (the six regional accrediting agencies). In fact, in this case, because of the desire to make observations about prevalence among regional accrediting agencies, these equivalent, intact groups make the most sense. Using a fully experimental method would require assigning individuals to random groups, and would destroy the opportunity to make this comparison.

After developing a survey instrument, following a randomized sample selection methodology, and administering the survey, the resulting data were explored using SAS and Excel. These data were used to describe prevalence of eportfolio implementation for the support of regional accreditation/reaffirmation, and allowed observations of selected institutional characteristics and perceptions of survey participants across regional accrediting agencies. A chi-square test for difference in multiple proportions was used to determine if there was a significant difference in the proportion of institution-level eportfolio implementation among the six regional accrediting agencies. This same test also was used to explore the data and answer research question two, "What is the relationship between U.S. higher education institutions' regional accrediting agency, selected characteristics such as Basic Carnegie Classification or institution size, and the likelihood that the institution is using an institution-level eportfolio to manage regional accreditation/reaffirmation?"

The plan for collecting data with a new survey instrument is described below, followed by the plan for data analysis in Section 3.5.

3.2 APPROPRIATENESS OF SURVEY RESEARCH TO ANSWER THE RESEARCH QUESTIONS

Survey questionnaires are a common way to gather data for descriptive, explanatory, and exploratory research studies. Earl Babbie (2010) explained the benefits of survey research:

> Survey research is probably the best method available to the social researcher who is interested in collecting original data for describing a population too large to observe directly. Careful probability sampling provides a group of respondents whose

characteristics may be taken to reflect those of the larger population, and carefully constructed standardized questionnaires provide data in the same form from all respondents. (p. 254)

As discussed in the sections to follow, this study meets Babbie's conditions for survey research.

3.3 CONSTRUCTION OF THE SURVEY INSTRUMENT

The literature review described in Chapter 2 revealed important gaps in the existing literature related to the research questions put forth in Section 1.4 and led to these unresolved questions:

1. What is the prevalence of institution-level eportfolio implementation at accredited United States colleges and universities for support of regional accreditation and/or reaffirmation?
2. What is the relationship between U.S. higher education institutions' regional accrediting agency, selected characteristics such as Basic Carnegie Classification or institution size, and the likelihood that the institution is using an institution-level eportfolio to manage regional accreditation/reaffirmation?

This study also puts forth the following null hypothesis:

H_0: There is no difference in the proportion of institution-level eportfolio implementation (for support of regional accreditation/reaffirmation) among the six regional accrediting agencies.

Butler (2010) noted that formal research on eportfolio adoption by institutions of higher education is just beginning to emerge, but several publications located in the course of the literature review are of particular interest. This study aimed to extend the work of Banta (2003), Buzzetto-More (2010), DeGeorge (2010), Lorenzo and Ittelson, (2005), Middaugh, (2008), and

Reynolds and Patton, (2012), and relied on aspects of the six surveys described in these publications: Chatham-Carpenter et al., (2010); Lee, (2007); Mayowski and Golden, (2012); Olson, (2008); Phillips et al., (2008) and Willbanks (n.d.).

Although the six survey publications provided valuable guidance when formulating this study's survey, they did not cover (likely by their authors' intention), interesting dimensions of the questions this study examined. For example:

- Two surveys ask whether eportfolios were helpful for accreditation, but the groups chosen for study were very specific.
- The other surveys ask an accreditation question or two, but accreditation is not the focus.
- Research has not yet examined a randomized selection of this study's population or sample.
- Research has not yet examined prevalence of institutional-level eportfolio implementation across regional accrediting agencies, Basic Carnegie Classification, or institution size.
- Research has not yet used a quasi-experimental method to conduct an eportfolio prevalence study.

In summary, the literature review identified six existing surveys that provided guidance for the creation of the survey instrument for this study. Each had been well crafted to serve the purpose of its study, but none was a perfect fit for this research. A new instrument was required. The individual survey items were chosen based upon their ability to:

1. Extend the research findings of the six previously existing surveys;
2. Extend the work or answer questions posed in research previously published by others;

3. Contribute to answering at least one of the research questions posed for this study.

As mentioned earlier, this study focuses on institution-level eportfolios. Susan Kahn (2001) draws the distinction between institution-level eportfolios and other uses in this way:

> "Like individual student and faculty portfolios, institutional portfolios feature authentic work and evidence in a context of learning, reflection, and assessment. Like other portfolios, they can serve purposes of both internal improvement and external accountability. *But institutional portfolios differ from individual ones in that they address these purposes at the level of the whole institution.* [emphasis added] (p. 135)

To create the new survey instrument, the researcher pored over questions posed in the aforementioned publications. Questions related to faculty promotion and tenure, teaching and learning, student reflection, and questions that were very specific to certain kinds of institutions—all beyond the scope of this study—were eliminated from consideration. In some cases, questions used in previous surveys to explore eportfolio use at the program or course level were adopted or adapted. In other cases, the researcher rewrote questions to focus more closely on regional accreditation and using an institution-level eportfolio for collecting evidence of institutional effectiveness in support of regional accreditation. Some questions are new to this survey. This level of specificity resulted in a short Web-based survey questionnaire with an estimated completion time of approximately 8-12 minutes.

Although none of the previous surveys found through the literature review were a perfect fit, there is no doubt this questionnaire benefited from the previous work of others. Table 3 illustrates how the final Web-based survey questionnaire is tied back to previous scholarship identified through the literature review.

Table 3. Tying the Survey Questions to the Literature

Tying the Survey Questions to the Literature

Number	Question	Literature Inspiration
1	What is your institution's Basic Carnegie Classification?	Woolston, 2012
2	Based upon your institution's Carnegie Size & Setting Classification, is your institution very small, small, medium, or large/very large?	New
3	Does your institution currently use an institution-level electronic portfolio to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation?	Banta, 2003; Chatham-Carpenter, Seawel, & Raschig, 2010; Lee, 2007; Mayowski & Golden, 2012; Willbanks, n.d.
4	Which of these statements best describes your institution's electronic portfolio?	New
5	Does your institution use a software package, tool, or application to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation?	Phillips, Easterling, Patton, Peet, Fritz, & Johnson, 2008
6	What software package(s), tool(s), or application(s) does your institution use to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation? Please check all that apply.	Phillips, Easterling, Patton, Peet, Fritz, & Johnson, 2008

7	Do you consider your institution-level electronic portfolio to be a "living" document or Web site? (As an example, a living document or Web site would be updated as new data became available without regard to external deadlines or timetables from regional accreditors.)	AQIP Systems Portfolio Guide, 2013
8	In what year, approximately, did your institution begin creating an institution-level eportfolio for the purpose of supporting the achievement of accreditation or reaffirmation?	Chatham-Carpenter, Seawel, & Raschig, 2010; Mayowski & Golden, 2012; Meyer & Latham, 2008
9	What office or department leads the institution-level electronic portfolio effort at your institution?	Mayowski & Golden, 2012; Middaugh, 2008;
10	Was supporting regional accreditation or reaffirmation a motivator for adopting/using an institution-level electronic portfolio?	Buzzetto-More, 2010; Lorenzo & Ittelson, 2005; Reynolds & Patton, 2012; Willbanks, n.d.
11	Does your institution's regional accreditation agency require your institution to prepare and submit a paper copy of the evidence presented in the institution-level electronic portfolio? For example, did your institution prepare and submit a paper copy of its self-study in addition to the institution-level electronic portfolio version?	Banta, 2003; DeGeorge, 2010; Lorenzo & Ittelson, 2005

12	To what extent do you agree with this statement? "Using an institution-level electronic portfolio helped my institution achieve regional accreditation or reaffirmation."	Phillips, Easterling, Patton, Peet, Fritz, & Johnson, 2008; Willbanks, n.d.
13	Has your institution used an institutional electronic portfolio to help prepare for regional accreditation or reaffirmation in the past, but then abandoned its use?	New
14	Please share your thoughts about why your institution decided to abandon the use of an institutional electronic portfolio to help with regional accreditation.	New
15	At your institution, what would you say is the level of interest in using an institution-level electronic portfolio to help prepare for or manage future regional accreditation or reaffirmation efforts?	Banta, 2003
16	Does your institution use a software system or Web-based application to: (1) Align planning initiatives; (2) Review/reflect on student learning outcomes; (3) Review/reflect on non-academic outcomes; (4) Evaluate institutional effectiveness; (5) Take action to improve institutional performance; (6) Other (please explain)	Mayowski & Golden, 2012; Meyer & Latham, 2008
17	When did your institution last undergo regional accreditation or reaffirmation?	Willbanks, n.d.

18	When is your institution scheduled to be accredited or reaffirmed?	Willbanks, n.d.
19	To what extent do you agree with this statement? "My institution's regional accreditor encourages the use of an institution-level electronic portfolio to support accreditation or reaffirmation."	New
20	Has your regional accreditor ever offered you training or information on using electronic portfolios to support accreditation or reaffirmation, such as workshops or publications?	New
21	How would you respond to this statement? "Institution-level eportfolios provide benefits that are worth the cost and effort."	Lee, 2007; Meyer & Latham, 2008
22	To what extent do you agree with this statement? "Institution-level electronic portfolios are the way regional accreditation evidence, such as self-study documents, or enrollment or graduation data, will be collected, prepared, and/or showcased in the future."	Banta, 2003
23	Have you ever evaluated an institution's qualifications for regional accreditation in an official capacity? An example might be as a member of a site visit team.	New

Survey response rate was a concern. The National Research Council (2013) reports that "researchers across a number of social science disciplines in the U.S. and abroad have witnessed a steady erosion in survey response rates over time." Higher education researchers also have seen a general decline in survey participation (National Research Council, 2013). Other researchers have commented upon this decline as well, "This trend is quite troubling since surveys play a central role in the data collection activities of most institutional research efforts" (Grosset, 1995; Schlitz, 1988; Cote, Grinnell, and Tompkins, 1986; cited in Dey, 1997, p. 215).

The survey was consciously designed for brevity because the sample was composed of highly placed, very busy higher education administrators who were unlikely to commit more than a few minutes to a survey.

The next two sections discuss the researcher's effort to apply best practices and expert review in the design and pilot testing phases of the survey questionnaire's development. This was done in order to encourage participant response and improve response rate by enhancing the quality of the survey instrument. Other measures taken to maximize response rate are discussed in Section 3.4.3.3.

3.3.1 Enhancing the quality of the instrument—the role of expert opinion.

Prior to pilot testing, eportfolio subject content experts and those with survey creation expertise were consulted. These individuals were drawn from a convenience sample of the higher education community. By drawing expert opinions from this group, common questionnaire errors such as double-barreled or ambiguous questions were identified early in the questionnaire development process and were rewritten or removed (Babbie, 2010).

3.3.2 Enhancing the quality of the instrument—the role of pilot testing

Babbie (2010) unequivocally supports pilot testing every survey questionnaire. He explains,

> No matter how carefully researchers design a data collection instrument such as a questionnaire, there is always the possibility—indeed the certainty—of error. They will always make some mistake: an ambiguous question, one that people cannot answer, or some other violation of the rules just discussed. (p. 267)

When pilot testing a survey questionnaire, Mertens (2010) advises, "Try it out with a small sample similar to your intended group of respondents" (p. 191).

To draw the sample for the pilot test, the randomized list of regionally accredited universities described below in Section 3.4.3.4 was used to select five institutions from each of the six regional accrediting agencies (n = 30). No institutions identified for inclusion in the study's sample group were included in the pilot study group. The pilot study followed a participating pretest methodology—in other words, the participants were told that this was a "practice run" and were asked to provide reactions to question form, wording, order, and survey timing (Mayowski & Golden, 2012); otherwise, the identical procedure planned for administering the final Web-based survey questionnaire was followed (see Section 3.4.3.3). Suggestions made by the pilot test group were evaluated by the researcher and subject content experts, and were incorporated into the final survey instrument as appropriate. For example, Survey Question 2, which asked about institution size, was the direct result of a suggestion made by a pilot study participant. Following the revisions to the questionnaire resulting from the pilot test, the researcher's dissertation committee and a convenience sample composed of five of the researcher's peers reviewed the questionnaire for typographical errors, ambiguous questions

and/or answer choices, and were asked to identify any aspect of the questionnaire that might cause a participant to feel confused. The final survey instrument is provided in Appendix C.

3.4 PROCEDURES

3.4.1 Choice of population.

This study's focus was on prevalence of institution-level eportfolio implementation at United States institutions of higher education accredited by the six regional accrediting agencies (Middle States Association of Colleges and Schools, Middle States Commission on Higher Education; New England Association of Schools and Colleges, Commission on Institutions of Higher Education; North Central Association of Colleges and Schools, Higher Learning Commission; Northwest Association of Schools and Colleges, Northwest Commission on Colleges and Universities; Southern Association of Colleges and Schools, Commission on Colleges; Western Association of Schools and Colleges). These United States institutions of higher education comprise the population.

3.4.2 Sampling frame.

Babbie (2010) defines a sampling frame as the "list or quasi list of elements from which a probability sample is selected" (p. 208). For this study, the sampling frame is the online directory, or list, of United States institutions of higher education that are accredited by one of the six regional accrediting agencies. A directory of member institutions appears on each

regional accrediting agency's Web site. Because this study focuses on regionally accredited United States higher education institutions, institutions in "candidate" status, as well as institutions located in independent foreign nations (for example, Mexico) were eliminated from consideration. Institutions located in United States territories (for example, the U.S. Virgin Islands) were included. At the time the sample was drawn, (August and September, 2013), N ≈ 2967. See Figure 3 for the geographic distribution of the population, and Figure 4 for the numerical breakdown.

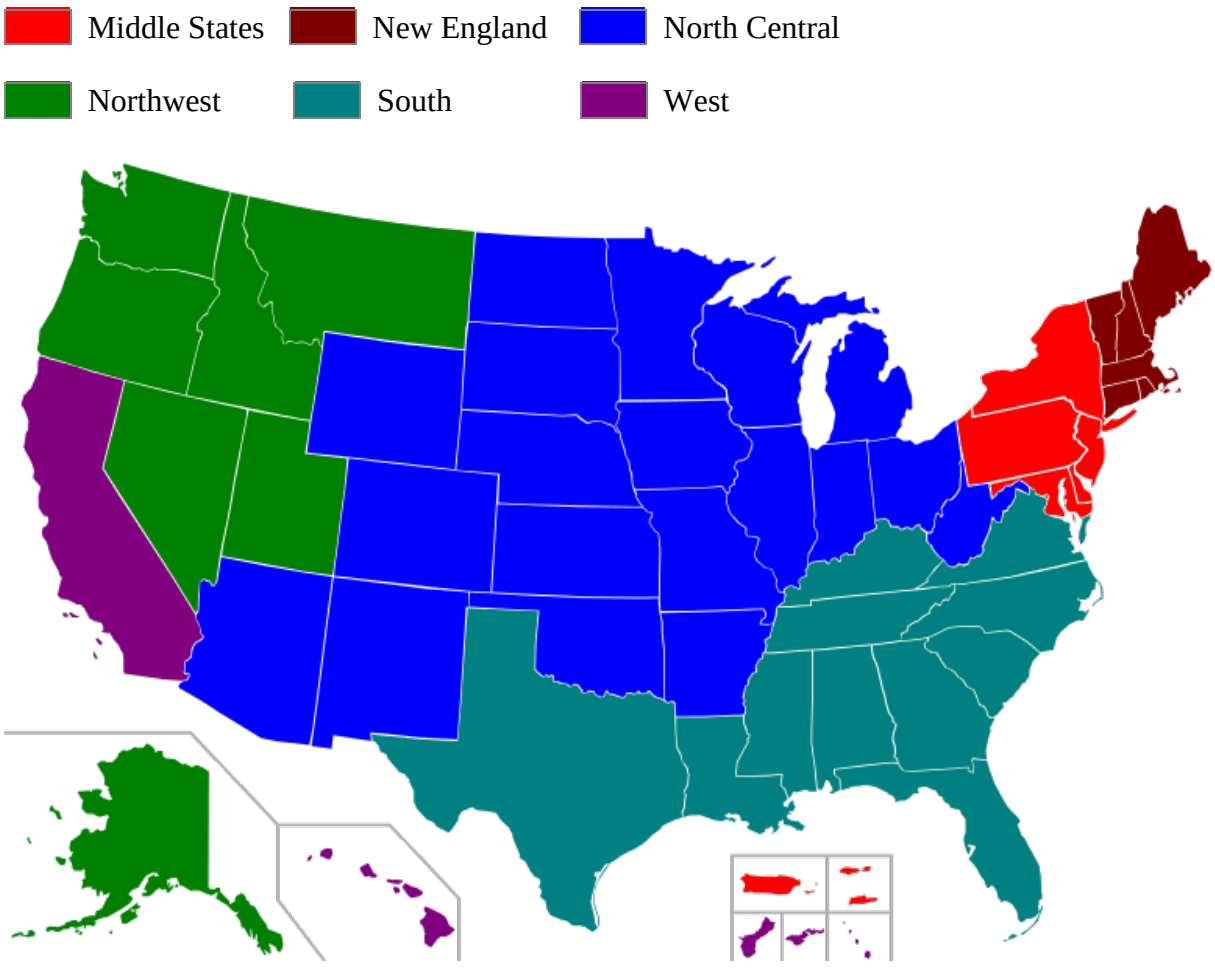


Figure 3. Map of regional accrediting associations' geographical coverage.
This figure is licensed under the Creative Commons Attribution Share-Alike 3.0 Unported License.
Retrieved from http://en.wikipedia.org/wiki/Regional_accreditation

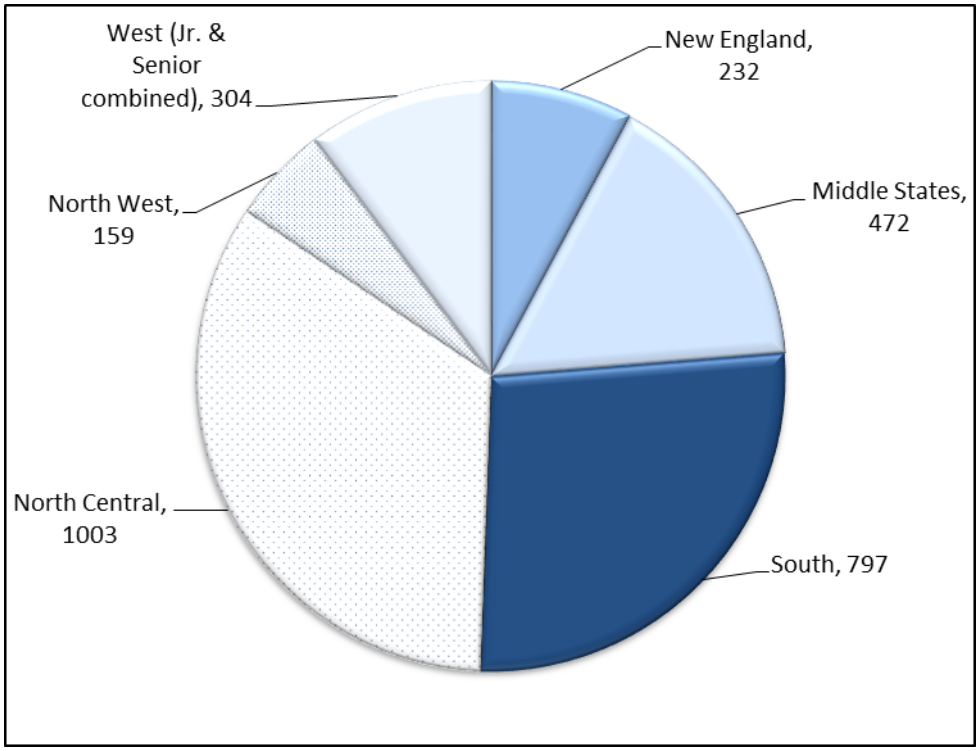


Figure 4. Number of eligible institutions in each region at time of sample selection.

3.4.3 Sample.

After determining the population and sampling frame, the sample was drawn using a stratified random sampling probability method described in Section 3.4.3.4.

The sample is commonly understood to be the group of people selected to be in the study, not the group of people who actually participate (Trochim, 2006b). For this study, the sample was composed of individuals identified on randomly selected institutions' Web sites as the "accreditation liaison officer (ALO)," or who held an equivalent title. Middle States identifies the accreditation liaison officer in this way:

> An Accreditation Liaison Officer (ALO) serves as the primary contact with [Middle States Commission on Higher Education] MSCHE staff and as a resource to the

> institution on MSCHE accreditation issues. Official correspondence between MSCHE and the institution's president is typically copied to the ALO. … In addition, the ALO should have adequate time and resources to focus on accreditation issues and should have appropriate status, visibility, authority, knowledge, access to data, and support from the senior administration to fulfill the responsibilities of this position. ("Accreditation liaison officer orientation e-packet," 2013).

The person fulfilling that role for each selected institution composed the group that constituted the sample. No problems contacting the sample via email or postal mail were expected—this person generally is identifiable on each selected institution's Web site, often along with address and email contact information.

3.4.3.1 *Avoiding sampling bias.*

Sampling bias can happen when a sample is collected in such a way that some members of the intended population are less likely to be included than others. For this study, a well-established sampling methodology lessened the possibility of sampling bias. Guidelines to avoid sampling bias (a) Caution against choosing an inappropriate population, (b) Advise a researcher to guard against an incomplete sampling frame, (c) Recommend good access to the sample, and (d) Ensure the sample is drawn correctly and accurately (Trochim, 2006a). In this study, the possibility of sampling bias was minimized as follows: (a) An institution's accreditation liaison officer's role and responsibilities put that person in an ideal position to respond to a survey questionnaire about eportfolio implementation for supporting regional accreditation. (b) The names of each agency's member institutions will be pulled from the official regional accrediting agency Web site, so the sampling frame can be relied upon to be complete. (c) Access to the sample requires nothing more than Internet access and a search of each selected institution's

Web site. (d) Stratified random sampling is a well-established means of ensuring a correct and accurate sample for a study such as this one. These recommended guidelines and how this study minimized potential sampling bias are visualized in Table 4:

Table 4. Minimizing Sampling Bias

Minimizing Sampling Bias

Guidelines to Avoid Sampling Bias	Actions Taken to Minimize Sampling Bias
Be careful not to choose an inappropriate population	An institution's accreditation liaison officer's role and responsibilities put that person in an ideal position to respond to a survey questionnaire about eportfolio implementation for supporting regional accreditation
Guard against an incomplete sampling frame	The names of each agency's member institutions will be pulled from the official regional accrediting agency Web site, so the sampling frame can be relied upon to be complete
Ensure good access to the sample	Access to the sample requires nothing more than Internet access and a search of each selected institution's Web site
Ensure the sample is drawn correctly and accurately	Stratified random sampling is a well-established means of ensuring a correct and accurate sample for a study such as this one

3.4.3.2 *External invalidity.*

Babbie (2010) says external invalidity "refers to the possibility that conclusions drawn from experimental results may not be generalizable to the 'real' world" (p. G4). One way to help assure external validity is to ensure that once selected, the participants respond to the survey

questionnaire—in other words, the researcher must attempt to maximize response rate. In the following section, the researcher describes steps taken to manage response rates for this study.

Another way to help confirm external validity is to do the best possible job of drawing the sample from the population. For instance, a researcher should use random selection, if possible, rather than a nonrandom procedure. The sampling procedure for this study was a form of random sampling and is explained in detail in Section 3.4.3.4.

3.4.3.3 *Managing response rate/survey administration.*

Any researcher who aims to collect data with a survey questionnaire is concerned with response rate, no matter the manner of administration. The response rate is commonly defined as the number of surveys completed, divided by the sample size, multiplied by 100. This study's sample is composed of busy individuals who are likely to be highly placed at their college or university. Although their contact information is readily available, once contacted, the researcher must motivate them to complete the survey.

Millar and Dillman (2011) conducted an experimental study to determine the best strategies for maximizing Web response in a highly Internet-literate population such as the accreditation liaison officers selected for this study. They noted that a meta-analysis of studies comparing modes of survey administration concluded that Internet response rates are generally lower than those of mail (Manfreda et. al, 2008, cited in Millar & Dillman, 2011). Fan and Yan (2010) noted that the response rate for Web surveys is, on average, 11% lower than that of other survey mode.

Millar and Dillman's results suggest that offering different response modes sequentially increases response rate (Millar & Dillman, 2011). In their study, they tested a strategy they called "email augmentation"—the use of supportive email contacts within a primarily postal

contact strategy. They hypothesized "when offering a choice of response modes, the email augmentation strategy will produce a higher response rate than using only postal contacts" (p. 255). In the email augmentation approach, the postal invitation may be followed up by multiple email and multiple postal reminder contacts. Millar and Dillman note that another possible option is to "use the initial postal invitation but send all follow-ups through email" (p. 255). This researcher's study followed the "initial postal invitation/send all follow-ups through email" method rather than email contact only, as Millar and Dillman's results showed that there is "considerable value to moving beyond email-only implementation strategies for Web surveys" (p. 266). Following the email augmentation method made sense for another simple reason: it was less expensive than the multiple postal reminder option. The sample (N = 600) plus the pilot study individuals (five from each of the six agencies, n = 30) at the cost of 46 cents per first-class stamp, cost $289.80 for postage alone. Providing a postal response or reminder option would double that cost to $579.60, not including the additional paper and envelopes. This doubled cost was prohibitive for the researcher. The researcher's Institutional Review Board (IRB) allowed three total contacts. The researcher decided upon an initial mail contact, followed by an email contact, and then a final email reminder. Since multiple contacts, especially when using different modes of contact, have been shown to increase response rate (Dillman, Smyth, & Christian, 2009), the published research supported this strategy.

Next, the researcher consulted her dissertation committee, composed of busy faculty and higher education administrators, regarding the strategic question of timing, known to be an important factor in survey response (Dillman et al., 2009). Based upon this consultation, the researcher decided to administer the Web-based survey questionnaire during the month of November, a month generally unencumbered by midterms, finals, and beginning-and-end-of-

semester administrative deadlines. The researcher consulted her committee, who are all experienced researchers, for advice when drafting the invitation letters and email subject lines. The letters were constructed with best-practice guidelines in mind: (a) The letters and emails were personalized; (b) The topic was likely salient to the selected participants; (c) The topic had a personal and professional connection to the work of the participants; (d) The letters and emails appealed to participants' "helping tendencies," acknowledged how busy they are, and thanked them for their time (Dillman et al., 2009). Dillman et al. (2009) suggest using contact materials that reassure participants that the sponsor of the survey is respected and trusted; however, University of Pittsburgh guidelines do not allow dissertation researchers to use University letterhead or envelopes, because using these materials may give the participants the erroneous perception that the University is sponsoring this study. Instead, the researcher chose plain buff-colored paper and envelopes, to set this invitation apart from the more common white.

On October 31 and November 1, 2013, a personalized, first-class letter was sent to each participant. The letter explained the study, provided the link to the Web-based survey, and informed the participant that an invitation email would follow. While the link was provided within the text of the invitation letter, the researcher considered this initial contact to be a pre-notification (Dillman et al., 2009) and expected the bulk of the replies in response to the email invitation and reminder.

As a condition of sharing the contact information of their accreditation liaison officers, the North Central Association of Colleges and Schools, Higher Learning Commission (NCA/HLC), required specific language in the invitation letter, and supplied a Student Researcher Acknowledgement form for the researcher to sign and send to the ALOs from their member institutions along with the invitation letter. The NCA/HLC invitation letter followed by

the Student Researcher Acknowledgement form is provided in Appendix D. The invitation letter sent to the ALOs from the other five accrediting agencies is provided in Appendix E.

During the pilot study, the researcher tested the mailing time required for a first-class letter to reach a participant. The researcher purposely did not include this test participant's full address—just the participant's name, institution, and city/state/zip code—no building or office number—at a large, urban, research university with approximately 12,500 faculty and staff. This was done to gauge the time the invitation letter, without a complete address, might take to reach the participants. The test letter reached this test participant in three working days. Allowing for university mailroom delays and unequal geographic distances (the randomly chosen institutions ranged from Florida to Alaska, and included Puerto Rico) the researcher sent a personalized follow-up email eight calendar days after mailing the invitation letter. The emails were composed of verbiage closely based upon their respective invitation letters and included a link to the Web survey. The final contact, a "reminder" email, was sent to the participants five calendar days after the first email contact. The survey closed on November 18, 2013. Based upon Millar and Dillman's research (2011), by following their email augmentation technique, the researcher could expect a response rate of approximately 64.5 %.

Other techniques to manage response rates involved actively applying best practices in the design and pilot testing phase of the survey questionnaire development. The techniques that were implemented for this study are found in Sections 3.3.1 and 3.3.2, respectively. To prevent potential multiple responses by a participant, the Web-based survey settings were adjusted to allow only one response per computer. Based upon literature documenting the difficulties of obtaining responses (Dey, 1997; National Research Council, 2013), the likelihood that a participant would deliberately respond more than once, perhaps by accessing the survey from

two different computers, was deemed unlikely. Because mandatory survey items in Web-based surveys have been shown to reduce response rates (Dillman & Smyth, 2007), only four questions were mandatory: Questions 2, 3, 11, and 22, which were considered vital to the goals of this study. See Appendix C for the complete survey.

3.4.3.4 *Sampling procedure*.

To draw the sample for this study, a stratified random sampling probability method was used. This method usually requires dividing the population of interest into homogenous subgroups, then taking a simple random sample from each subgroup. In this study, the subgroups—the six regional accrediting agencies—were predefined. Stratified random sampling was a good fit for this study: It assured representation of the overall population, as well as the possibility of representation of every subgroup. Stratified random sampling may be the only way to effectively ensure the data will allow a comparison between institution-level eportfolio implementation prevalence across groups such as regional accrediting agencies (Trochim, 2006a). Generally, stratified random sampling will have more statistical precision than simple random sampling (Trochim, 2006a).

The following procedures were followed to draw a stratified random sample for this study:

1. Six Excel spreadsheets were created—one for each regional accrediting agency. Each spreadsheet contained of a column of cells that held the name of every institution accredited by that regional accrediting agency.
2. Ineligible institutions (institutions in "candidate" status, as well as institutions located in independent foreign nations [see Section 3.4.2.]) were removed.

3. Excel's randomizing function [=RAND()] generated a random number assigned to each cell in the column next to the institution name column.
4. Both columns were sorted—the list of names and the random numbers—by the random numbers. This rearranged the list in random order.
5. The researcher selected the first 100 institution names in each randomized list.
6. From this list of 100 randomly selected institutions, the researcher and three colleagues searched for and identified the "accreditation liaison officer" (or equivalent person) for each institution, and recorded the name, postal address, and email address for that person on the appropriate Excel spreadsheet. If two were listed, the person named first was chosen. The group of persons fulfilling that role for each institution constitutes the sample.

3.4.3.5 *Obtaining accreditation liaison officer contact information.*

The Middle States Association of Colleges and Schools, Middle States Commission on Higher Education (MSCHE) and the Senior College and University Division of the Western Association of Schools and Colleges (WASC) provided the names of the accreditation liaison officers (ALO) on their association's Web sites. The WASC Senior College and University Division provided email addresses as well; MSCHE provided names only. Using this information, the researcher and her assistants visited each WASC Senior and MSCHE institution's site and collected postal addresses (office addresses when published; in some cases, the central college/university address was the only address available) along with email addresses for the MSCHE sample.

To obtain the contact information for the North Central Association of Colleges and Schools, Higher Learning Commission (NCA/HLC) accreditation liaison officers, the researcher telephoned a representative of the North Central region, explained the study, and requested help

with obtaining contact information for the accreditation liaison officers at the 100 randomly selected institutions. The North Central representative agreed to provide the accreditation liaison officers' contact information. In exchange for this access, the NCA/HLC provided a Student Research Acknowledgment form and required the researcher to attach a signed and dated form to the participation letter.

The remaining regional associations (New England Association of Schools and Colleges, Commission on Institutions of Higher Education [NEASC-CIHE], Northwest Association of Schools and Colleges, Northwest Commission on Colleges and Universities [NWCCU], the Southern Association of Colleges and Schools, Commission on Colleges [SACS/COC], and the WASC Accrediting Commission for Community and Junior Colleges [ACCJC,WASC]) were approached via telephone and email in the same manner as NCA/HLC, but these associations either did not respond to the researcher's request or declined to facilitate access to their accreditation liaison officers. Therefore, in order to gather the sample from these regional associations, the researcher visited the Web site of each institution in the sample and searched out the name of the accreditation liaison officer (or equivalent person), their email address, and postal address, following a standardized search procedure: When no contact information was provided, the researcher Googled "Institution Name" "accreditation liaison." Often, this yielded the necessary information. When this simple Google® search failed, the researcher Googled "institution name" "accreditation." This search often provided the researcher with a page from which she could gain the appropriate contact information. If this failed, the researcher searched for a "leadership" page or the institution's institutional research office, and chose an appropriate contact from those pages. This contact was often a person in an associate or assistant provost

position, an associate or assistant dean position, or a director of the office of institutional research.

In a few instances, no published email address could be found, even when combining a search of the institution's site with a thorough Google® search. In those cases, rather than replace those institutions in the sample (which might have affected the random nature of the sample), the researcher sent the initial invitation letter on October 31 or November 1, then followed up with a second postal contact on November 8, the date the first email was sent to the other participants. These instances of participants without published email addresses were rare. There were five from ACCJC/WASC, zero from NCA/HLC, one from NWCCU, three from NEASC-CIHE, one from MSCHE, five from SACS/COC, and zero from WASC. Due to the fully anonymous nature of the completed survey, it is not possible to speculate on whether replacing email contact with an additional postal contact affected the response rate.

3.4.3.6 *Sample size*.

A Web-based survey questionnaire was developed and administered in order to gather the data to answer these research questions:

1. What is the prevalence of institution-level eportfolio implementation at accredited United States colleges and universities for support of regional accreditation and/or reaffirmation?
2. What is the relationship between U.S. higher education institutions' regional accrediting agency, selected characteristics such as Basic Carnegie Classification or institution size, and the likelihood that the institution is using an institution-level eportfolio to manage regional accreditation/reaffirmation?

This study also puts forth the following null hypothesis:

H_0: There is no difference in the proportion of institution-level eportfolio implementation (for support of regional accreditation/reaffirmation) among the six regional accrediting agencies.

As mentioned earlier, six previously published surveys of interest in the scholarly and professional literature were located. All had positive qualities and suited the purpose of their authors, but none were a good fit for this study. One variation between this study and the previous studies identified through the literature review is that the sample size for this study was consciously selected with the goal of making a statistically supportable claim for this study's results, with the hope of generalizing the findings across the six regional accrediting agencies. In order to achieve that, it was important to identify the optimum sample size. Mertens (2010) states, "the optimum sample size is directly related to the type of research you are undertaking" (p. 331). Guidelines developed by Onwuegbuzie, Jiao, and Bostick (2004, cited in Mertens, 2010) used power analysis formulas to derive a recommended sample size of 100 for survey research. By randomly choosing 100 participants from each of the six subgroups, the researcher laid the groundwork for a claim of statistical power. Based upon the power analysis completed for this study, with the sample size N = 600, a response rate of 53% would enable the researcher to make generalizations from the sample to the population. Steps taken to facilitate a strong response rate were explained in detail in Section 3.4.3.3.

3.5 DATA ANALYSIS

"Statistical tools and ideas help us examine data in order to describe their main features. This examination is called exploratory data analysis" (Moore, 2007, p. 6). Survey questionnaires are a common way to gather data for descriptive, explanatory, and exploratory research studies.

Once gathered, the data can then be organized and analyzed with software programs such as Excel and SAS. This study relied upon both of these programs as a means of performing calculations and statistical tests. The researcher sought advice and assistance from the University of Pittsburgh's Statistics Consulting Center for confirmation of decisions related to the choice of statistical tests, and for assistance with performing the tests using SAS. Graphs and charts generated by Excel and SAS are included when helpful in visualizing and discussing results.

Table 5 provides a summary of this study's population, sample, sample size, and raw number of responses.

Table 5. Population/Sample Summary

Population/Sample Summary

Region	No. of Eligible Institutions in Population at Time of Sample (8/13-9/13)	Number Sampled	Number of Responses
Middle States	472	100	33
New England	232	100	31
North Central	1003	100	53
Northwest	159	100	43
South	797	100	22
West (Jr/Sr combined)	304	100	19
Total	2967	600	201[a]

Note. [a]*Total number of responses prior to case-wise deletion of Missing at Random (MAR) data.*

When computing the chi-square test statistic needed for the hypothesis testing, the researcher and consulting statisticians considered only the complete data, and did not impute any

missing data. The missing data were from different regions, institution sizes, and Carnegie size and settings classifications. There did not appear to be a systematic pattern. The researcher and consulting statisticians therefore treated these missing data as *missing at random* (MAR), and used case-wise deletion for the eight institutions that did not respond to Survey Question 3, "Does your institution currently use an institution-level electronic portfolio to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation?" This question was the most critical to answering the study's research questions. Removing these eight cases from consideration resulted in the decision to compute the test statistic based upon an *n* of 193 rather than 201 (J. Murphy, personal communication, March 3, 2014). Table 6 provides a summary of the MAR data.

Table 6. Count of Missing at Random (MAR) Data

Count of Missing at Random (MAR) Data

Region	Number of Responses	MAR Data	Number of Responses Used to Compute Test Statistic
Middle States	33	1	32
New England	31	0	31
North Central	53	3	50
Northwest	43	2	41
South	22	2	20
West (Jr/Sr combined)	19	0	19
Total	201[a]	8	193

Note. [a]*Total number of responses prior to case-wise deletion of Missing at Random (MAR) data.*

The *n* used when computing other results is noted throughout Chapters 4 and 5. As noted in Section 3.4.3.3, only Survey Questions 2, 3, 11, and 22 were required to be answered in order to move through the survey. Based upon the participants' responses and the survey's skip logic, participants may or may not have been presented with every survey question. For example, participants who answered "no" to Survey Question 3 would not have been asked Survey Question 8—the approximate date of eportfolio implementation. This accounts for the varying *n*s. See Appendix C for the complete survey.

3.5.1 Categorical variables.

A categorical variable places an individual into one of several groups or categories (Moore, 2007). The distribution of a categorical variable lists the categories and gives either the count or the percentage of those that fall into each category. All responses to this Web-based survey questionnaire resulted in categorical variables with the exception of Survey Questions 4, 6, 9, and 16, which have a qualitative component (these questions provided an opportunity to expand upon an "other" response), and Survey Questions 14, 24, and 25, which requested purely qualitative responses. (See Appendix C for survey.) Excel and SAS were used to explore these categorical responses, calculate descriptive statistics, and create pie charts, bar graphs, and other figures to aid in discussion of the distribution of selected results.

3.5.2 Qualitative data.

All responses to this Web-based survey questionnaire resulted in categorical variables with the exception of Survey Questions 4, 6, 9, and 16, which have a qualitative component (these

questions provided an opportunity to expand upon an "other" response), and Survey Questions 14, 24, and 25, which requested a purely qualitative response. Participants were invited to provide an unstructured response to Survey Question 14, which states, "Please share your thoughts about why your institution decided to abandon the use of an institutional electronic portfolio to help with regional accreditation." Note that only participants who selected a "yes" response to Survey Question 13, "Has your institution used an institutional electronic portfolio to help prepare for regional accreditation or reaffirmation in the past, but then abandoned its use?" were offered the opportunity to answer Survey Question 14. Survey Question 24 provided an opportunity for participants to submit their contact information if they wanted to receive the results of the study, and Survey Question 25 requested feedback on how the survey could be improved. Responses to Survey Questions 4, 6, 9, 14, and 16 were examined for commonalities by the researcher and are discussed in narrative form.

3.5.3 Hypothesis testing.

This study put forth the following null hypothesis:

H_0: There is no difference in the proportion of institution-level eportfolio implementation (for support of regional accreditation/reaffirmation) among the six regional accrediting agencies.

The literature review conducted for this study, while thorough, did not reveal any published data that enabled the researcher to support or reject this hypothesis of no difference. The exploration of survey responses received to questions related to this hypothesis are expected to add new information to the field of eportfolio research.

Survey Question 3 asked, "Does your institution currently use an institution-level electronic portfolio to help collect, prepare, and/or showcase evidence in support of regional

accreditation or reaffirmation?" The response to this question is categorical, either "yes" or "no." The results were aggregated and computed across all six regional accrediting agencies, which provided the prevalence of overall implementation and the answer to Research Question 1, described in Section 4.3.1. In order to support or reject the null hypothesis, though, it was necessary to compare the answers to Survey Question 3 from each of the six accrediting agencies against each other. A chi-square test for the difference in multiple proportions was used to compute the statistics that would support or reject the hypothesis. This test was an effective way to explore these data in order to determine whether the proportions of eportfolio implementation were the same across the different regional accrediting agencies. SAS was used to calculate the chi-square test statistic, and determine whether there was a statistically significant difference in the proportion of institution-level eportfolio implementation among the six regional accreditation agencies. This chi-square test also "assesses the probability that sampling error explains the relationships we observe between the variables displayed in the cross-tabulation table" (Rubin, 2010, p. 188), thus giving the researcher a sense of how confident she could be in the results. Where helpful, figures were created by SAS and organized by the researcher and consulting statisticians, providing visualization of the data.

3.6 INSTITUTIONAL REVIEW BOARD

The University of Pittsburgh Institutional Review Board reviewed this study. It was classified as exempt and assigned protocol number PRO13050159.

4.0 FINDINGS

This chapter will reveal the findings of this study.

4.1 SAMPLE CHARACTERISTICS

Earlier, this researcher characterized the sample for this study as highly placed individuals at accredited United States universities, who held the position of accreditation liaison officer or equivalent. This was borne out in the characteristics of those who responded to the Web-based survey questionnaire. University titles for those serving as accreditation liaison officers included president, provost, vice president for institutional accreditation, academic vice president and dean of faculty, director of institutional effectiveness, and director of accreditation services, among others. Based upon responses to Survey Questions 1 and 2, participants came from nearly every Basic Carnegie Classifications and institution size (see Figures 8 and 9). The subgroup of accreditation liaison officers who answered "yes" to Survey Question 3, "Does your institution currently use an institution-level electronic portfolio to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation?" (n = 60) were asked Survey Question 9, "What office or department leads the institution-level electronic portfolio at your institution?" Fifty-eight ALOs replied to this question. The most common answer (23%) indicated the institution-level eportfolio was managed by the Office of Institutional Research,

which was most often under the umbrella of the Provost's Office. Of the survey respondents who chose to answer Survey Question 23 (n = 187), 52% stated that they had experience in evaluating an institution's qualifications for regional accreditation, for example, as a member of a site visit team. Findings for Survey Question 17 (n = 188), "When did your institution last undergo regional accreditation or reaffirmation?" and Survey Question 18 (n = 189), "When is your institution scheduled to be accredited or reaffirmed?" are illustrated in Figures 5 and 6. Most respondents indicated their institutions had been accredited or reaffirmed within the last 5 years (see Figure 5).

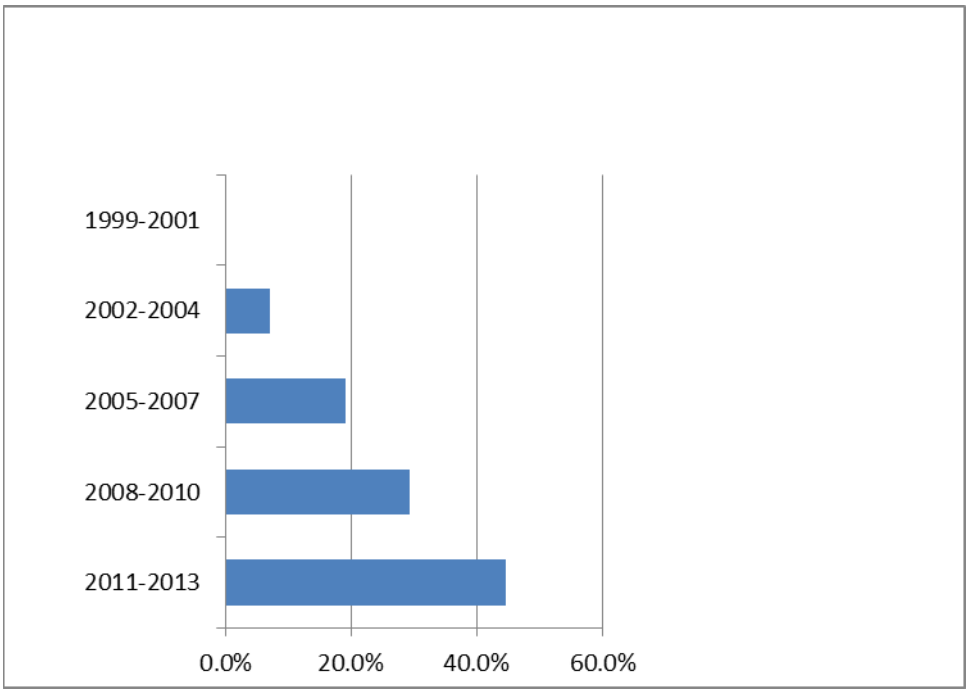


Figure 5. "When was your institution last accredited or reaffirmed?" Combined average across six regions to Survey Question 17.

In Figure 6, the reader can see that the majority of participants indicated their institution will undergo a reaffirmation visit by the end of 2018.

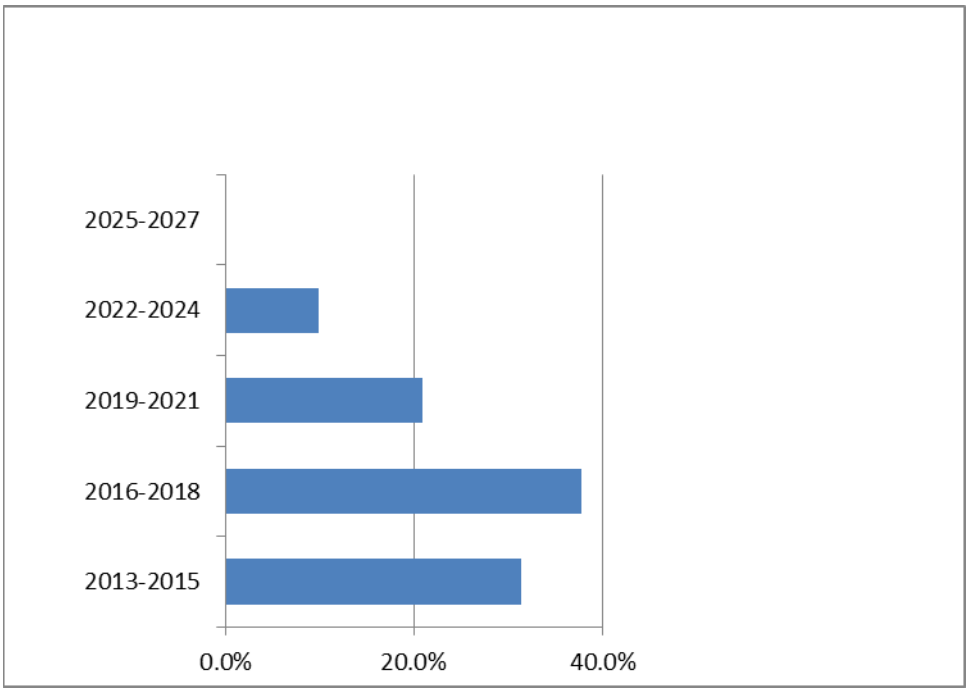


Figure 6. When is your institution scheduled to be reaffirmed? Combined average across six regions to Survey Question 18.

4.2 GENERALIZING THE FINDINGS

In Chapter 3, the researcher outlined in detail the research-based practices and procedures relied upon to ensure the selection of an appropriate research design, the development of a well-written survey questionnaire, and a well-chosen population, sampling frame, and sample. In Section 3.4.3, decisions made related to maximizing response rate, sampling procedure, and sampling size were explained and supported. These practices and procedures were chosen and followed in an effort to ensure a response rate that would enable the researcher to collect data that could be interpreted through statistical testing, and result in findings that could be generalized from the sample to the population. Based upon the power analysis performed for this study, a response

rate of 53% was sufficient to enable the researcher to provide statistically significant support for claims of eportfolio prevalence, find relationships between regional accreditor, eportfolio implementation, and characteristics such as Basic Carnegie Classification or institution size, and test a hypothesis comparing eportfolio implementation among regional accreditors.

Although this researcher is confident every effort was made to achieve a 53% response rate, the actual response rate among the six regions was 32%. Although 32% is not an ideal response rate, an accreditation liaison officer's role and responsibilities put that person in an ideal position to respond to a survey questionnaire about eportfolio implementation for supporting regional accreditation. The position description does not vary in any substantive way among regions. These factors suggest it is likely the 32% who participated are representative of the sample as a whole. However, in keeping with established practices, findings are discussed in relation to those who responded, rather than generalized to the entire population of United States institutions of higher education accredited by the six regional accrediting agencies.

4.3 FINDINGS: ANSWERING THE RESEARCH QUESTIONS

4.3.1 Research question 1: Prevalence.

The first research question, "What is the prevalence of institution-level eportfolio implementation at accredited United States colleges and universities for support of regional accreditation and/or reaffirmation?" is a simple question of nation-wide prevalence. Although the literature review undertaken for this study was extensive, this researcher did not discover any publications that provided the answer to this most foundational of questions. Therefore, Survey

Question 3 asked, “Does your institution currently use an institution-level electronic portfolio to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation?”

As a reminder to the reader, the sample for this study was drawn specifically to enable the researcher to draw comparisons across the six regional accrediting regions (stratified random sampling), rather than drawing a completely random sample of the entire population of regionally accredited higher education institutions in the United States. To accomplish this comparison, 100 schools were surveyed from each region. As shown in Figure 4, Section 3.4.2, the number of schools accredited by each regional association is not equal. Therefore, it is not entirely accurate to generalize the results across the entire population when answering Research Question 1, because some regions are a bit more represented than others are. In other words, a sample size of 100 from the New England region is more representational of that region than a sample of 100 institutions from the North Central region (see Table 5). Within these limitations, the researcher is 95% confident that the true proportion of institutions that implement institution-level eportfolios for the purpose of accreditation is between .245 and .375 (n = 193).

Figure 7 is a visualization of this study’s finding of prevalence of institution-level eportfolio implementation, broken down by regional accrediting agency. For example, in the Middle States region, the reader can see that over 80% of the Middle States accreditation liaison officers who responded to the survey replied “no” to Survey Question 3: Does your institution currently use an institution-level electronic portfolio to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation?” Accreditation liaison officers in the Southern Association of Colleges and Schools, Commission on Colleges (SACS/COC)

reported a majority of their institutions implemented institution-level eportfolios, 55% versus 45%.

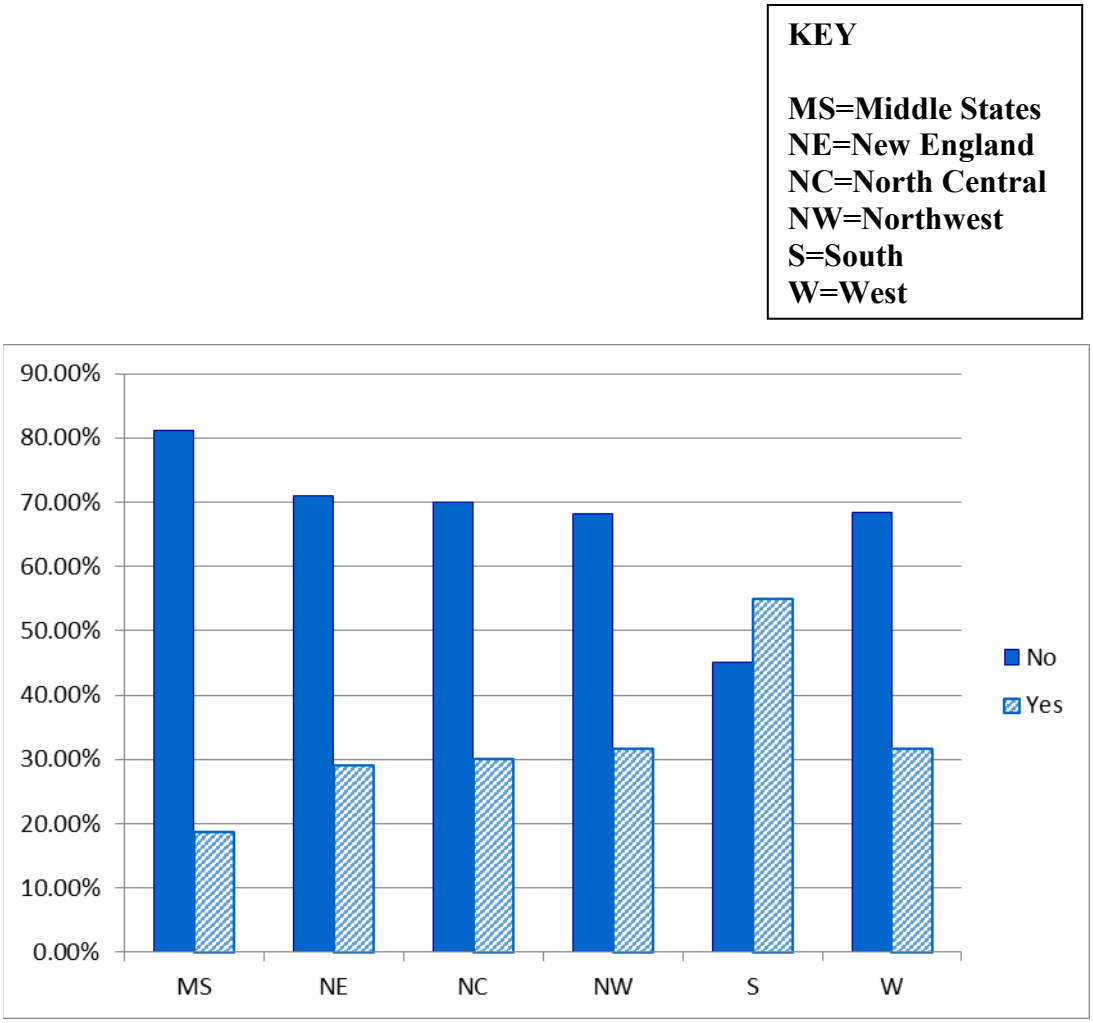


Figure 7. Percentage of institution-level eportfolio implementation by regional accreditor.

The researcher also examined the possibility that an institution may have implemented an institution-level electronic portfolio, and then abandoned the effort. Twelve of 193 respondents reported that this had been their experience, and of those, 10 shared their thoughts. Budget and staffing limitations were cited most often; for example, this response: "Budget cuts and lack of staff facilitated the break in use."

4.3.2 Research question 2: Comparison among regions.

The results from Survey Questions 1, 2, and 3 (see Appendix C) were applied to Research Question 2, "What is the relationship between U.S. higher education institutions' regional accrediting agency, selected characteristics such as Basic Carnegie Classification or institution size, and the likelihood that the institution is using institution-level eportfolios to manage regional accreditation/reaffirmation?" This second research question was designed to answer questions about the prevalence of institution-level eportfolio implementation when cross-referenced with important institutional characteristics such as an institution's Basic Carnegie Classification and Carnegie Size and Setting Classification. The response choices for Basic Carnegie Classification were: associate's colleges, baccalaureate colleges, master's colleges and universities, doctorate-granting universities, special focus institutions, and tribal colleges. In analysis, special focus institutions were combined with tribal colleges into a special/tribal category to help ensure that the number of responses was sufficient for analysis. To help ensure that the number of responses to the "institution size" question would be sufficient for analysis, the answer choices for "institution size" were based upon the Carnegie Size and Setting classification. Options were very small, small, medium, large/very large, or exclusively graduate/professional. (The researcher judged the variable of "setting" as irrelevant to the research question, and eliminated it. This is simply because the expense and staff time required to implement and support an institution-level eportfolio might adversely affect smaller schools, so size is important. Whether the school is residential or not will likely have no impact.)

Figure 8 was generated by SAS, and formatted by the researcher and consulting statisticians. It displays a contingency table computed by SAS (n = 192) for these categorical variables: Are eportfolios implemented (Y/N); What is the Basic Carnegie Classification of the

institution (associate; baccalaureate; doctorate; masters; special/tribal); and the regional accrediting agency of the respondent's institution (MS/NE/NC/NW/S/W).

Eportfolio Implementation			Carnegie Class					Total
			Associate	Baccalaureate	Doctorate	Masters	Special/Tribal	
No	Region							
	MS	Frequency	6	6	3	8	3	26
		Column Proportion	0.0923	0.1463	0.1579	0.1702	0.1500	0.1354
	NE	Frequency	4	7	1	8	2	22
		Column Proportion	0.0615	0.1707	0.0526	0.1702	0.1000	0.1146
	NC	Frequency	11	7	1	6	10	35
		Column Proportion	0.1692	0.1707	0.0526	0.1277	0.5000	0.1823
	NW	Frequency	13	2	5	5	3	28
		Column Proportion	0.2000	0.0488	0.2632	0.1064	0.1500	0.1458
	S	Frequency	7	1	0	1	0	9
		Column Proportion	0.1077	0.0244	0.0000	0.0213	0.0000	0.0469
	W	Frequency	5	2	1	5	0	13
		Column Proportion	0.0769	0.0.88	0.0526	0.1064	0.0000	0.0677
	Total	Frequency	46	25	11	33	18	133

Eportfolio Implementation			Carnegie Class					Total
			Associate	Baccalaureate	Doctorate	Masters	Special/Tribal	
Yes	Region							
	MS	Frequency	1	2	1	1	0	5
		Column Proportion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	NE	Frequency	0	2	1	6	0	9
		Column Proportion	0.0000	0.0488	0.0526	0.1277	0.0000	0.0469
	NC	Frequency	5	5	0	4	1	15
		Column Proportion	0.0769	0.1220	0.0000	0.0851	0.0500	0.0781
	NW	Frequency	5	3	2	2	1	13
		Column Proportion	0.0769	0.0732	0.1053	0.0426	0.0500	0.0677
	S	Frequency	5	3	2	1	0	11
		Column Proportion	0.0769	0.0732	0.1053	0.0213	0.0000	0.0573
	W	Frequency	3	1	2	0	0	6
		Column Proportion	0.0462	0.0244	0.1053	0.0000	0.0000	0.0313
	Total	Frequency	19	16	8	14	2	59

Figure 8. SAS contingency table: Eportfolio Implementation x Basic Carnegie Classification x Regional Accreditor

Figure 9 was generated by SAS and formatted by the researcher and consulting statistician. It shows a contingency table computed by SAS (n = 193) for these categorical variables: Are eportfolios implemented (Y/N); What is the institution size (very small, small, medium, large/very large, or exclusively graduate/professional); and the regional accrediting agency of the respondent's institution (MS/NE/NC/NW/S/W).

Eportfolio Implementation			Size					Total
			GP	Large/VLarge	Medium	Small	Vsmall	
No	Region							
	MS	Frequency	3	6	9	7	1	26
		Column Proportion	0.2727	0.1500	0.1500	0.1207	0.0417	0.1347
	NE	Frequency	0	3	10	7	2	22
		Column Proportion	0.0000	0.0750	0.1667	0.1207	0.0833	0.1140
	NC	Frequency	4	5	5	14	7	35
		Column Proportion	0.3636	0.1250	0.0833	0.2414	0.2917	0.1813
	NW	Frequency	2	6	8	6	6	28
		Column Proportion	.01818	0.1500	0.1333	0.1034	0.2500	0.1451
	S	Frequency	0	1	4	4	0	9
		Column Proportion	0.0000	0.0250	0.0667	0.0690	.0000	0.0466
	W	Frequency	1	5	2	3	2	13
		Column Proportion	0.0909	0.1250	0.0333	0.0517	0.0833	0.0674
	Total	Frequency	10	26	38	41	18	133

Eportfolio Implementation			Size					Total
			GP	Large/VLarge	Medium	Small	Vsmall	
Yes	Region							
	MS	Frequency	0	1	1	4	0	6
		Column Proportion	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	NE	Frequency	0	1	4	3	1	9
		Column Proportion	0.0000	0.0250	0.0667	0.0517	0.0417	0.0466
	NC	Frequency	1	2	5	7	0	15
		Column Proportion	0.0909	0.0500	0.0833	0.1207	0.0000	0.0777
	NW	Frequency	0	4	4	2	3	13
		Column Proportion	0.0000	0.1000	0.0667	0.0345	0.1250	0.0674
	S	Frequency	0	3	5	1	2	11
		Column Proportion	0.0000	0.0750	0.0833	0.0172	0.0833	0.0570
	W	Frequency	0	3	3	0	0	6
		Column Proportion	0.0000	0.0750	0.0500	0.0000	0.0000	0.0311
	Total	Frequency	1	14	22	17	6	60

Figure 9. SAS contingency table: Eportfolio Implementation x Institution Size x Regional Accreditor

These SAS-generated contingency tables are a means of displaying the survey data, not unlike pie charts and bar graphs. While the overall response rate to the survey does not allow the researcher to make statistically significant claims or generalize those claims to the entire population of United States institutions of higher education accredited by the six regional

accrediting agencies, survey results displayed by these contingency tables are nevertheless interesting. Each "Column Proportion" cell contains the proportion of implementation, and each "Frequency" cell contains the actual number of responses. For example, when looking at Figure 8, the reader can see that when considering Basic Carnegie Classification, master's colleges and universities in the New England region appear to have the largest proportion of eportfolio implementation (.1277). Doctorate-granting institutions have a higher than expected average proportion of implementation (.0614, with a mode of .1053) than one might expect based upon the literature. When looking at Figure 9, the reader can see that when considering institution size, very small institutions in the Northwest region appear to be leading in institution-level eportfolio implementation (.1250), followed by small institutions in the North Central region (.1207).

4.3.3 Hypothesis.

The null hypothesis stated: There is no difference in the proportion of institution-level eportfolio implementation (for support of regional accreditation/reaffirmation) among the six regional accrediting agencies.

To test the hypothesis, a difference in multiple proportions test was performed on data gathered from Survey Question 3 (n = 193). This yielded a chi-squared test statistic, $\chi^2 = 7.71$ with 5 degrees of freedom, with a *p*-value of 0.173. At a 5% significance level, the researcher failed to reject the null hypothesis. There is not sufficient information to suggest a statistically significant difference in the proportion of electronic portfolio implementation among United States higher education institutions accredited by the six regional accrediting agencies at a 5% significance level.

4.4 FINDINGS: PERCEPTIONS OF ACCREDITATION LIAISON OFFICERS

As is likely the case with many dissertations, interesting findings tangential to the research questions were uncovered. Because they may be of interest to others in the field, these findings are provided here.

Based upon the results of the hypothesis testing, which implied no difference in prevalence among the regions, the researcher and consulting statisticians inferred that implementation is proportionally even across the six regional accrediting agencies. Therefore, in revealing these next findings, it is reasonable to aggregate and average the data to illustrate results.

In the literature review, the researcher discussed "Electronic Portfolios for Accreditation?," an editorial written by Trudy Banta in 2003. In this article, Banta asked important questions about the future of institution-level electronic portfolios for support of regional accreditation or reaffirmation. Banta's questions remain relevant today and provided the foundation for Survey Questions 3, 11, 15, and 22 in the survey questionnaire developed for this study (refer to Table 3 and Appendix C). Findings related to Banta's questions are provided in Sections 4.4.1, 4.4.2, and 4.4.3. Findings related to the balance of the survey questions follow Section 4.4.3.

4.4.1 Is the electronic institutional portfolio really the way accreditation self-studies will be presented in the future?

Despite the finding of Research Question 1 that institutions that do implement eportfolios are fewer than those that do not in every accrediting region except the Southern Association of Colleges and Schools, Commission on Colleges (SACS/COC), almost 62% of the accreditation liaison officers who responded to Survey Question 22 (n = 190) strongly agree or agree with the statement "Institution-level electronic portfolios are the way regional accreditation evidence, such as self-study documents, or enrollment or graduation data, will be collected, prepared, and/or showcased in the future." (See Figure 10.) Just over 70% of the accreditation liaison officers who responded to Survey Question 15 (n = 187) reported strong or some interest in using institution-level electronic portfolios to help prepare for or manage future regional accreditation or reaffirmation efforts at their institution. (See Figure 11.)

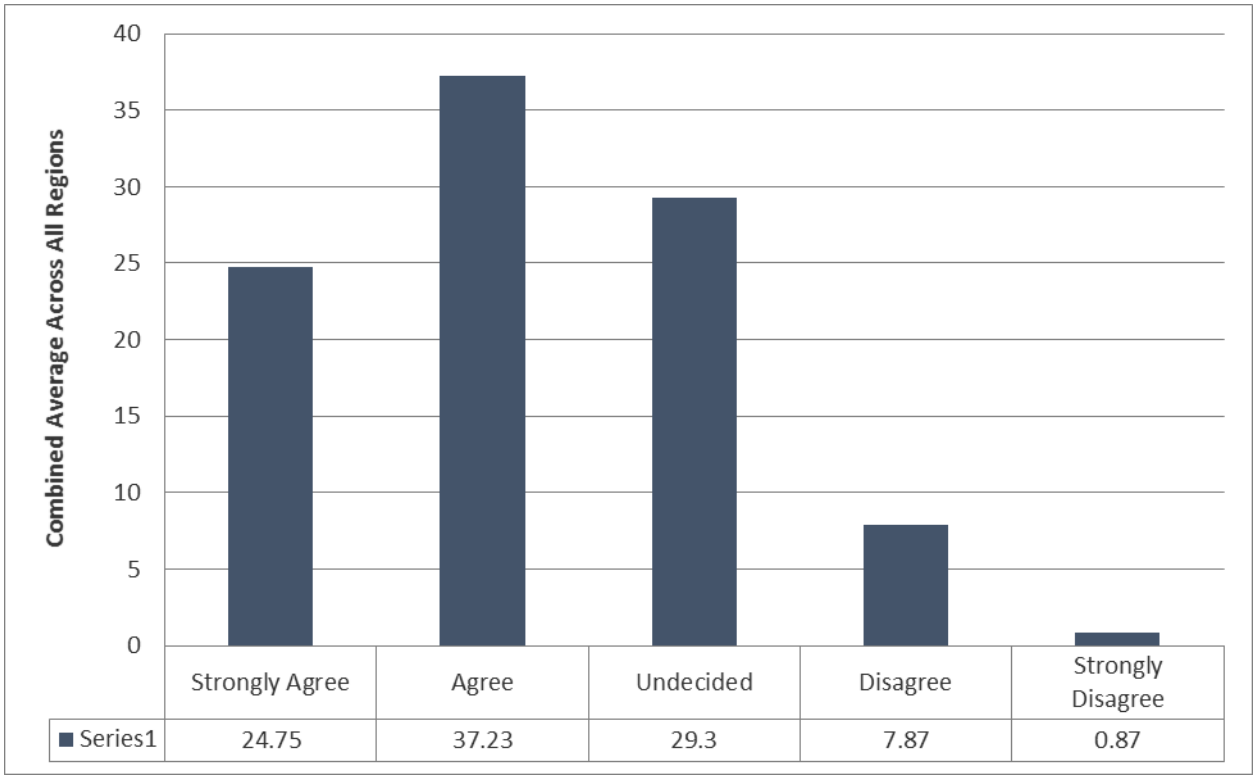


Figure 10. Combined average across all regions to Survey Question 22, "Is the electronic institutional portfolio really the way accreditation self-studies will be presented in the future?"

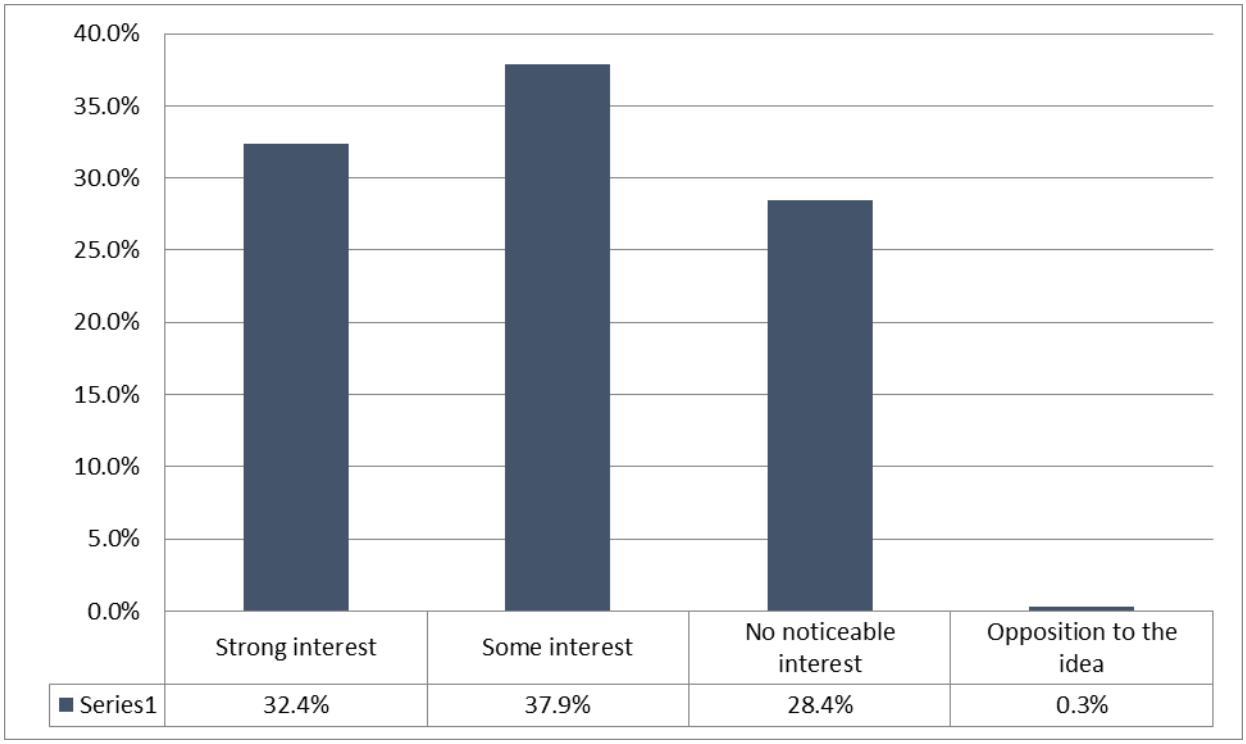


Figure 11. Combined average across all regions to Survey Question 15, level of interest in using an institution-level electronic portfolio to help prepare for or manage future regional accreditation or reaffirmation.

4.4.2 Must we continue to prepare a traditional narrative with links, so that in the end we can print it and send a paper copy to the review team?

Survey Question 11, "Does your institution's regional accreditor require your institution to prepare and submit a paper copy of the evidence presented in the institution-level electronic portfolio? For example, did your institution prepare and submit a paper copy of its self-study in addition to the institution-level electronic portfolio version?" was asked only of those who reported their institution had implemented an institution-level electronic portfolio (a "yes" answer to Survey Question 3; n = 60). More than twice as many participating accreditation liaison officers who chose to answer Survey Question 11 (n = 58) reported that they were required to provide a paper copy of their institution's self-study or other supporting evidence for

accreditation or reaffirmation, compared to those who were not (see Figure 12). Figure 13 is a representation of these same data, broken down by regional accrediting agency.

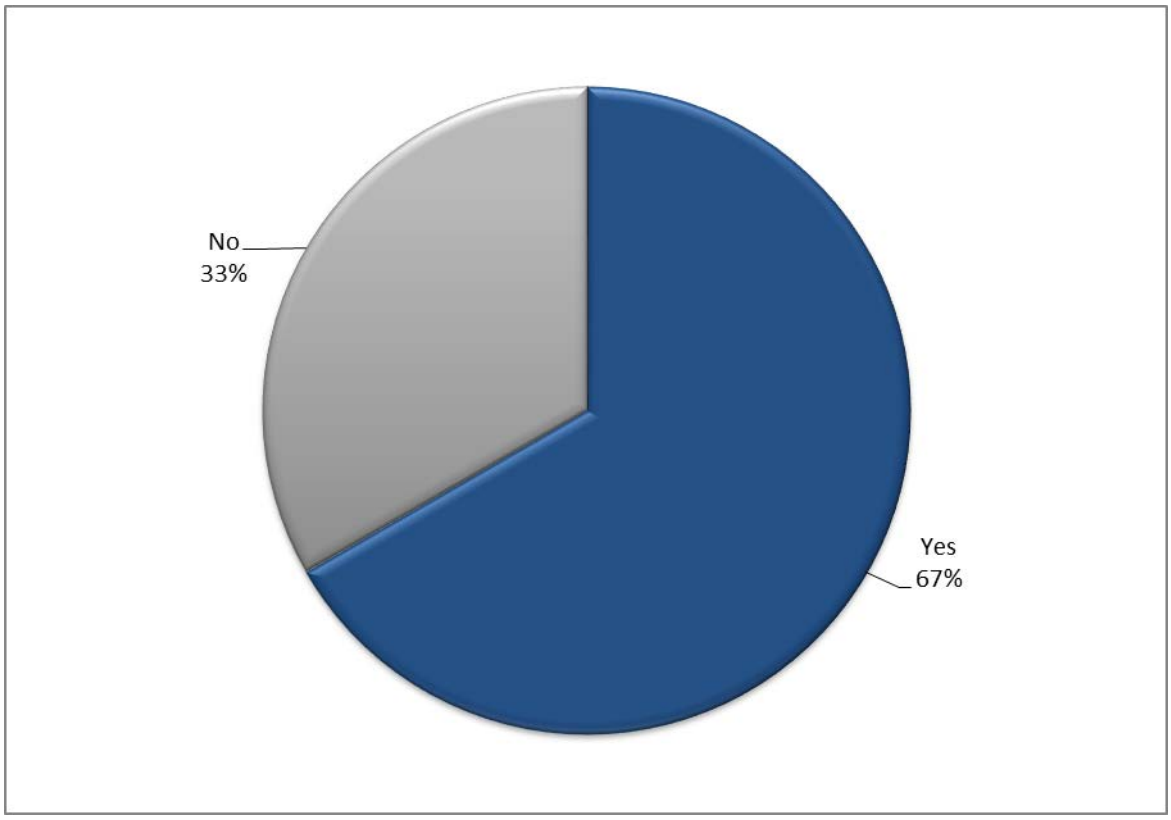


Figure 12. Responses to Survey Question 11, does your regional accreditor require a paper copy of evidence in addition to the eportfolio?

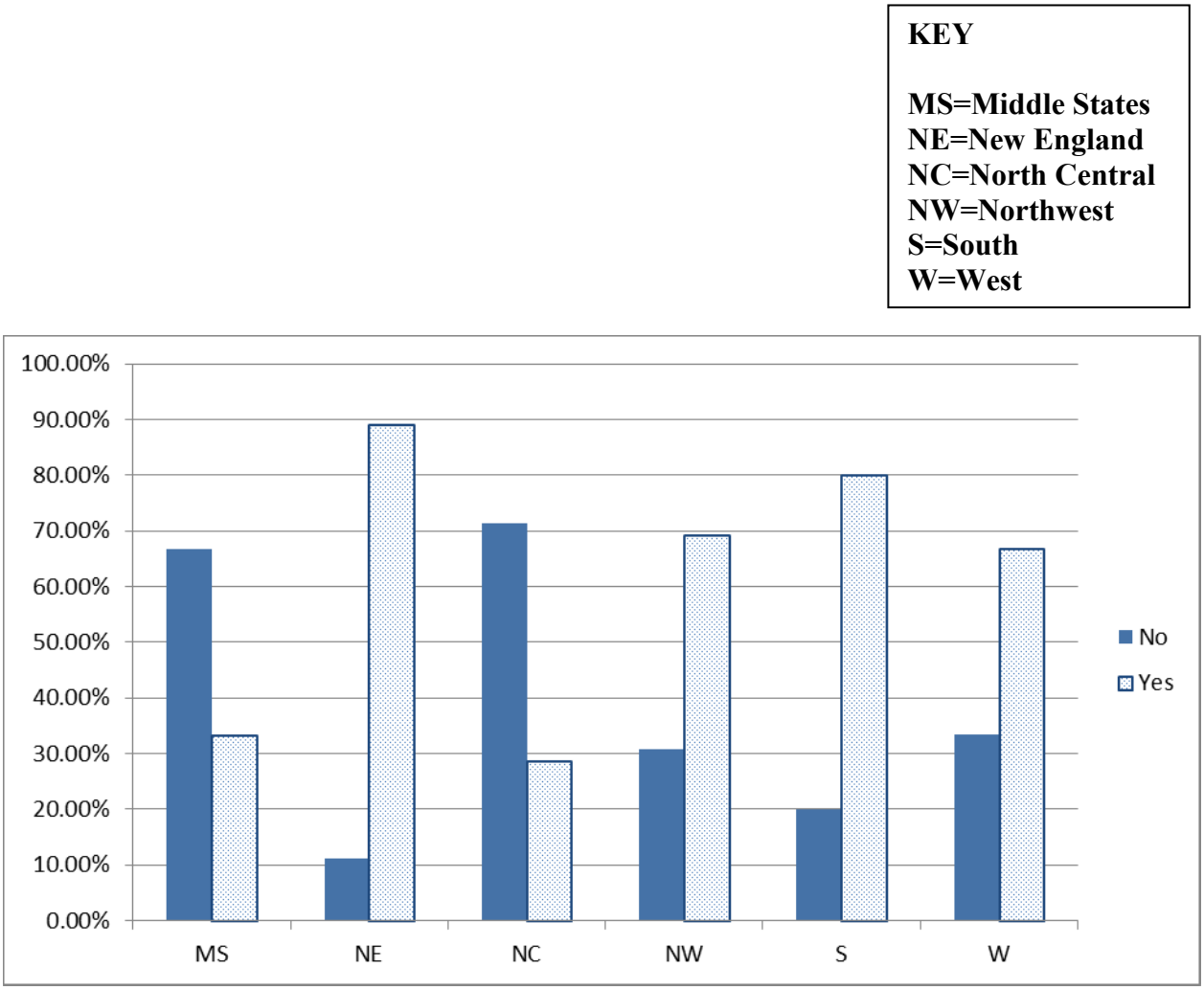


Figure 13. Responses to Survey Question 11, broken down by regional accreditor.

4.4.3 Might we be allowed to take full advantage of the capacity of the Web to use a picture to convey a thousand words?

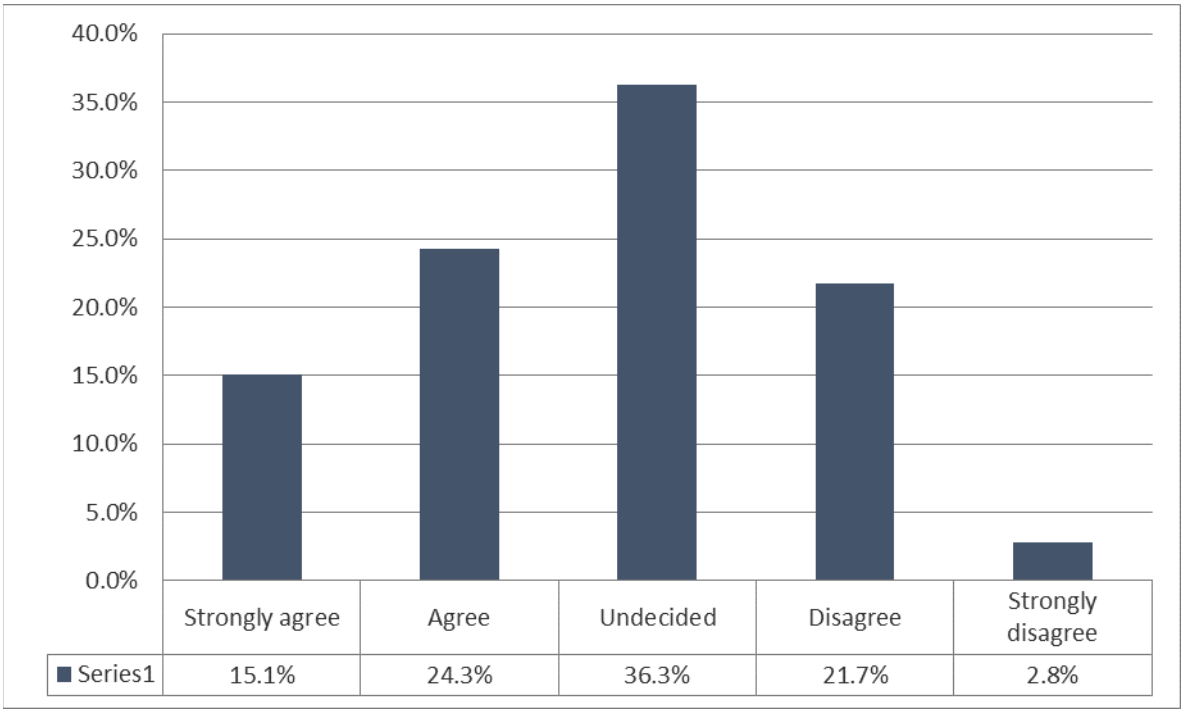


Figure 14. Combined average across all regions to Survey Question 19, "My institution's regional accreditor encourages the use of an institution-level eportfolio to support accreditation or reaffirmation."

There seems to be no strong consensus among survey participants who responded to Survey Question 19, "To what extent do you agree with this statement: My institution's regional accreditor encourages the use of an institution-level electronic portfolio to support accreditation or reaffirmation" as illustrated in Figure 14 (n = 188). Accreditation liaison officers who strongly agree or agree only slightly outnumber those who are undecided, 39.4% to 36.3%. Just 25.8% of responding ALOs (n = 186) reported their regional accreditor has offered them training or information on eportfolio implementation, such as workshops or publications.

4.4.4 Do eportfolios help with accreditation? Are they worth the cost and effort?

ALOs who answered "yes" to Survey Question 3 (n = 60) were asked Survey Question 10, "Was supporting regional accreditation or reaffirmation a motivator for adopting/using an institution-level eportfolio?" Nearly 78% indicated this was the case (n = 58). Respondents to Survey Question 12 (n = 58) strongly agree or agree that institution-level eportfolios helped with regional accreditation or reaffirmation (61.5%—see Figure 15) and are about evenly split between strongly agree/agree and undecided when considering whether they are worth the cost and effort (Survey Question 21; n = 190, see Figure 16).

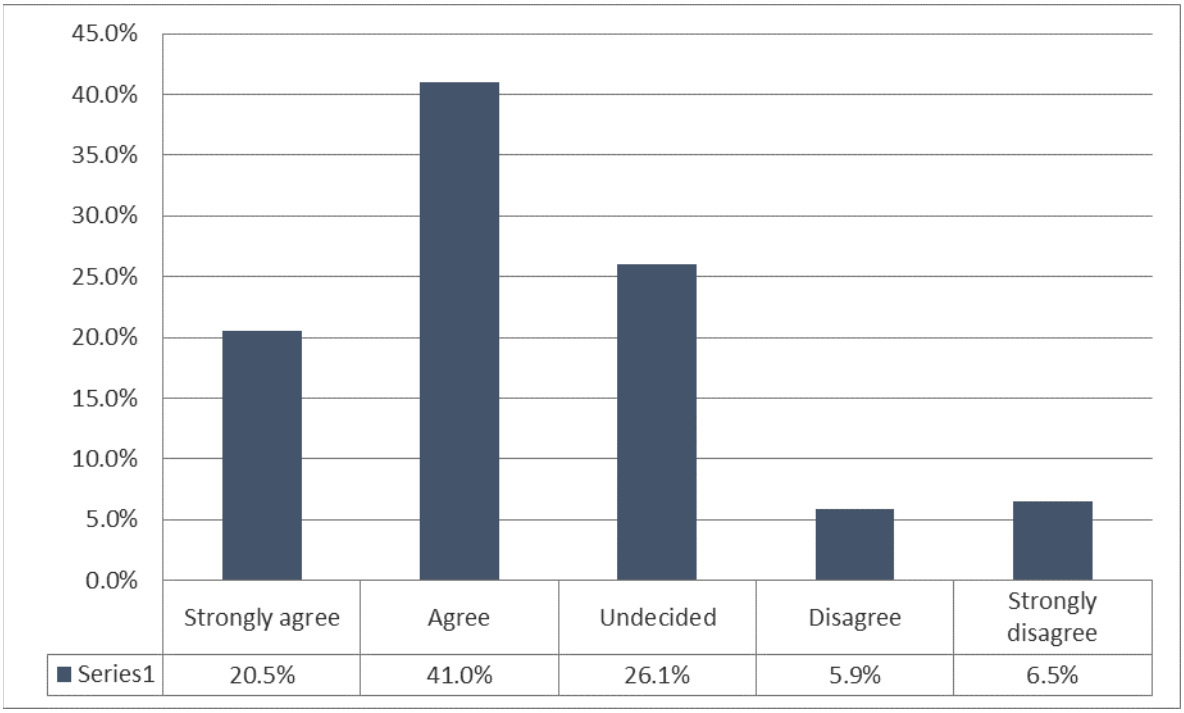


Figure 15. Combined average across all regions to Survey Question 12, "Eportfolios helped my institution achieve regional accreditation or reaffirmation."

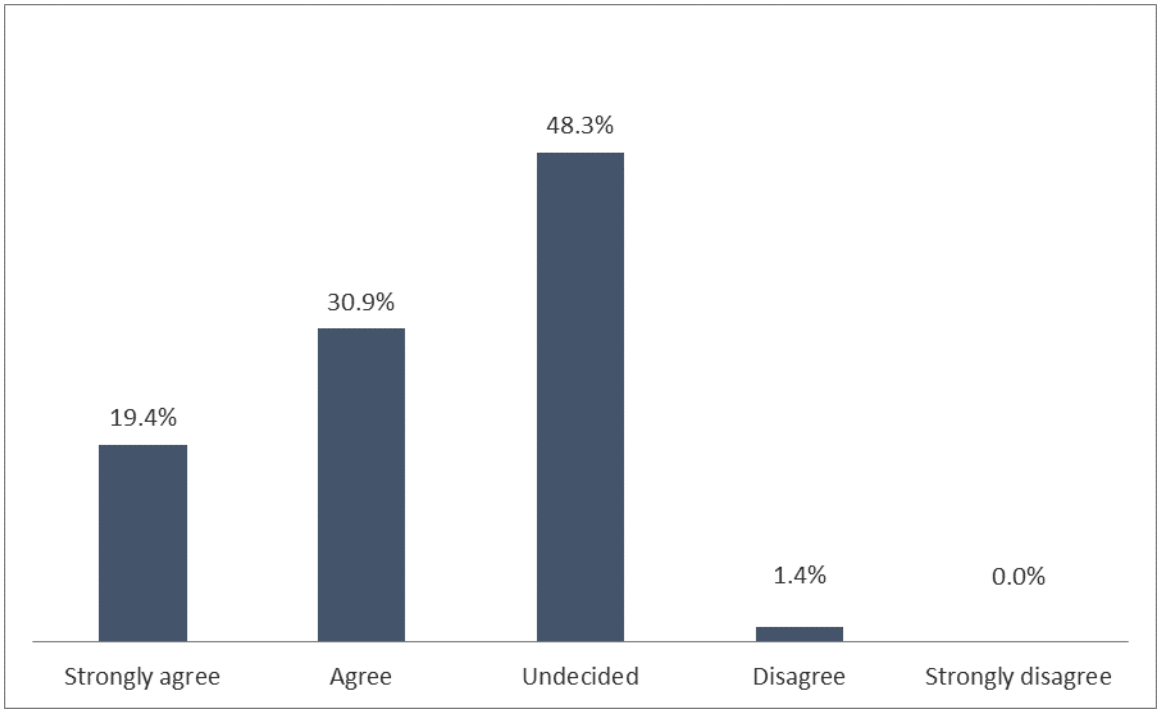


Figure 16. Combined average across all regions to Survey Question 21, "Eportfolios provide benefits that are worth the cost and effort."

4.4.5 Is the eportfolio updated as new data become available?

In response to Survey Question 7, “Do you consider your institution-level electronic portfolio to be a ‘living’ document or Web site? (As an example, a living document or Web site would be updated as new data became available without regard to external deadlines or timetables from regional accreditors.),” almost 66% of responding ALOs (n = 59) consider their institution’s institution-level eportfolio to be a living document that is updated regularly as new data become available; 34% percent describe it as a “snapshot in time.” One hundred percent of Middle States ALOs considered their institution-level eportfolio to be a living document.

4.4.6 Software packages, applications, and tools.

Survey Question 5 asked, “Does your institution use a software package, tool, or application to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation? Survey participants who answered “yes” to this question (n = 35) were presented with Survey Question 6, a list of common software applications (see Survey, Appendix C), and were asked to check all that apply. The list of possible answers was constructed from information gleaned through the literature review, and by the suggestions of pilot study participants. This question included an option to provide an “Other” response.

Accreditation liaison officers who responded to Survey Question 6 (n = 35) provided the findings shown in Figure 17. When looking at this figure, it is evident that the most popular response was “Other,” with 51% of the responses, followed by SharePoint (16%), TracDat, (11%), and Blackboard, (9%). The most widely reported “Other” responses included: Campuslabs’ Compliance Assist, reported by five participants, Strategic Planning Online (SPOL), reported by three participants, and Live Text, iWebfolio, Xitracs, Higher Learning Commission (HLC) repository system, and “home grown/in-house” systems, each reported by two participants.

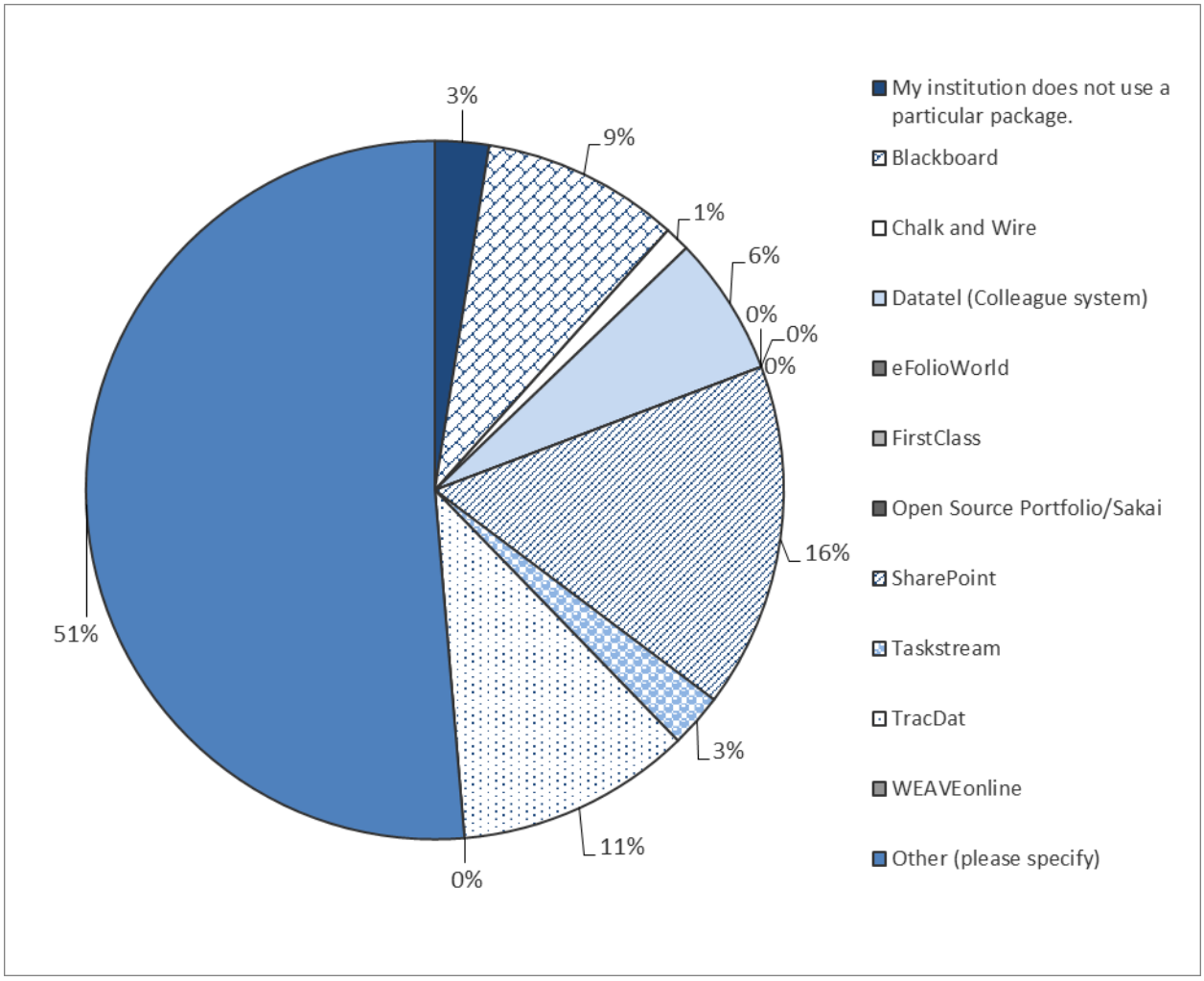
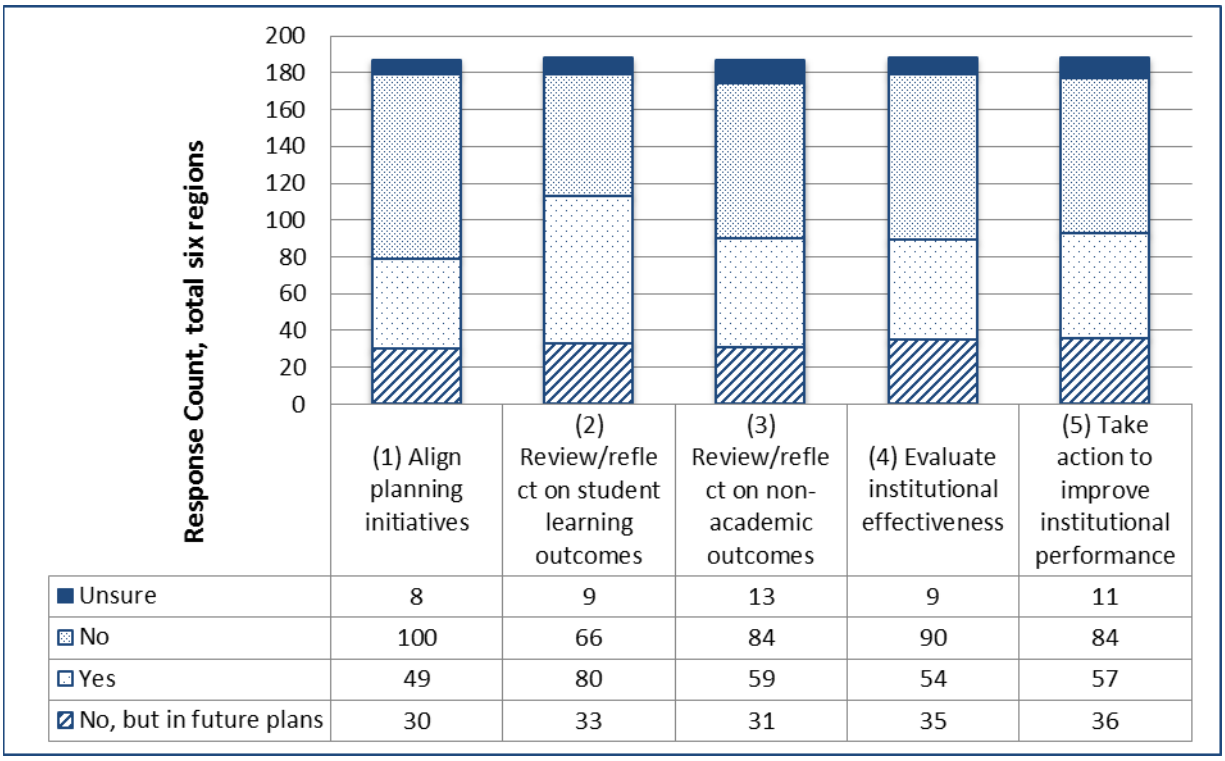


Figure 17. Averaged responses across all regions to Survey Question 6, "What software does your institution use to support regional accreditation or reaffirmation? Check all that apply."

Question 16 asked, "Does your institution use a software system or Web-based application to: (1) Align planning initiatives; (2) Review/reflect on student learning outcomes; (3) Review/reflect on non-academic outcomes; (4) Evaluate institutional effectiveness; (5) Take action to improve institutional performance (see Figure 18).

This question sought information about the role of technology is assessing accountability measures and measures of institutional effectiveness—key performance data when supporting an institution's case for regional accreditation or reaffirmation.



	(1) Align planning initiatives	(2) Review/reflect on student learning outcomes	(3) Review/reflect on non-academic outcomes	(4) Evaluate institutional effectiveness	(5) Take action to improve institutional performance
Unsure	8	9	13	9	11
No	100	66	84	90	84
Yes	49	80	59	54	57
No, but in future plans	30	33	31	35	36

Figure 18. Combined response count across all regions for Survey Question 16, "Does your institution use a software system or Web-based application to…."

There were 188 responses to Survey Question 16, including 16 "Other" responses, which consisted of suggestions for additional variables to include, and explanations for why their institutions were not using these tools. The most commonly suggested additional variable concerned the institution's faculty: "Perhaps ask questions about the degree to which eportfolios are being used on campus generally—for example, tenure and promotion"; and "Track faculty activity."

Although Question 16 did not specifically ask for explanations of why an institution might not be using software systems or Web-based applications for these purposes, several participants offered input. Perhaps unsurprisingly, the reasons revolved around financial limitations: "Budget constraints/onboarding maintenance," "We find ourselves currently unable to afford softward packages that we have explored, and our system has not developed contracts

that would make these affordable." One of these participants also mentioned the lack of technical support: "We also lack adequate IT support to use Sharepoint as fully as it could be used." Another participant, probably a "no" response to Survey Question 3, "Does your institution currently use an institution-level electronic portfolio to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation?" contributed a very valuable insight:

> Because we do not use a formal software system to gather, track, reflect and institutionally renew our institution does not mean we do not have a very aggressive planning, outcomes and institutional renewal program. We use Microsoft products, survey software, national survey and benchmarking data-gathering programs, and SPSS to perform our work. Special software does not make the outcomes and assessment program. Institutional commitment and action is the key to successful institutional renewal.

This astute response indicates a practical application of Meyer and Latham's (2008) thinking:

> An e-folio platform does not constitute an assessment plan. Institutions should work to develop an authentic assessment plan to meet accreditation standards and provide meaningful feedback at all levels. The choice of an e-folio platform should serve as a tool in the implementation of that assessment plan, not as the plan itself. (p. 39)

4.4.7 What is the most prevalent type of institution-level eportfolio, measured against the definition developed for this study?

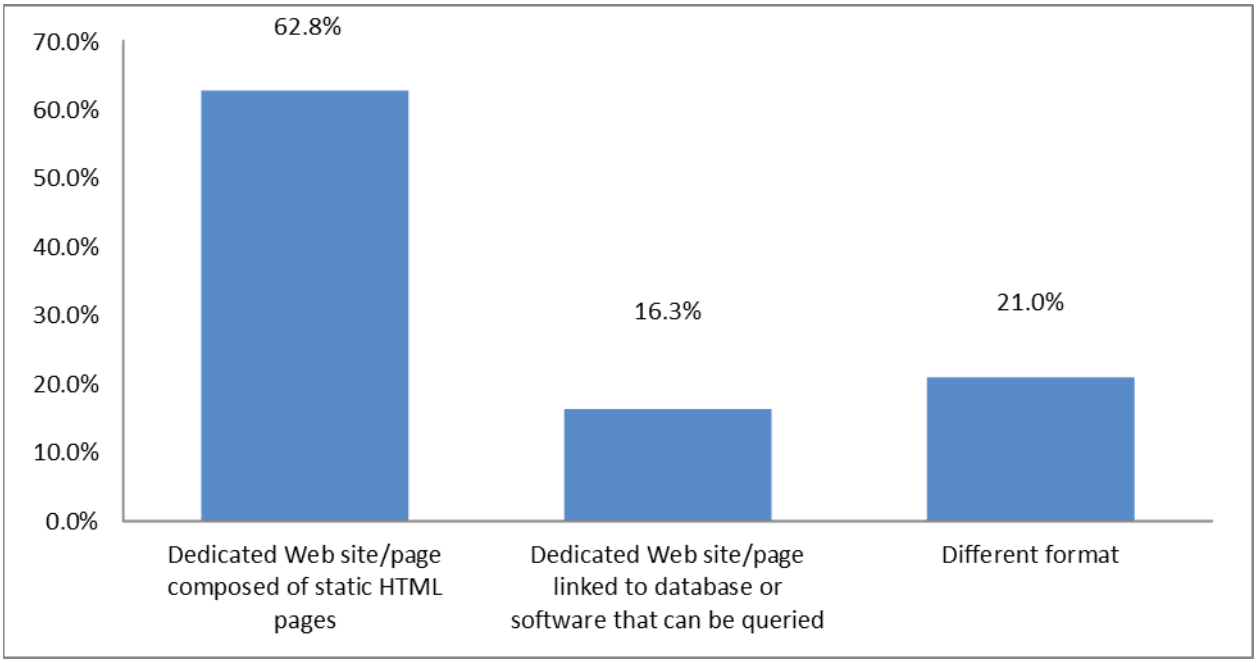


Figure 19. Combined average across all regions to Survey Question 4, "Which of these statements best describes your institution's electronic portfolio?"

To receive the opportunity to answer this question, a participant had to answer "yes" to Survey Question 3 (n = 60), "Does your institution currently use an institution-level electronic portfolio to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation?" Sixty ALOs answered this question. By far, the most prevalent type of institution-level eportfolio is "A dedicated Web site or Web page composed of static HTML pages that may contain narrative text, and/or links to other Web pages or documents (PDF, Word, Excel, or rich media, for example) created for the purpose of showcasing information such as enrollment or graduation data, and institution's self-study, or other data that are of interest to regional accrediting agencies and the public." (See Figure 19.)

"Different format" responses totaled 11. In many cases, participants took great care to describe their "different format" electronic portfolios. In two cases, participants reported that their institution's electronic portfolio combined elements of the first and second response options. Another described an electronic portfolio delivered as a PDF file on a flash drive, with no Web presence. In the balance of the cases (n = 8), respondents described Web-based electronic portfolios that did not meet the definition developed for this study either because they were not accessible to the public, or because the accreditation data or links to the accreditation data were not consolidated on a dedicated Web site or Web page. Based upon the survey responses, almost 81 percent of implemented eportfolios meet the terms of the definition created for this study. These data suggest the definition developed for this study is applicable to real-world practice.

4.4.8 Does being an early adopter have an effect?

The historical perspective outlined in Section 2.2.1 described the participation of institutions from three regional accrediting agencies (North Central Association of Colleges and Schools, Higher Learning Commission [NCA/HLC], Northwest Association of Schools and Colleges, Northwest Commission on Colleges and Universities [NWCCU], and the Western Association of Schools and Colleges [WASC]) in the Urban Universities Portfolio Project (UUPP). The UUPP, a three-year national collaboration among six urban public universities, begun in 1998 and funded through The Pew Charitable Trusts, was likely the first institutional eportfolio initiative. Institutions accredited by these three regional agencies should show a greater proportion of implementation when compared with the remaining three agencies if there were any advantage to being an early adopter. Based upon the responses to the survey received from the participating

accreditation liaison officers and the hypothesis testing described in Section 4.3.3, there is no statistically significant difference in the proportion of electronic portfolio implementation among the six regional accrediting agencies. This implies the level of implementation is even across all six regional accreditors, and that there is no advantage to being an early adopter. Responses to Survey Question 8 (n = 58), "In what year, approximately, did your institution begin creating an institution-level eportfolio for the purpose of supporting the achievement of accreditation or reaffirmation?" are indicated in Figure 20.

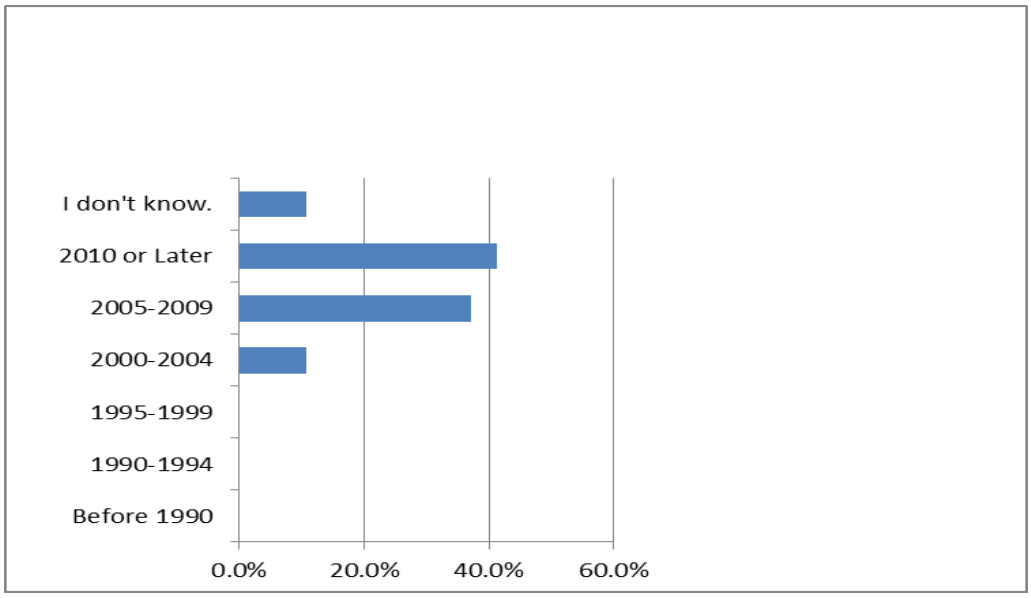


Figure 20. Averaged responses across six regions to Survey Question 8, "In what year, approximately, did your institution begin creating an institution-level eportfolio?"

4.5 LIMITATIONS OF THE STUDY

A limitation of this study revolves around the researcher's decision to allow the respondents to remain anonymous. Very early in the development of the method for this study, the researcher decided that anonymity for the respondents would be an important component of this study.

Regional accreditation is a high-stakes activity; therefore, the researcher wanted to be able to assure participants that their answers could not be attached to themselves, or even their institutions. Providing anonymity to participants who are being asked to answer sensitive questions is an accepted research practice and can help ensure "the likelihood and accuracy of responses" (Babbie, 2010, p. 67). Because there was no way for the researcher to triangulate the participants' responses with their institutions, it was not possible for the researcher to determine whether or not the participants were properly applying the electronic portfolio definition presented for their consideration at the beginning of the Web-based survey questionnaire. A misapplied definition when answering Survey Question 3, "Does your institution currently use an institution-level electronic portfolio to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation?" would skew the results. Although this is a concern, it is less of one due to the characteristics of the selected sample, who can be assumed to be well—even highly—educated, with a corresponding level of literacy and comprehension skills. "Different Format" answers to Survey Question 4, described in Section 4.4.4, also seemed to demonstrate that the participants understood the components of the definition. Nevertheless, the anonymity of the participants does prevent triangulation of their responses, and can be considered a limitation.

A second limitation is the response rate to the survey questionnaire. Although best practices of survey creation and administration were carefully followed (see Section 3.4), this study's results should be generalized only to those who responded, rather than to the entire population of United States institutions of higher education accredited by the six regional accrediting agencies.

5.0 DISCUSSION

This chapter will review and discuss the findings of this study.

5.1 HOW MIGHT WE EXPLAIN THE LEVEL OF PREVALENCE?

This study found that with 95% confidence, the true prevalence of institution-level eportfolio implementation at accredited United States colleges and universities for support of regional accreditation and/or reaffirmation is between 24.48% and 37.52%. This prevalence level seems low, given the strong support for using institution-level eportfolios for this purpose found in the reviewed literature. The apparent dearth of institution-level eportfolios is somewhat surprising when one takes into account Staci Provezis' 2012 report that over 50% of institutions already have an assessment page on their Web site. It seems an institution-level eportfolio would be a logical next step. An electronic portfolio that met this study's definition would not only help an institution collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation, but also would make that evidence transparent via a public-facing Web presence—a key recommendation of the "Spellings Report" (U.S. Department of Education, 2006). Based upon the survey responses, almost 81 percent of implemented eportfolios meet the terms of the definition created for this study. These data suggest the definition developed for this study is applicable to real-world practice. Readers know from the findings in Section 4.4.4 that 61.5% of

survey participants who have implemented institution-level eportfolios strongly agree or agree that they helped with regional accreditation or reaffirmation (see Figure 15). How, then, might what seems to be a lower rate of institution-level eportfolios than expected be explained?

One possible explanation is that a higher education institution may have implemented an institution-level electronic portfolio, and then abandoned the effort. In order to uncover any evidence that might indicate a widespread practice, the researcher asked Survey Questions 13 and 14:

SQ. 13. Has your institution used an institutional electronic portfolio to help prepare for regional accreditation or reaffirmation in the past, but then abandoned its use?

SQ. 14. Please share your thoughts about why your institution decided to abandon the use of an institutional electronic portfolio to help with regional accreditation.

Twelve of 193 respondents reported that this had been their experience, and of those, 10 shared their thoughts. Budget and staffing limitations were cited most often; for example, this response: "Budget cuts and lack of staff facilitated the break in use." So, while there is some evidence that institution-level implementation for support of accreditation or reaffirmation has been tried and abandoned, it does not seem to be a widely shared experience among those who participated in this study, and does not fully explain the seemingly low prevalence of implementation.

Participants who did not understand the definition of institution-level eportfolios developed for this study, or who misapplied the definition, might provide a reason for the level of prevalence found by this study. A "no" answer to Survey Question 3—"Does your institution currently use an institution-level electronic portfolio to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation?"—when the answer was correctly

"yes"—would skew the results. Although this is a concern, it is less of one due to the characteristics of the selected sample, who can be assumed to be well—even highly—educated, with a corresponding level of literacy and comprehension skills. The open-ended responses to the "other format" option for Question 4 (described in Section 4.4.7) also indicate that the participants understood the definition.

Could the reasons be financial? Higher education institutions across all Basic Carnegie Classifications and Sizes and Settings are feeling the constraints of tighter budgets. Even though only 1.4% of respondents disagreed with the statement "Institution-level eportfolios provide benefits that are worth the cost and effort" (see Figure 16), nearly half (48.3%) were undecided. A possibly related result, first revealed in Section 4.4.2, implies that many survey participants believe their regional accreditor requires a paper version of the self-study document, even if an institution-level electronic portfolio is assembled. Although the results to Survey Question 11 are a bit confounding, since it appears from the responses that participants from each region disagree with each other on whether the paper copy is required, it makes sense that an institution would not invest the time, staff effort, and opportunity cost in creating an institution-level portfolio that was simply an "add-on" rather than the primary vehicle for delivering the evidence for accreditation or reaffirmation. This could certainly impact levels or implementation, or may even contribute to the situation described in Survey Questions 13 and 14, discussed earlier in this section, in which an institution that had been using an eportfolio decided to abandon it.

The lack of a clear message of support from regional accreditors may help explain the level of prevalence. Despite evidence that accrediting agencies are driving the implementation of institution-level eportfolios (Buzzetto-More, 2010; Kahn, 2001; Lorenzo & Ittelson, 2005a; Provezis, 2012; Reynolds & Patton, 2012; Willbanks, n.d.), only 39.4% of the respondents

strongly agreed or agreed that their regional accrediting agency encouraged their use. Just 25.8% of responding ALOs reported their regional accreditor has offered them training or information on eportfolio implementation, such as workshops or publications. This result seems to indicate a disconnection between what is being reported in the literature and the perceptions of accreditation liaison officers.

It is important to consider the possibility that the prevalence level might be different if the response rate to the survey questionnaire had been higher. Although best practices of survey creation and administration were carefully followed (see Section 3.4), it is uncertain what the results might have been if the response rate had reached 53%, the level required for statistically supportable claims as determined by the power analysis.

Answers to Research Question 1 indicate that fewer institution overall implement institution-level eportfolios than do not. This is true in every accrediting region except the Southern Association of Colleges and Schools, Commission on Colleges (SACS/COC). However, almost 62% of the accreditation liaison officers who responded to the survey strongly agree or agree with the statement "Institution-level electronic portfolios are the way regional accreditation evidence, such as self-study documents, or enrollment or graduation data, will be collected, prepared, and/or showcased in the future." Just over 70% reported strong or some interest at their institutions in using an institution-level electronic portfolio to help prepare for or manage future regional accreditation or reaffirmation efforts. It is the opinion of this researcher that those institutions who participated in the Urban Universities Portfolio Project (UUPP) would have answered that question in much the same way when they were pioneering institution-level eportfolios for accreditation back in 1998. These pioneers felt they were "building a better mousetrap" (Banta, 2003, p.4). They would have expressed optimism for the future. If they

considered 2013 to be the future, their optimism has not been rewarded by the findings of this study. It remains to be seen if the optimists of 2013 are correct.

5.2 CHARACTERISTICS OF INSTITUTIONS THAT HAVE IMPLEMENTED INSTITUTION-LEVEL EPORTFOLIOS

In addition to seeking information about the level of prevalence, this study attempted to identify relationships that might exist between eportfolio implementation, institution size or Basic Carnegie Classification, and an institution's regional accrediting agency. Through a Web-based survey, researcher asked, Survey Questions 1, 2, and 3 (see Appendix C) to answer Research Question 2: "What is the relationship between U.S. higher education institutions' regional accrediting agency, selected characteristics such as Basic Carnegie Classification or institution size, and the likelihood that the institution is using institution-level eportfolios to manage regional accreditation/reaffirmation?" The literature review, though extensive, failed to find any studies that had examined this question.

The results themselves are quite straightforward. Eportfolio researchers and practitioners now have some evidence of proportion of implementation at institutions of nearly all Basic Carnegie Classifications and institution sizes. When examining Figure 9, the reader can see that when considering institution size, very small institutions in the Northwest region appear to be leading in proportion of institution-level eportfolio implementation (.1250), followed by small institutions in the North Central region (.1207). When considering Basic Carnegie Classification, (see Figure 8) master's colleges and universities in the New England region appear to have the largest proportion of eportfolio implementation (.1277). At this time, reasons

why these particular classifications and institution sizes are leading institution-level eportfolio implementation are unknown; these questions deserve further study. Survey results that might point to why the SAC/COCS seemed to have a greater proportion of implementation should not be described as inconclusive; rather, the survey was not designed to tease out these data.

An intriguing result is the average proportion of implementation at doctorate-granting universities across regional accrediting agencies (.0614, with a mode of .1053), and large/very large universities (average .0542, with a mode of .0750). Paoletti's 2006 article, "ePortfolio Thinking: The Challenge of the Public Research University," cited earlier, recalled her attempt to implement a major-level eportfolio at a research university. Paoletti (2006) attributed the lack of success to cultural factors in play at large, research-intensive universities, for example, the "administrative 'silos' which can impede campus-wide initiatives" (p. 7) and a "disconnect between curriculum development and innovations in teaching and learning," (p. 7) which she attributed to the lack of faculty engagement in undergraduate teaching. Her study's finding that doctorate-granting research-intensive universities lagged behind other Carnegie Classifications in eportfolio implementation was supported in 2012 by Mayowski and Golden's study, in which participants from AAU universities reported no institution-level eportfolio implementation. While the proportions of implementation found by this study do not imply widespread use of institution-level eportfolios for accreditation or reaffirmation, the results perhaps imply that the practice is growing at large/very large or doctorate-granting universities. Perhaps we are beginning to see a shift in institutional culture toward acceptance of the need to demonstrate an institution's "culture of evidence" to regional accreditors. It is possible that political pressure to ensure the transparency of institutional effectiveness data (such as was generated by the "Spellings Report," U.S. Department of Education, 2006) may be the impetus for this shift.

The impression of faculty and students that eportfolios are extra work with little point or benefit is noted by Paoletti (2006); Chatham-Carpenter et al. (2010) cited this as a cultural issue. Obtaining faculty buy-in is a best practice (see Table 2); conversely, lack of faculty support is widely accepted to be a serious challenge. This seems to be borne out in a response to Survey Question 14, "Please share your thoughts about why your institution decided to abandon the use of an institutional electronic portfolio to help with regional accreditation." The participant's response was blunt: "Adamant faculty resistance to added level of responsibility/complexity."

5.3 PERCEPTIONS OF ACCREDITATION LIAISON OFFICERS

To discuss findings based upon accreditation liaison officers' perceptions as expressed through their responses to the survey questionnaire, it is useful to return to Banta's 2003 editorial, "Electronic Portfolios for Accreditation?" This influential article provides a framework for discussing the findings in Chapter 4. Banta's questions remain relevant today:

1. Is the electronic institutional portfolio really the way accreditation self-studies will be presented in the future?
2. Must we continue to prepare a traditional narrative with links, so that in the end we can print it and send a paper copy to the review team?
3. Might we be allowed to take full advantage of the capacity of the Web to use a picture to convey a thousand words? (2003, p.14)

The research questions and hypothesis posed by this study can be tied back to Banta's first question. If the researcher were asked Question 1, she would be forced to answer "no." In 2013, based upon this study's results, more institutions do not implement institution-level eportfolios,

opposed to those that do, in nearly every accrediting region. This result holds true for nearly every Basic Carnegie Classification and institution size. Additionally, the survey results imply that the level of institution-level eportfolio implementation is proportionally even across all six regions—there seems to be no advantage to belonging to an "early adopter" region. The survey participants predict greater levels of implementation in the future—whether they are right remains to be seen.

When answering Banta's second question, the researcher must presume that a paper copy of an institution's self-study and/or other evidence for accreditation is required by every regional accreditor. This presumption is somewhat problematic because the results of the survey appear to indicate some confusion among the participants, as indicated by Figures 12 and 13. This finding can be further extended to indicate a possible lack of clear messaging from regional accrediting agencies. Even with these confounding data, the reader can infer that fully electronic submissions are not the norm. In 2013, it seems higher education institutions seeking regional accreditation or reaffirmation must continue to prepare a traditional narrative with links, so that in the end it can be printed and sent to the review team. Therefore, the answer to Banta's second question is "yes."

Finally, in 2003 Banta wanted to know if higher education institutions would ever be allowed to take full advantage of the capacity of the Web to use a picture to convey a thousand words. In 2013, this researcher would answer "maybe." The literature documents the pressure that regional accreditors, and state and federal government, are placing on higher education institutions to provide publicly accessible proof of accountability and institutional effectiveness. The literature further documents eportfolios' usefulness for this purpose. Kahn (2001) has noted, "The ability of eportfolios to respond to a more evidence-and-performance-based concept of

accountability and quality has already attracted the interest of several regional accrediting associations" (p. 138). Regional accreditors are emerging as a primary audience for institutional eportfolios (Butler, 2010; DeGeorge, 2010). Those in higher education administration understand that regional accreditation is a very high-stakes activity. They cannot afford to get it wrong. At this time, there seems to be no strong consensus among accreditation liaison officers—those who strongly agree or agree only slightly outnumber those who are undecided. Will higher education institutions ever be allowed to take full advantage of the capacity of the Web to use a picture to convey a thousand words? It seems very unlikely that colleges and universities will invest the time and effort needed to produce an institution-level eportfolio without the clear support of their regional accreditor.

5.4 RECOMMENDATIONS FOR FUTURE RESEARCH

An overarching question for future research is, "Why is the prevalence of institution-level electronic portfolio implementation so low?" Future research might undertake a similar survey with a different sample—perhaps highly-placed representatives such as the president or a vice-president—from each of the six regional accrediting associations. Many of the questions developed for this study's survey questionnaire could be repurposed into a semi-structured interview format and administered over the telephone or in person.

An exception to this unexpectedly low prevalence is the Southern Association of Colleges and Schools, Commission on Colleges (SACS/COC), where accreditation liaison officers reported a majority of their institutions implemented institution-level eportfolios, 55% versus 45%. Accreditation liaison officers across all regions who strongly agree or agree that

their institution's regional accreditor encourages the use of an institution-level eportfolio only slightly outnumber those who are undecided, 39.4% to 36.3%, and just 25.8% of responding ALOs report their regional accreditor has offered them training or information on eportfolio implementation, such as workshops or publications. Future research might explore whether SACS/COC provides a clearer message of support for eportfolios for accreditation than do other regional accreditors.

Another possibility for future research is based upon a limitation to this study discussed in Section 4.5. Due to the anonymous nature of the survey, it was not possible for the researcher to determine whether or not the participants were correctly applying the electronic portfolio definition developed for this study. Future research might involve contacting those survey participants who requested the results of the study, asking them how they responded to Survey Question 3, "Does your institution currently use an institution-level electronic portfolio to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation?" and then verifying whether they had correctly applied the definition by visiting their institution's Web site.

Another interesting possibility would be to re-administer the survey with the support and sponsorship of the six regional accrediting agencies. Evidence of support, by using official letterhead and stationery when making the initial contact, for example, might lend credibility and increase response rate (Dillman et al., 2009).

Finally, although these data were beyond the scope of this study, it would be interesting to further explore the data uncovered by Questions 6 and 16, which would reveal more information about which (if any) software packages, tools or applications are being used to collect accountability and institutional effectiveness data, and to understand in greater detail to

what purpose institutions are using them. Of special research interest would be systems designed and supported by the regional accreditation associations themselves, such as the repository system reported by participants from the North Central Association of Colleges and Schools, Higher Learning Commission (NCA/HLC). A related future research question might explore the processes and procedures adopted by institutions that have implemented institution-level electronic portfolios.

5.5 CONCLUSIONS

In 2003, Banta called institution-level eportfolios for accreditation "pioneering" (p. 3). The literature review conducted for this study found that institution-level eportfolios date back to at least 1997—so, in 2014, this researcher believes institution-level eportfolios are not so much an accreditation innovation as a missed opportunity. The challenges that eportfolios for accreditation were designed to solve—namely, showcasing accountability and institutional effectiveness data while making these data transparent and publicly available—are still present. Promoting the implementation of institution-level eportfolios is a step in the direction of responding to the demand for evidence of accountability and institutional effectiveness on higher education's own terms (Topp, 2006).

Despite the solid evidence found in the literature in support of the utility of institution-level electronic portfolios for regional accreditation and reaffirmation, the proportion of implementation suggested by the survey data implies that this support is not carried over into practice. In this chapter, the researcher discussed in detail many possible reasons why more institutions are not using eportfolios for accreditation.

After careful consideration, this researcher concludes that the most compelling reason for a lower level of implementation than might be expected from the literature is the lack of a clear message of support from regional accrediting agencies. In concluding this study, this researcher will offer to the six regional accrediting agencies thoughts suggested by the literature and by the participating accreditation liaison officers' responses to the survey questionnaire. If adopted, these musings may encourage more colleges and universities to implement institution-level eportfolios in support of regional accreditation or reaffirmation.

Regional accrediting agencies might wish to consider:

1. Adopting a standard definition for what constitutes an institution-level eportfolio. The literature review undertaken for this study noted that eportfolios have long struggled with multiple meanings. Unless the purpose for the eportfolio is carefully defined, confusion about the implementation effort will likely result. Participating ALOs implied that the definition crafted for this study was applicable to 81% of currently implemented institution-level eportfolios, which may indicate that this definition is applicable to real-world practice. At the very least, it may provide a starting point for further discussion.
2. Encouraging institutions to adapt and expand their existing assessment Web pages into institution-level eportfolios for accreditation. Provezis (2012) reported that over 50% of institutions already have an assessment page on their Web site. Regional accrediting agencies might emphasize that specific eportfolio software is not required. Regional accrediting agencies might consider providing guidelines so that institutions know what information should be included in the institution-level eportfolio—the current standards are a good place to start. Most institutions have access to or can generate these types of campus data (Middaugh, 2008), even without sophisticated software systems.

3. Establishing a collaborative effort among the six regional accrediting agencies with the charge of developing and maintaining a thoughtfully designed, accreditor-managed-and-maintained uniform evidence reporting system that respects the mission and diverse nature of each institution. The use of this system should be mandatory, not optional, and should provide each institution with the capability of maintaining the eportfolio as a living document, as well as the ability to capture a moment in time. Survey responses suggest a similar system is already being tested in the North Central Association of Colleges and Schools, Higher Learning Commission (NCA/HLC). Uniform requirements for evidence-sharing across all six regions would enable institutions to provide comparable information to all stakeholders, and may help allay fears of revealing unflattering information with respect to an institution's competitors.

In higher education today, calls for rethinking and reinventing the regional accreditation process abound; these topics are almost daily news. This study did not aim to change the basic processes and procedures of regional accreditation. It sought to provide findings that would help regional accreditors and higher education institutions alike understand the prevalence of institution-level eportfolio adoption, and identify characteristics that could help all parties take advantage of eportfolios' potential to build a culture or evidence.

This researcher believes that institution-level electronic portfolios are a useful, important tool for providing evidence of institutional effectiveness and accountability to a variety of audiences: regional accreditors, government at all levels, and the general public. Institution-level eportfolios that meet the definition crafted for this study are a means for institutions to publicly showcase information that demonstrates both academic and non-academic effectiveness indicators.

This study addressed the two research questions posed by this study, tested the proposed null hypothesis, and explored the perceptions of accreditation liaison officers with a study design and method that was untried in previous institution-level eportfolio research. Butler (2010) noted that formal research on eportfolio adoption by higher education institutions is just beginning to emerge. This researcher is hopeful she has contributed to the emergent research and has provided new questions for future research.

APPENDIX A

GLOSSARY

Accountability – Using the results of assessment to demonstrate the quality of a program or institution to concerned audiences (Suskie, 2009).

Accreditation – See regional accreditation.

Accrediting agencies or accrediting associations – See regional accrediting agencies.

Accreditation liaison officer (ALO) – Serves as the primary contact between the institution and the regional accrediting association; serves as a resource to the institution on regional accreditation issues.

AQIP – Academic Quality Improvement Program. AQIP provides an alternative evaluation process for institutions already accredited by the NCA/HLC.

Assessment – Assessment is the systematic collection, review, and use of information about educational programs undertaken for the purpose of improving student learning and development (Palomba & Banta, 1999, p. 4). In addition to the educational programs, institutions of higher education also assess other aspects of institutional effectiveness.

Assessment management system – An assessment management system enables documentation of achievement of standards. There is substantial tension in the eportfolio community

regarding whether or not eportfolios used for summative assessment or accreditation are eportfolios at all; some insist they are simply asset management systems.

Eportfolio – also eportfolio, E-portfolio, e-portfolio, ePortfolio, electronic portfolio – These terms are interchangeable. See Figure 1 for the definition of an institution-level electronic portfolio implemented for the support of regional accreditation or reaffirmation, as defined for the survey created for this study.

Institutional effectiveness – Institutional effectiveness is how well a college or university is achieving its mission and major strategic goals. "Since student learning is at the heart of most college missions, the assessment of student learning is a major component of the assessment of institutional effectiveness" (Suskie, 2009, p. 15). Institutional effectiveness also addresses other aspects of the mission, "perhaps research and scholarship, community service, building a diverse community, or modeling certain values" (Suskie, 2009, p. 15).

Institution-level eportfolio (also institutional eportfolio) – "Like individual student and faculty portfolios, institutional portfolios feature authentic work and evidence in a context of learning, reflection, and assessment. Like other portfolios, they can serve purposes of both internal improvement and external accountability. *But institutional portfolios differ from individual ones in that they address these purposes at the level of the whole institution.* (Kahn, 2001, p. 135) [emphasis added]. See Figure 1 for the definition of an institution-level electronic portfolio implemented for the support of regional accreditation or reaffirmation, as defined for the survey created for this study.

Middle States Association of Colleges and Schools, Middle States Commission on Higher Education (MSCHE) – See regional accrediting agencies.

Missing at Random (MAR) – Data may be described as MAR when the "missingness" is related to a particular variable, but it is not related to the value of the variable that has missing data. An example of this is accidentally omitting an answer on a questionnaire. Retrieved 3/3/14 from http://en.wikipedia.org/wiki/Missing_completely_at_random.

New England Association of Schools and Colleges, Commission on Institutions of Higher Education (NEASC-CIHE) – See regional accrediting agencies.

North Central Association of Colleges and Schools, Higher Learning Commission (NCA/HLC) – See regional accrediting agencies.

Northwest Association of Schools and Colleges, Northwest Commission on Colleges and Universities (NWCCU) – See regional accrediting agencies.

Reaffirmation – At certain major intervals, which may vary, an institution undergoes a full regional accreditation evaluation. If the institution is already regionally accredited, this process can be referred to as reaffirmation.

Regional accreditation – Accreditation is a voluntary, non-governmental peer review process by members of the higher education community. The purpose of the accreditation process is to ensure academic quality and accountability, and to encourage continuous improvement among educational institutions. Retrieved 1/21/14 from https://www.tamhsc.edu/oie/accreditation.html.

Regional accrediting agencies (also regional accrediting associations) – These operate within specific geographic areas. The United States is divided into six regions, each with its own higher education regional accrediting association. The regional accreditors together are responsible for approximately 3,000 colleges and universities. The six regional accreditors are:

- Middle States Association of Colleges and Schools, Middle States Commission on Higher Education (MSCHE). The Commission on Higher Education is the arm of the Middle States Association of Colleges and Schools that accredits degree-granting colleges and universities in Delaware, the District of Columbia, Maryland, New Jersey, New York, Pennsylvania, Puerto Rico, the U.S. Virgin Islands, and other locations overseas. Institutions of higher education located in American territories were included in this study; international institutions were not.
- New England Association of Schools and Colleges, Commission on Institutions of Higher Education (NEASC-CIHE). This regional accreditor grants accredited status to institutions in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont, as well as American/International schools overseas. Institutions of higher education located in American territories were included in this study; international institutions were not.
- North Central Association of Colleges and Schools, Higher Learning Commission (NCA/HLC). The Higher Learning Commission (HLC) is the arm of the North Central Association of Colleges and Schools that accredits degree-granting colleges and universities in Arkansas, Arizona, Colorado, Iowa, Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, North Dakota, Nebraska, Ohio, Oklahoma, New Mexico, South Dakota, Wisconsin, West Virginia, and Wyoming.
- Northwest Association of Schools and Colleges, Northwest Commission on Colleges and Universities (NWCCU). This regional accreditor grants accredited

status to institutions in Alaska, Idaho, Montana, Nevada, Oregon, Utah, and Washington.

- Southern Association of Colleges and Schools, Commission on Colleges (SACS/COC). This regional accreditor grants accredited status to institutions in Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia, and in Latin America. Latin American institutions were not included in this study.
- Western Association of Schools and Colleges (WASC) divides itself by junior and senior colleges. The Western region encompasses California and Hawaii, the territories of Guam, American Samoa, Federated States of Micronesia, Republic of Palau, Commonwealth of the Northern Marianas Islands, the Pacific Basin, and East Asia. Institutions of higher education located in American territories were included in this study; international institutions were not.

SAS – Originally, S-A-S stood for Statistical Analysis Systems, but now that SAS develops more than just statistical software, SAS (pronounced "sass") is more of a brand than an acronym.

Self-study – A process of institutional self-evaluation and improvement that results in a self-study report, which generally provides evidence that the institution qualifies for accreditation or reaffirmation. Acceptable formats vary among the regional accrediting agencies. This author considers the institutional self-study to be a reflective document.

Southern Association of Colleges and Schools, Commission on Colleges (SACS/COC) – See regional accrediting agencies.

Transparency – Making meaningful, understandable information about institutional performance readily available to internal and external audiences.

Urban Universities Portfolio Project (UUPP) – A three-year (1998-2001) national collaboration among six urban public universities aimed at developing first-generation electronic institutional portfolios focused on demonstrating institutional effectiveness in the context of mission. Retrieved 1-21-14 from http://www.iport.iupui.edu/selfstudy/tl/milestones/uupp.

Western Association of Schools and Colleges (WASC) – See regional accrediting agencies.

APPENDIX B

EXAMPLES OF INSTITUTION-LEVEL ELECTRONIC PORTFOLIOS

By no means a comprehensive list, presented here as examples are links to institution-level electronic portfolios that meet the definition developed for this study.

1. http://www.uaa.alaska.edu/accreditation/index.cfm
2. http://www.middlestates.pitt.edu/
3. http://www.iport.iupui.edu/
4. http://metroportfolio2.project.mnscu.edu/
5. http://ridgewaterportfolio2.project.mnscu.edu/index.asp?Type=NONE&SEC={3520814B-20F3-4926-9D4D-6CEB586EC55C}
6. https://waubonsee.edu/about/mission/quality/aqip/portfolio/index.php
7. http://www.heartland.edu/aqip/historySystemsPortfolio.jsp
8. http://www.csus.edu/Programassessment/Institutional-Assessment.html

APPENDIX C

CONSENT AND SURVEY INSTRUMENT

The University of Pittsburgh Institutional Review Board reviewed this study and the survey questionnaire. This study was classified as exempt, and assigned protocol number PRO13050159. The consent language was located on the first page of the Web-based survey. The survey is included here; however, as might be expected, skip logic embedded within the survey is not evident in this non-Web version. An asterisk preceding a question indicates that this question must be answered in order to proceed to the next question.

Survey Description and Consent

The purpose of this research study is to assess the current state of institution-level electronic portfolio (eportfolio) implementation for supporting regional accreditation or reaffirmation efforts, and to identify pertinent institutional characteristics at regionally accredited U. S. colleges and universities. For that reason, I will be surveying persons serving in the role of accreditation liaison officer, or a comparable position, in regionally accredited United States universities and will ask them to complete a brief (approximately 8-12 minutes) questionnaire.

If you are willing to participate, this questionnaire will ask about institutional characteristics (size, year of next regional accreditation) as well as questions about your feelings and opinions of eportfolio implementation for the purpose of supporting regional accreditation or reaffirmation. There are no foreseeable risks for participation in this research, nor are there any direct benefits to you, other than the opportunity to share in the results of this research study.

This is an anonymous questionnaire. Results will be anonymous and will be reported only in aggregate form without individual or institutional identifiers. This is an electronic survey and the data will be stored on University of Pittsburgh servers. All reasonable efforts will be made to protect the anonymity of your transmission.

Your participation is voluntary, and you may withdraw from the study at any time. This study is being conducted by Colleen Mayowski, a doctoral candidate in the University of Pittsburgh School of Education. She can be reached at [redacted] if you have any questions.

Eportfolios to Support Regional Accreditation?

1. What is your institution's Basic Carnegie Classification?

◯ Associate's Colleges. Includes institutions where all degrees are at the associate's level, or where bachelor's degrees account for less than 10 percent of all undergraduate degrees.

◯ Doctorate-granting Universities. Includes institutions that awarded at least 20 research doctoral degrees during the update year (excluding doctoral-level degrees that qualify recipients for entry into professional practice, such as the JD, MD, PharmD, DPT, etc.).

◯ Master's Colleges and Universities. Generally includes institutions that awarded at least 50 master's degrees and fewer than 20 doctoral degrees during the update year.

◯ Baccalaureate Colleges. Includes institutions where baccalaureate degrees represent at least 10 percent of all undergraduate degrees and where fewer than 50 master's degrees or 20 doctoral degrees were awarded during the update year.

◯ Special Focus Institutions. Institutions awarding baccalaureate or higher-level degrees where a high concentration of degrees (above 75%) is in a single field or set of related fields.

◯ Tribal Colleges. Colleges and universities that are members of the American Indian Higher Education Consortium, as identified in IPEDS Institutional Characteristics.

◯ I don't know.

*2. Based upon your institution's Carnegie Size & Setting Classification, is your institution very small, small, medium, or large/very large?

◯ Very small two-year (fewer than 500 FTE students)/Very small four-year (fewer than 1000 FTE students)

◯ Small two-year (500-1,999 FTE students)/Small four-year (1,000-2,999 FTE students)

◯ Medium two-year (2,000-4,999 FTE students)/Medium four-year (3,000-9,999 FTE students)

◯ Large two-year (5,000-9,999 FTE students)/Very large two-year (At least 10,000 FTE students)/Large four-year (At least 10,000 FTE students)

◯ My institution is exclusively graduate/professional

◯ I don't know.

For purposes of this study, please consider this definition.

INSTITUTION-LEVEL ELECTRONIC PORTFOLIO (eportfolio): An institution-level electronic portfolio is a Web-based tool designed to help document and organize a college or university's story, goals, and standards. It is created for the purpose of collecting and showcasing evidence of the academic and operational happenings of an institution, in support of regional accreditation or reaffirmation. It documents institution-specific outcomes and provides a means by which an institution can verify to regional accreditors and the public that it has met its standards in accordance with its philosophy and mission.

EXAMPLE:

A dedicated Web site or Web page created for the purpose of collecting and showcasing information such as enrollment or graduation data, an institution's self-study, or other data that are of interest to regional accrediting agencies and the public. It may be composed of static HTML pages that contain narrative text, and/or links to other Web pages or documents (PDF, Word, Excel, or rich media, for example).

These WOULD NOT be considered to be institution-level eportfolios:

--A wholly self-contained electronic-format self-study (like a PDF) that is provided to accreditors on a DVD or flash drive, with no Web presence.

--Instances where the self-study or showcase information is not organized on a dedicated Web site or page, but instead is scattered throughout an institution's Web site.

--A paper portfolio that is shared in hard copy printed form only.

***3. Does your institution currently use an institution-level electronic portfolio to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation?**

◯ Yes

◯ No

4. Which of these statements best describes your institution's electronic portfolio?

◯ A dedicated Web site or Web page composed of static HTML pages that may contain narrative text, and/or links to other Web pages or documents (PDF, Word, Excel, or rich media, for example) created for the purpose of showcasing information such as enrollment or graduation data, an institution's self-study, or other data that are of interest to regional accrediting agencies and the public.

◯ A dedicated Web site or Web page linked to a database or software application, that can be queried by visitors from regional accrediting agencies or the public, and provides up-to-date information such as enrollment or graduation data in response to that query.

◯ My institution's institution-level electronic portfolio follows a different format. (Please describe.)

5. Does your institution use a software package, tool, or application to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation?

◯ Yes

◯ No

6. What software package(s), tool(s), or application(s) does your institution use to help collect, prepare, and/or showcase evidence in support of regional accreditation or reaffirmation? Please check all that apply.

- [ ] My institution does not use a particular package.
- [ ] Blackboard
- [ ] Chalk and Wire
- [ ] Datatel (Colleague system)
- [ ] eFolioWorld
- [ ] FirstClass
- [ ] Other (please specify)
- [ ] Open Source Portfolio/Sakai
- [ ] SharePoint
- [ ] Taskstream
- [ ] TracDat
- [ ] WEAVEonline

7. Do you consider your institution-level electronic portfolio to be a "living" document or Web site? (As an example, a living document or Web site would be updated as new data became available without regard to external deadlines or timetables from regional accreditors.)

- ◯ Yes
- ◯ No

8. In what year, approximately, did your institution begin creating an institution-level eportfolio for the purpose of supporting the achievement of accreditation or reaffirmation?

- ◯ Before 1990
- ◯ 1990-1994
- ◯ 1995-1999
- ◯ 2000-2004
- ◯ 2005-2009
- ◯ 2010 or Later
- ◯ I don't know.

9. What office or department leads the institution-level electronic portfolio effort at your institution?

- ◯ Chancellor/President/CEO
- ◯ Provost
- ◯ Institutional Research
- ◯ Strategic Planning
- ◯ Other (please specify)

10. Was supporting regional accreditation or reaffirmation a motivator for adopting/using an institution-level electronic portfolio?

- ◯ Yes
- ◯ No
- ◯ I don't know.

***11. Does your institution's regional accrediting agency require your institution to prepare and submit a paper copy of the evidence presented in the institution-level electronic portfolio? For example, did your institution prepare and submit a paper copy of its self-study in addition to the institution-level electronic portfolio version?**

- ◯ Yes
- ◯ No

12. To what extent do you agree with this statement? "Using an institution-level electronic portfolio helped my institution achieve regional accreditation or reaffirmation."

- ◯ Strongly agree
- ◯ Agree
- ◯ Undecided
- ◯ Disagree
- ◯ Strongly disagree

13. Has your institution used an institutional electronic portfolio to help prepare for regional accreditation or reaffirmation in the past, but then abandoned its use?

- ◯ Yes
- ◯ No
- ◯ I don't know.

14. Please share your thoughts about why your institution decided to abandon the use of an institutional electronic portfolio to help with regional accreditation.

15. At your institution, what would you say is the level of interest in using an institution-level electronic portfolio to help prepare for or manage future regional accreditation or reaffirmation efforts?

- ◯ Strong interest
- ◯ Some interest
- ◯ No noticeable interest
- ◯ Opposition to the idea

16. Does your institution use a software system or Web-based application to:

	Unsure	No	Yes	No, but in future plans
(1) Align planning initiatives	◯	◯	◯	◯
(2) Review/reflect on student learning outcomes	◯	◯	◯	◯
(3) Review/reflect on non-academic outcomes	◯	◯	◯	◯
(4) Evaluate institutional effectiveness	◯	◯	◯	◯
(5) Take action to improve institutional performance	◯	◯	◯	◯

Other (please explain)

17. When did your institution last undergo regional accreditation or reaffirmation?

- ◯ 2013-2011
- ◯ 2010-2008
- ◯ 2007-2005
- ◯ 2004-2002
- ◯ 2001-1999

18. When is your institution scheduled to be accredited or reaffirmed?

- ◯ 2013-2015
- ◯ 2016-2018
- ◯ 2019-2021
- ◯ 2022-2024
- ◯ 2025-2027

19. To what extent do you agree with this statement? "My institution's regional accreditor encourages the use of an institution-level electronic portfolio to support accreditation or reaffirmation."

- ◯ Strongly agree
- ◯ Agree
- ◯ Undecided
- ◯ Disagree
- ◯ Strongly disagree

20. Has your regional accreditor ever offered you training or information on using electronic portfolios to support accreditation or reaffirmation, such as workshops or publications?

- ◯ Yes
- ◯ No

21. How would you respond to this statement? "Institution-level eportfolios provide benefits that are worth the cost and effort."

- ◯ Strongly agree
- ◯ Agree
- ◯ Undecided
- ◯ Disagree
- ◯ Strongly disagree

***22. To what extent do you agree with this statement? "Institution-level electronic portfolios are the way regional accreditation evidence, such as self-study documents, or enrollment or graduation data, will be collected, prepared, and/or showcased in the future."**

- ◯ Strongly agree
- ◯ Agree
- ◯ Undecided
- ◯ Disagree
- ◯ Strongly disagree

23. Have you ever evaluated an institution's qualifications for regional accreditation in an official capacity? An example might be as a member of a site visit team.

- ◯ Yes
- ◯ No

Thank you!

Your time and effort is greatly appreciated. Thank you for contributing to this research.

24. This research is expected to be complete in April 2014. If you would like to receive the results of this study, please enter your name and email address. Your confidentiality will be preserved.

Name

Email Address

Feedback

One goal of this research is to capture information that would be practical and helpful to you in your professional capacity. Please feel welcome to add additional comments or observations.

25. How can this survey be improved? What questions would you add? Your comments and observations are confidential and much appreciated.

Thank you.

APPENDIX D

PARTICIPANT INVITATION LETTERS

In order to maximize response rate, during survey administration the researcher followed an email augmentation method. A personalized, first-class letter was sent to each participant, explaining the study and providing the link. The participant was told that an email invitation would follow. A reminder email was sent as well, for a total of three contacts.

As a condition of sharing contact information for their accreditation liaison officers, the North Central Association of Colleges and Schools, Higher Learning Commission (NCA/HLC), required specific language in the invitation letter, and supplied a Student Researcher Acknowledgement form for the researcher to sign and send to their member institutions along with the invitation letter. The NCA/HLC invitation followed by the Student Researcher Acknowledgement form is shown here first, followed by the letter sent to the other five accrediting agencies. The follow-up emails included verbiage closely based upon their respective invitation letters, and are not included here.

Invitation letter to NCA/HLC institutions:

November 1, 2013

Participant Name
Participant Institution
Office Number/Street Address
City, State, Zip

Subject: Accreditation Innovation

Dear Participant Name,

Higher education administrators often discuss the use of electronic portfolios to support regional accreditation. Yet, a recent study found that few AAU universities were implementing institution-level electronic portfolios (Mayowski & Golden, *Identifying E-Portfolio Practices at AAU Universities* http://net.educause.edu/ir/library/pdf/erb1206.pdf).

Because of your important role in your institution's regional accreditation activities, you have been selected to extend this research. Our aim is to enable you to better serve your institution. Through this study, we hope to uncover and then share information about institution-level electronic portfolio practices, trends, and institutional characteristics among higher education institutions such as yours.

Given your expertise in regional accreditation, you are invited to participate in this research by answering a survey questionnaire. It should take approximately 8-12 minutes to complete. Individual responses are anonymous. If you'd like a copy, I will gladly send you the completed report. The Higher Learning Commission of the North Central Association has been made aware of this project, and has expressed interest in seeing the final report. No endorsement has been sought, and the association has not endorsed this research. These data will also inform my dissertation at the University of Pittsburgh where the Institutional Review Board has rendered its approval.

In a few days, you will receive an email with a link to the survey questionnaire. If you prefer, you may access it now at https://www.surveymonkey.com/s/nc201. The survey closes on November 18, 2013.

I know your time is valuable. Thank you for your help with this important research.

Sincerely,

Colleen A. Mayowski, MLIS
Doctoral Candidate
Administrative and Policy Studies
University of Pittsburgh School of Education
[redacted]

Enclosure

Enclosure—Student Researcher Acknowledgment

Form:

Higher Learning Commission
A commission of the North Central Association

230 South LaSalle Street, Suite 7-500 | Chicago, IL 60604-1411
312-263-0456 | 800-621-7440 | Fax: 312-263-7462 | ncahlc.org

STUDENT RESEARCHER ACKNOWLEDGEMENT FORM

In consideration of the Commission's agreement to provide a mailing list containing contact information for Accreditation Liaison Officers at institutions within the North Central region, the sole purpose of which is to facilitate outreach to such individuals in order to allow the undersigned student researcher to pursue certain research as further described in a written proposal submitted to such institutions, the undersigned student researcher hereby acknowledges and agrees as follows:

1. I am acting independently of the Higher Learning Commission in all activities related to the subject of the research, including research design, conduct, analysis and evaluation, as well as any and all subsequent speaking engagements, publications or outreach and I will take reasonable care to promote and preserve broad understanding of this independence at all times;

2. Although the Commission finds the research of sufficient scholarly purpose to agree to provide such contact information, it has not affirmatively endorsed the research project, nor does it, by so doing, indicate any intent to endorse any outcome of the research project;

3. Accreditation Liaison Officers are under no obligation to participate in the research project or to provide data, but may choose to do so of their own accord in support of the important role of research in higher education; and

4. If confidential or other information is provided, I am willing to execute such confidentiality or non-disclosure agreements as the institution may deem appropriate and will comply with all university policies related to the security and privacy of institutional information resources.

Acknowledged and Agreed: Date:

_____ _____

Signature

_____

Print Name

cc: Accreditation Liaison Officer

APPENDIX E

Invitation letter to institutions in regions other than North Central:

November 1, 2013

Participant Name
Participant Institution
Office Number/Street Address
City, State, Zip

Subject: Accreditation Innovation

Dear Participant Name,

Higher education administrators often discuss the use of electronic portfolios to support regional accreditation. Yet, a recent study found that few AAU universities were implementing institution-level electronic portfolios (Mayowski & Golden, *Identifying E-Portfolio Practices at AAU Universities* http://net.educause.edu/ir/library/pdf/erb1206.pdf).

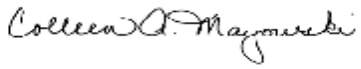
Because of your important role in your institution's regional accreditation activities, you have been selected to extend this research. Our aim is to enable you to better serve your institution. Through this study, we hope to uncover and then share information about institution-level electronic portfolio practices, trends, and institutional characteristics among higher education institutions such as yours.

Given your expertise in regional accreditation, you are invited to participate in this research by answering a survey questionnaire. It should take approximately 8-12 minutes to complete. Individual responses are anonymous. If you'd like a copy, I will gladly send you the completed report.

In a few days, you will receive an email with a link to the survey questionnaire. If you prefer, you may access it now at https://www.surveymonkey.com/s/ne201. The survey closes on November 18, 2013.

I know your time is valuable. Thank you for your help with this important research.

Sincerely,



Colleen A. Mayowski, MLIS
Doctoral Candidate
Administrative and Policy Studies
University of Pittsburgh School of Education
[redacted]

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