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A "diffusion of innovation" analysis of the acceptance of digital activities, products, and services as scholarship in a Boyer model of academic scholarship

Dwight D. McBride

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Pepperdine University

Graduate School of Education and Psychology

A "DIFFUSION OF INNOVATION" ANALYSIS OF THE ACCEPTANCE OF DIGITAL

ACTIVITIES, PRODUCTS, AND SERVICES AS SCHOLARSHIP IN A BOYER MODEL OF

ACADEMIC SCHOLARSHIP

A dissertation submitted in partial satisfaction

of the requirement for the degree of

Doctor of Education in Learning Technologies

by

Dwight D. McBride

July, 2018

Dr. Linda Polin. Ph.D. Dissertation Chair person

This dissertation, written by

Dwight David McBride

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

Doctoral Committee:

Dr. Linda Polin, Ph.D., Chairperson

Dr. Jack McManus, Ph.D.,

Dr. June Schmieder, Ph.D.,

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DEDICATION

I would like to thank the members of my family, Charlene, Stephen, Ramona, Bryan, Kywan, Kywan Jr., Telona, Mahogany, my son Malcolm, and to all my extended family members for helping me keep both feet on the ground and providing me the support to succeed. I would especially like to thank my mother, Melba F. McBride. She provided me the guidance, and instilled the belief that all things are possible, you have to start somewhere, to keep on trying, keep on believing, never stop dreaming, and to live life to the fullest. I love my family both those near and far.

ACKNOWLEDGMENTS

This part of my experience with Pepperdine University has come to a close. However, I am reminded of how difficult it was navigating the demands of my studies and life's daily challenges. There were many times when I thought the finish line was in front of me and I would unexpectedly trip over my friends, my studies, and my life. However surprisingly on the other side of the coin, it was my family, my friends, my studies, and life's experiences that reminded me to persevere. These memories make me proud of my achievement.

I feel it is important to acknowledge those that provided me the guidance and support with this monumental task. Starting with the research, I learned that the primary challenge of a Delphi study is to keep the participants together for as long as possible. Therefore, I would like to thank my panel of experts in the study. They provided me with a tremendous amount of vision, insight, and patience. Their opinions were thoughtful and delivered with conviction, and the intellectual jousting was amazing. I am blessed that you felt the study was important enough to stick with me to the end.

I must recognize Pepperdine's GSEP program and their support staff. They were always there guiding, supporting, encouraging, and most of the time just lending an ear. I have to acknowledge the library staff but especially, Maria Brahme who was always on point any time I hit a wall.

I would like to thank those that supported me on the path to my dissertation. That includes Dr. Todd Shoepe, Dr. Jeran Ott, Dr. David Greenfield and Damon Blue for sharing knowledge freely, their insight, playing the Devil's advocate and especially their friendship which I am humbled and appreciative. Also, I would like to thank Dr. Christina Cleugh, Dr.

Marisa Beard, Dr. Donna Lessor, and Dr. Tracy Edwards for their no holds bar approach for getting things done. If you want honesty and truth, they will surely provide it.

I have to a give a special thanks to my professors at Pepperdine University's GSEP program. From the very beginning, they created an environment where risk-taking is the norm. They consistently directed us to step outside of our comfort zone and to be a part of something unique. It was always inspiring as they all pushed me to achieve and meet the standards to hold the title of Doctorate.

Thanks to Farzin (Dr. Farzin Madijidi) who is a master teacher. He enriched my life with academic challenges and personal stories. However, I forgive him for his love of yellow and purple. Personally, I believe he would love Celtic green.

A special recognition goes to Paul (Dr. Paul Sparks) for planting the seed for my dissertation. He always had a way of making you think about how the decisions you make influence who you are and those around you. I would like to acknowledge my committee member, June (Dr. June Schmieder-Ramirez) for her insightful participation and recommendations. I must recognize my teacher and committee member Jack (Dr. Jack McManus) for his wealth of knowledge. He is always ready to share his perspective and life stories. "Go, Sox!" And, to Dr. Kay Davis for always making sure I got to the point!

But, a tremendous amount of gratitude goes to Linda (Dr. Linda Polin) my teacher, and committee chairperson who was with me from the first day until the tassel was turned. Linda made sure that no stone was left unturned as she guided me to stay focused, as I seem to hit every bump on the road. She reminded me that completion is sometimes more important than perfections. Not only did she help me, but also she is a tremendous inspiration to my son Malcolm. When there was a question about finding a sitter for my son, for the longest, he'll say,

"you should ask Linda!" which I wish I did. He would remind me up to the minute, "don't you

have a class with Linda! He was more excited when I had a Skype session with her then I was.

Linda always had time to engage and assist him with his mind craft coding, superhero

conversation, and the magic she incited in him that would always spark his imagination, and for

that alone, I am truly grateful and indebted to her for that.

VITA

Dwight McBride, M.Ed., Ed.D

CREDENTIALS
Clear Multiple Subject California Teacher's Credential / CLAD
Single Subject: Business Education Teacher's Credential

EDUCATION
Pepperdine University, West Los Angeles, Ca.
Doctorates in Learning Technology & Leadership
Dissertation: A Diffusion of Innovation Analysis of the Acceptance of Digital Activities,
Products, and Services as Scholarship in a Boyer Model of Academic Scholarship

This Delphi study explores the theory of diffusion of innovation of an academic nature from the opinions of experts and to seek a consensus on their interactions with the adoption of digital products, services, and activities. The conceptual framework of this study is built upon Earnest L. Boyer's (1990) four principles of scholarship: the scholarship of discovery; the scholarship of integration; the scholarship of application; and the scholarship of teaching. The theory of diffusion of innovation by Rogers guided the analysis component of the research. Although there is a wide assortment of digital products and digital spaces that can make significant contributions to scholarship, still traditional monographs and textual publications dominate how research and opinions are shared.

Pepperdine University, Malibu, Ca.
Masters in Educational Technology
Action Research: The integration of technology to increase cognitive abilities resulting in improved content understanding, designing integrated technological curriculum to support knowledge sharing, and piloting teacher's professional developments in core content areas.

The 5-year study consisted of students in grades first thru fifth, certificated teachers, including special education, and the parent center. Researcher measured student engagement linked to mandate state testing and LAUSD's quarterly assessments. Ongoing real-time online assessments allowed for the modification of instruction; software applications kept students on tasks and progressing in needs-based areas; synchronistic and asynchronistic online curriculum improved content understanding and self-assessment, international classroom collaborations using email to develop grammar and improve ELD levels for students.

California State University, Los Angeles (Honor's List)
Multi-Subject Teaching Credential, CLAD

Dillard University: New Orleans, La
Bachelor of Arts; Major: Business Administration: Concentration: Marketing & Finance

ACADEMIC EXPERIENCES

1996 to Present - Virginia Road Elementary School, Los Angeles, Ca.
Title: Teacher
- Instructed first through fifth grade
- Extensive knowledge of human behavior and performance
- Implemented differentiated instruction with regards to ability, personality, interests; learning, cultural
- Fostered peer collaboration
- Designed online assessment to monitor student progress
- Designed digital curriculum and facilitated professional development for the integration of technology
- Mastery of EL, ELD and GATE instruction
- Working knowledge of implementing Common Core State Standards

Digital Curriculums Designed and Facilitated for Teacher Professional Developments
- How to search for grade level materials and web-based instructional sites to support core instruction
- Fundamental computer skills for teachers, including connecting to local servers and network printers
- Administrative tasks for teachers including, file organization using MS Word, Dropbox and Google Doc
- How to use email to communicate with parents and maintain online grade books
- How to use projectors, image scanners, mobile devices, and digital cameras to support learning
- How to evaluate websites for legitimacy and students learning (free vs. fee-based sites)
- Using and assessing online digital tools to improve student learning and engagement

Home and Community Professional Development for Parents
- Using the Internet and Social Media to communicate with family in other countries (provided campus and in-home training)
- What is the Internet and how to search for culturally relevant websites
- How to set up and use email
- How to use different search engines
- Keyboard lessons: beginning to advance training, including basic word processing

Multimedia and Web-Based Educational Projects
- Student (3rd graders) short film titled, "Bellwether" entered in the Pan African Film Festival,
- "We Were First," a short film about the migration of Native Americans tribal leaders. (4th grade)
- Short film "Why I Blog" (3rd grade)
- Graduate Studies: "Learn Something New" project

1997 to 2002
Korean Institute of Southern California (K-8)
Title: Computer Lab Instructor
- Design and implement a curriculum to support classroom instruction across platforms
- Provided student and teacher professional development in basic technology skills
- Conducted profession developments for the integration of technology with traditional curriculum and instructions

1999 to 2012
South End Technology Center (Outreach center for MIT): Boston, Mass
Title: Teacher / Data analyst
- Instructed computer classes during the summers
- Participated in Lego's robotics and technology design
- Interacted with "Teach the Teacher" students to provide mentoring and support
- The design of tools for data gathering, analysis of student participation, and grant writing

2004 – Present
United Teachers of Los Angeles (UTLA),
Title: Chapter Chair;
This is a position of leadership
- Represent and support the collective body of credential and classified teaching staff
- Consults with union members on the compliance of the school district's policies, procedures, and collective bargaining agreements
- Collaborated with the school's governing body, administrators, and district superintendents regarding budgeting, finance, operations, material allocations, labor relations and student retention
- Legal assessment, arbitration, and the negotiation of contractual resolutions with administer and districts representatives
- Required to develop mobilizing action plans to motivate and lead members

CREATIVE EXPERIENCES

1998 - Present
McBride Publishing
Ghost Writer
- Re-write narratives,
- Characterization development
- Manage status to enhance conversation for film, and literature
- Specialties include writing narratives to assist in the training, development, and creation of new ideas, brand enhancement
- Understanding of how social media marketing influences target markets
Photography skills
- Cultural fine art photography
- Street photography
- Assess images for digital marketing

NOMINATIONS AND AWARDS

- 2001 Disney's Teachers of the Year Award
- (Nominated)
- 2006 Who's Who of American Teachers
- 2005 Who's Who of American Teachers
- 2007 Who's Who of American Teachers
- 2006 Outstanding American Teacher's National Honor
- 2007 Outstanding American Teacher's National Honor

PUBLICATIONS

- Examining Internet Filtering Policies and Practices to Increase Student Technological Learning Opportunities; *Education News*, June 2010

ENTREPRENEUR EXPERIENCES

1985 - 1998
McBride & Associates, Inc. (Business Consultants). Los Angeles, Ca.
Title: Business Planner
- Consulted small business owners & franchises on the development & execution of a business plan
- Conducted sales training and management of metadata
- Designing marketing strategies research tools and image selection to enhance brand exposure
- Trained business owners on automated purchasing, customer service, reconciliation & collections

1984 – 1987
Carpet Creata, Inc. (Manufacturer/ importer): Los Angeles, Ca.; Hamburg, Germany; Bombay, India
Title: Import Broker / Merchandise Buyer (Wholesale & 3 retail showrooms) (Proprietor)
- Manufactured, imported & resold; oriental rugs & housewares
- Purchased natural raw materials, overseas production scheduling, TV media & print buying ($15-25k monthly marketing budget)
- First-year sales NET; $275k from a $2k cash investment

EXECUTIVE EXPERIENCES

1983 – 1984
The Broadway (25 Department stores), Los Angeles, Ca.
Title: Buyer (home furnishing: 3 depts. / supervised 120)
- Responsible for purchasing, pricing, & merchandising goods for sales goals of over $30m in annual net retail sales; managed inventory and MIS analysis
- Budget and sales forecasting
- Staffing of sales departments
- Reduced shortages by 40%
- Supervised store level activities within each department.

1980 – 1983
The Akron (mass merchandiser / 30 retail stores) Los Angeles, Ca.
Title: Buyer (13 depts. / supervised 130)

- Responsibilities same as above, except responsible for over $34m in annual net sales
- Increased GPM by 50% in some categories
- Responsible for managing account payable and account receivables
- Budgeting for the resale of merchandise
- Sales forecasting
- Promoted to a retail buyer in 3 months
- Extensive negotiations & foreign travel

ADDITIONAL COURSEWORK and EXPERIENCES

- Otis College of Art and Design, Los Angeles
  Coursework: Photography, lighting, and digital storytelling
- West Los Angeles College: Los Angeles, Ca. (Honor's List)
  Focus: Child Development: Cognitive learning
- University of West Los Angeles School of Law
  Concentration: Business Law: Arbitration
- United States Army, Fort Knox Ky.; Honorable Discharge

Certified

- Massage Technician (Ms.T.), specialization: soft tissue injuries. I.P.S.B.:
- Red Cross: Adult CPR; Infant / Child CPR

TRAINING

- Excel in education:
- Photoshop in education:
- Language Development for African American Students: Literacy and Language
- Aurora Assurance: Agent's training on insurance & annuity policies
- Tom Hopkins: Sales management (motivation) boot camp
- Telemarketing sales & online customer services
- AT&T: Online telemarketing sales and customer service
- "The Broadway's" Management: Merchandising Training: Management, promotions, automated inventory and sales analysis.
- IBM Solution Seminar: Profit-abilities and seasonal distribution, tele-servicing & customer service, operations management, and inventory analysis.

MEMBERSHIP

- **I**nternational **S**ociety for **T**echnology in **E**ducation (ISTE)
- **A**ssociation for **T**alent **D**evelopment (ATD)
- Phi Delta Kappa, International
- **A**ssociation for **C**omputing **M**achinery (ACM)

VOLUNTEER
1995 – 2001
- Volunteer: Athletic Trainer: WLA College Athletic Dept.; Sports Massages / Physical Therapy, treatment of musculature disorders and sports-related injuries

1996 – 2000
- Los Angeles Police Department: LA Centurions (semi-pro football league)

CONFERENCES
- ASTD Learning Technology 2014:
  Sessions attended; The special sauce of social learning, Metrics that matter, Getting to the CORE of Webinars-Beyond boring to engaging, Why you need a PLN and how to develop one, Using technology and sustainable corporate change, Global webinar trends and challenges, Knowledge guru, Building your personal brand through social media, Best practices and techniques for leadership using social business tools, Designing sustainable behavior-change with habit design, Hacking informal learning opportunities into formal processes, Building communities that make things better

- CHI 2010 on Human Factors in Computing Systems
  Session attended: New methods for designing for with the iChild, Papers visualization, The age of searching, The arts and design, Machine learning, Storytelling, Data mining for understanding user needs & web interactions, Research in HCI, Using your social network, Letting it all in, Social media and policy in your organization, How experiential, social, and on-demand learning trends impact your design, Building an in-house video production, Studio on a budget, Use of multimedia in instructional design, Scriptwriting for engaging eLearning, Blended learning: Innovative solutions for a new generation of learners, Design for mobile: The ups and downs of the small screen, Unleash Adobe Captivate 5's full power using advanced actions, Capturing the magic of the classroom, A case study in moving online, Blending collaboration and training to improve performance, Gamification - Using game mechanics to enhance eLearning, Co-designing learning strategies and solutions with business leaders, Applying analytics to instructional design

LAUSD Gifted Conferences:
- Session attended: Why gifted programs make a difference in student's lives
- Sessions: gifted 101 or how to actually use Bloom's taxonomy
- Coordinating your gifted program to exceed California state standards, beyond Bloom's:
- Advancing levels of higher order thinking, bring art to your classroom: Using the digital library: A partnership with the library and gifted students
- 33rd Annual Gifted/Talented Educational Conference: Blue Print for Success
- 30th Annual Gifted / Talented Education Conference: Session on the human Brain
- 29th Gifted and Talented Education conference: Changing Perspectives from Theory to Application

ABSTRACT

This Delphi study explores the opinions of experts on their interactions with the adoption of digital products, services, and activities. Although there are a wide assortment of digital products and digital spaces that have the ability to make significant contributions to scholarship, still traditional monographs and textual publications dominate how research and opinions are shared. Even through scholars have widespread adoption of social spaces and digital technologies including self-publishing, many of their institutions and peer review platforms are still hesitated to recognize their contributions to scholarship (Gruzd, Staves, & Wilk, 2011). The conceptual framework of this study is built upon Earnest L. Boyer's (1990) four principles of scholarship: the scholarship of discovery; the scholarship of integration; the scholarship of application; and the scholarship of teaching. In addition, the theory of diffusion of innovation by Rogers will guide the analysis component of the research.

Chapter One: Problem Statement Overview

The traditional scholarship model of teaching, learning, research and peer-reviewed monographs is facing challenges that were never anticipated in the past (Cross, 2008). Monographs are unable to display the creative depth and diversity of today's digital scholarship which includes a host of digital products and services that are utilized by scholars for the design, teaching, learning, research, data collection, assessment, and knowledge sharing or knowledge creation (Seringhaus & Gerstein, 2007). In addition, many academic, scientific journals have proven to be largely meaningless and constrain scholarly collaboration and scientific advancements (Bigon, 2004). Nevertheless, with all these restriction academic journals are still how scholars measure their achievements (Cross, 2008). However, the tides have turned, and there is agreement among many that traditional methods of learning and teaching are not sustainable in a society where emphases are placed on digital methods of exchanging knowledge, and alternative forms of communication and collaboration (Thomas, 2011). Scholars skilled with the lowest denominator of digital literacy still can mediate digital products to tap into the abundance of knowledge about a subject from the past to the present and in some cases the future (Sumner, 2000). However, with this access educators are bothered by the lack of appraisal of these digital interactions and how this reflects academic progress (Hill & Irvine, 2003).

Boyer (1990) prophesied a sweeping change in the definition of scholarship before the digital revolution when he recommended that the practice of scholarship should include discovery, integration, application, and teaching. Now that we are living in this digital age many institutions and sciences are beginning to study how Boyer's model can be integrated into their promotion, tenure, and reward system, and how best to recognize these digital contributions (Beattie, 2000). It is becoming apparent that digital products, services, and activities are in fact

changing how knowledge is created, how scholars access and communicate information, and how these technologies are changing where and when learning occurs. The difficulty is most digital social media networks were not designed for learning and teaching or educational pursuits but were repurposed as a means of meeting the needs of today's learners (Veletsianos, 2011). As a result, of these diffusions, one of the greatest challenges in higher education is how do you appraise digital products, services and online collaborative activities (Cross, 2008).

Valuation of Non-traditional Scholarly Work

The proliferation of digital spaces and digital products has dramatically changed how scholars collaborate online, access information, create and share knowledge. Many institutions are supportive of the move to digital scholarships. However, just as many do not believe that digital scholarship lends itself to real scholarship (Cross, 2008). Also, when the conversation about publishing occurs, seldom is digital scholarship included. Scholars will often advise their less experienced counterpart to avoid including digital products or services as a substitute for print when being considered for promotion or tenure (J. W. Miller, Martineau, & Clark, 2000). There is also a consensus among scholars that teaching is not recognized as scholarly work, and that digital product is inferior to print (Johnson, Adams Becker, Estrada, & Freeman, 2014). In addition, academic reputation rests on publication as explained 22 years ago by Clemens, Powell, McIlwaine, and Okamoto (1995).

Many scholars support the belief that the quality of one's research is a direct correlation to the prestige of the journal that chose to publish the findings (Dewett & Dennisi, 2004). Even today's canon recognizes that a professor can gain recognition as a scholar by publishing a single innovative research paper (Cleary et al., 2012). Cross (2008) agrees that the measure of success for a professor is publication and that teaching and public service contributes little to a scholar's

portfolio. Twenty years later newer journals have transitioned from print to digitization. Established print journals that had not anticipated the adoptions of digitization are now clambering to adopt a profitable business model that allows for digitization of future publications (Wilson, 1998). Even with the explosion of self-publication as a means to expand the range of research findings, those that subscribe to traditional models disfavor self-publication. A scholar's value is based on acceptance into an established journal (Cross, 2008). Publication in traditional monographs is still the current measure for scholars (Borgman, 2008). However, this proves problematic because of the massive amount of potential publications available. Not to mention the arduous task of the peer review process itself. After this process seldom is the research considered for public discourse (Bigon, 2004).

In addition, there is concern about the review process because of how referees are selected, the commanding power of the editor, and restriction on participation (Sumner, 2000). Furthermore, many unrequested submissions are simply scanned over while other submissions receive favorable treatment by receiving the full attention of the publisher (Clemens et al., 1995). Today, there is no agreement whether the act of using digital products, services, activities and or online collaboration of an academic nature represent any of Boyer's principles of scholarship or are viewed as scholarly works. Digital products and digital services are evolving faster than our understanding of how can they be adopted to enhance learning or the exchange of knowledge. There is agreement that academic contributions should expand beyond print (Seringhaus & Gerstein, 2007). More exploration must be conducted as a means to influence the interface design, administers, and policy makers as to the application that improves one's practice (Borgman, 2007, p. 3).

Expanding the Scope of Scholarly Activity

Today, there is growing support for revising the promotion and tenure process to allow

for a wider definition of scholarship. Boyer's (1990) stated,

> The primary obligation confronting the nation's colleges and universities is to break out
>
> of the tired old teaching versus research debate and define, in more creative ways, what it
>
> means to be a scholar. It's time to recognize the full range of faculty talent, and the great
>
> diversity of functions higher education must perform. (p. xii)

However, there still may be question surrounding the issue of codifying diversity and creativity

(Glassick, Huber, & Maeroff, 1996). There is support for revising the promotion and tenure

process to allow for the discrepancy in scholarship. Similarly, O'Meara (2005) suggest that

increased collaboration among scholars could result in a lower attrition rate and a greater

appreciation for the reward system. This does not mean that a committee sitting down to

evaluate a colleague would try to measure in quantitative terms their integrity, perseverance, and

courage.

However, until more research is conducted to provide guidance in this area faculty

members face an uphill battle utilizing digital scholarship as an alternative form of scholarship.

Some scholars may approve of this method while others will reject the concept (Cross, 2008).

Cassella and Calvi (2010) argue,

> In a few years' time, it is likely that a new notion of e-publication will overcome the rigid
>
> distinction between the not refereed and the refereed article versions. Therefore quality
>
> control might become a continuous function that is no longer performed ante (traditional
>
> journal) or post (overlay journal). The publication of a 'solid' journal that is embedded in

the process of producing a 'liquid publication' completely changing the way research results is produced, evaluated and consumed. (p.10)

In addition, scholars who emphasize epistemological for the purpose of designing new tools or cultivating repositories have had little success thereby causing stagnation in the area with those responsible for developing the fundamentals of knowledge building (Markauskaite, 2010). On the surface, digital spaces appear to have insignificant differences, but each has distinct features that distinguished them when utilized in learning spaces (Minocha, Schroeder, & Schneider, 2011). It is problematic because of the broad spectrum of digital products makes it difficult to know what is efficient when comparing pedagogy, research, teaching and learning based on scholarship constructed with digital products than with traditional scholarship methods (Säljö, 2010). In other situations, scholars are blending digital spaces in traditional learning spaces as well as in online courses (Minocha et al., 2011).

Currently, academic institutions are feeling the pressure to adopt innovative technologies to facilitate knowledge sharing even in the midst of the obstacles and legal issues concerning copyrights, digital products and digital spaces (Johnson et al., 2014). In addition, there is no clear consensus how various teaching and research institutions reward scholarship. Scholarship is viewed differently based on the institution associations, affiliation, whether it is a four-year or two-year institution or a historically black university (O'Meara, 2005).

Although universities still subscribe to monographs, they are committed to increasing access to digital journals, and this is becoming the mainstay of future collections that permit access on a multitude of digital devices (Tenopir, King, Edwards, & Wu, 2009) tablet, and or mobile device. It is now apparent that the adoption of digital products is beginning to ground itself in all facets of academic research (Markauskaite, 2010).

In today's world, digital literacy is assumed a birthright because of society's adoption of digital devices. However, there is concern that academicians may not have the necessary digital literacy skills to facilitate learning (Johnson et al., 2014). With the explosion of social networks and digital products, it may be impossible to have the knowledge to navigate through this massive digital sandbox. Knowing how to integrate digital spaces for learning, what digital products are best suited for knowledge sharing, and how to mediate digital social networks can be a daunting task (Greenhow, Robelia, & Hughes, 2009).

In many situations, faculty members resist newer and more efficient digital products and will continue using products that appease their comfort level. Other professors will oppose adoption because they lack the technological aptitude or willingness to try something new (Tuten & Marks, 2012). Any one of these situations will influence faculty member's level of diffusions with the construct of digital products. Therefore, without an established standard, how much time should faculty members invest in the construct of digital products. The major discrepancy with the adoption of alternative forms of scholarships is the perception that methods of peer review can only be accomplished with print media. Therefore using digital products and digital services cannot be effective scholarship and over time will diminish the quality of scholarship (J. W. Miller et al., 2000).

Academicians must be flexible in the perception of adopting new technologies and set an example in its usage for students to realize its importance (Johnson et al., 2014). Scanlon (2014), states,

In relation to the scholarship of application, as with the other functions of scholarship, there are significant opportunities for change. The potential for new forms of public engagement enabled by new technologies where academic staff can make use of

networked communities offering those scholars new ways to participate in wider global

debates, with diverse audiences. (p. 14)

Seldom change is linear or presents itself in a neat package. The adoption of digital

scholarship has the potential to become a messy endeavor (Jacono & Jacono, 2008).

Problem Statement

The problem lies in how do you appraise and promote alternative forms of scholarship

as a means of acquiring tenure and promotion (O'Meara, 2005). The current standard for

scholarship may not be applicable to appraise the value of these innovative experiences by

scholars and those wanting their efforts recognized as scholarship, as with online scholarship in

general, "professors and administrators have difficulty assessing "the quality of online articles

and courses" (Cross, 2008, p. 11). Many agree that emergent technologies are turning the tides in

traditional learning spaces. In addition, the adoption is so widespread it is having an impact and

is distorting the definition of learning (Säljö, 2010). Many disciplines are studying how Boyer's

model of scholarship of integration, discovery, application, and teaching can become an intricate

aspect of their reward system (Johnson et al., 2014).

The thought of adopting alternative forms of scholarship is affecting policy at institutions

on a global scale. The challenge remains the same, how does digital space influence pedagogies

in traditional and virtual learning spaces (Thomas, 2011). Emerging digital products are

changing how graduate schools are making a decision on what methods to choose when

publishing research findings (Moxley, 2001a). Scholars are gradually moving towards digital

spaces where the communication has changed the narrative of what is a peer review journal

(Cassella & Calvi, 2010). These developments at some point will pose a challenge into the

revelations of tradition peer review journals (Cross, 2008).

Purpose Statement

This study will explore the opinions of experts on their interactions with the adoption of digital products, services, and activities. Although there is a wide assortment of digital products and digital spaces that have the ability to make significant contributions to scholarship, still traditional monographs and textual publications dominate how research and opinions are shared. This dissertation is about how well suited the Boyer model is too new possibilities for scholarship through digital and online networked work.

Research Questions

RQ1: According to a panel of experts, does faculty construction of digital products such as academic blogs, and or professional activities such as engagement with colleagues in online digital spaces represent the future of academic scholarship in higher education?

RQ2: In what ways, if any, should digital products, services, or activities of an academic nature influence promotion and tenure policies?

Conceptual Framework for Investigation

The conceptual framework builds upon Earnest L. Boyer's (1990) four principles of scholarship: the scholarship of discovery; the scholarship of integration; the scholarship of application; and the scholarship of teaching. Although this was written in the infancy of the Internet, it is clear that academic activity and production has expanded into digital materials, services, spaces, and activities. This dissertation argues that these new possibilities are not just compatible with Boyer's model, but that Boyer's model is necessary to their acceptance as a legitimate scholarly production that should be recognized and rewarded by academic institutions.

In exploring the resistance to Boyer and, by extension, to the inclusion of new forms of academic work, it is useful to consider Rogers (2003) theory of the diffusion of innovation. In

this case, innovation refers not just to the technological forms of work but also to the not-so-very-old Boyer notion of scholarship as more than research. In addition, the theory of diffusion of innovation by Rogers will guide the analysis component of the research.

Rogers's theory explains "the process by which an innovation is adopted by members of a certain community" (Perkins, 2001, 2003, p. 66). Rogers (2003) reminds us that communities of practice are committed to sharing knowledge for the sole purpose of maintaining their continual existence. Diffusion will provide insight as to how faculty's innovations of digital products influence alternative forms of scholarship based on Boyer's principle of scholarship. People will adopt new technologies if they perceive a sufficient advantage over the present methods to justify the costs and efforts involved. Once adopted, they will continually integrate those technologies into their practices. With this experience, faculty will identify new and unforeseen uses of digital products, services, and activities. Often neither the designer nor the potential users of technology can anticipate its value or lack thereof-months or years in the future (Borgman, 2007). Lave and Wenger (2003) question, "what it means to be a scholar" (p. 2), in the age of digital products, digitization, and digital spaces.

Significance of Study

These digital spaces are becoming virtual intersections where innovations of digital products are redesigning data analysis discovery, application, and self-promotion and or connecting global communities. Johansson (2006) argues that intersectional innovations have the ability to "change the world in leaps along new directions" (p. 19). Innovation is not only concerned with developing something new, but it is also about repurposing products and creative ways to doing things differently that will prove to be beneficial in one's practice and when interacting with their communities (Clark & Webster, 2012). However, with the sudden

explosion of digital innovations, there is growing concern that there is a widening of the space between the research collected for digital scholarship and traditional monographs (Sumner, 2000). The disconnection that results between teaching and research from the growth of digital spaces is proving to be problematic when deciding how to appraise digital products, services, and activities.

The greatest contributing factor is the lack of quality peer-reviewed digital scholarship (Cross, 2008). One of the leading causes of this change lies in the fact that scholarly content is no longer exclusively concentrated in publishers' hands, but a growing mass of this intellectual knowledge is now openly accessible in digital institutional and subject-specific repositories worldwide (Cassella & Calvi, 2010).

The research of digital products, services and activities will help appraise the massive amount of work being generated because tradition monographs are static and lack the ability to be updated (Mietchen et al., 2011). One of the greatest benefits of digital scholarship is the capacity to update and revise content that makes digital products more cost efficient. This benefit is something that is welcome by research scholars.

Summary

In this paper, the researcher conducted a Delphi study of the diffusion of digital products, services, activities, and online collaborative activities and how they may be considered as scholarship and how digital appraisal can assist in their evaluation. For more than thirty years scholars have explored how researcher use peer reviewed journals in their practice (Tenopir et al., 2009) as well as the gradual digitalization of human culture, knowledge, and learning (Markauskaite, 2010). Just in the last decade, how learning occurs and how scholars collaborate has changed as a direct result of emergent technologies (Greenhow et al., 2009). All rules

changed relating to knowledge sharing and collaboration as a result of the adoption of the

Internet to facilitate teaching and learning (Wilson, 1998). Colleges and universities are

exploring how to engage the learner that reflects the success of a technology firm (Johnson et al.,

2014). However, this has proven problematic as academic institutions struggle to find common

ground when digital products, services, and activities are used as alternative forms of

scholarship. While at the same time these alternatives cannot satisfy policy makers that are still

adhering to the traditional reward system for promotion and tenure (Moxley, 2001a).

The researcher hopes to add to the body of knowledge regarding the ongoing debate

regarding diffusion of innovation of digital product, services, and activities. The study explores if

they are in fact, scholarly in the application, creation, sharing of content across digital spaces,

enhancing research methods, and or expand one's community of practice. There is no denying

that online digital spaces are where many refer to for up to the minute information and as a

means of self-publication and distributing knowledge (Johnson et al., 2014). The time has

arrived that academicians, learning communities, and policy makers must explore what is

preventing the full adoption of alternative forms of scholarship (Johnson et al., 2014). In a

diverse world that is globally connected, the possibilities of interdepartmental scholars

interacting on a higher level can allow for a more efficient peer review process and reward

system (Boone & Higgins, 2003). Today's scholars can no longer disregard the significance of

digital products and the need to integrate them into Boyer's four principles of scholarship

(Greenhow et al., 2009).

Definitions

Peer Review: The National Academics (Scanlon, 2014) define a peer review as

documented, critical review performed by peers. Defined in the USNRC report as "a person

having technical expertise in the subject matter to be reviewed or a subset of the subject matter to be reviewed to a degree at least equivalent to that needed for the original work" (p. 2) who are independent of the work being reviewed.

Digitization: Digitization represents the digital capture of [an] artifact (Sumner, 2000). In addition, digitization offers the potential of much better surrogates for documents, but it also is fraught with danger. Digitized information erodes more quickly than print does, contains errors, must be continually 'refreshed,' and is encoded on constantly changing software and hardware (Glassick et al., 1996).

Digital material refers to any material renderable by a computer and includes both that which is 'digitized' (reformatted to digital) as well as those resources that are 'born digital.'

Digital Scholarship: In practice, 'digital scholarship' has meant several related things:

1. Building a digital collection of information for further study and analysis

2. Creating appropriate products for collection-building

3. Creating appropriate tools for the analysis and study of collections

4. Using digital collections and analytical tools to generate new intellectual products

5. Creating authoring tools for these new intellectual products, either in traditional forms or digital form (Dean, 2003).

Chapter Two: Literature Review

This literature review explores how Earnest L. Boyer (1990) four principles of scholarship: the scholarship of discovery, the scholarship of integration, the scholarship of application, and the scholarship of teaching are the best framework to establish how the definition of scholarship should include digital products, services, and activities. The social nature of online collaboration with peers is part of this discussion because of its potential for being a driving force for the diffusion of innovation.

Everett M. Rogers's theory, the diffusion of innovation adds insight regarding scholars' adoption of Boyer's model when using digital technologies as the foundation for alternative forms of scholarship. Included in this literature review is how academic scholarship has remained stagnant over time and the difficulties scholars face when attempting creative methods when presenting their work as part of their promotion and tenure package. However, the evidence is strong that digital products, services, and activities have the potential to impact scholarship in the digital age positively.

History of University Scholarship

The significations and value of scholarship are embedded in the very core of human civilization. Noted scholars Lave and Wenger (2003) explored the history of scholarship. They discovered that civilization thirst for learning and knowledge sharing-after the excavations in Mesopotamia when they discovered that the city contained libraries with textual clay tablets. Even Antimachus as a poet and 'scholar' remained a solitary figure in his time (about 400 B.C.). Plato succeeded in setting up his school (after 388 B.C.) in a grave sacred to the Muses and the hero Akademos; this organization was a religious guild called the Academia that lasted for more than 900 years (Rogers, 2003). Pfeiffer (1968) concluded that scholarship matured in Alexandria.

Disagreement about what is scholarship started as early as the middle of the third-century B.C.A. At this time, learning moved to the forefront of poetry. Scholars begin to question if this was the cornerstone for how we define scholarship. This was when formal schooling gradually became the norm and canon for the acquisition of knowledge.

In the English-speaking world, the word scholar first appeared in the eleventh century, with a strong social component. At this time scholarship required social interactions. Also during this period the exchange of knowledge was guided by senior scholars (Pfeiffer, 1968). Scholarship's progression in the centuries that followed included social interactions by scholars for the purpose of sharing knowledge among their peers. The need to publish in academic forums was a direct result of these social interactions and originated with Francis Bacon 1561-1626 (Borgman, 2008). Today, thanks to Bacon's legacy, "when scholarship is mentioned it implies that one is a published member of higher education" (Boyer, 1990, p. 15).

As the idea of scholarship begins to take roots, methods of promoting scholarship were facilitated by the postal system and the printing press. The scholar, Charles Darwin was a major benefactor of these systems by penning over 15,000 letters as a means of advancing his research. With the development of various technologies, the discussion magnified as to if these new developments will have a positive impact on the integration of teaching and research (Borgman, 2008). It is amazing that today's dissertation evolved from a six-page thesis submitted at Yale University in 1860 (Boyer, 1990). More than a century later in 1997, the national library introduced digitization by microfilming 187 titles for the nineteenth century. However, the quality was inferior to the original text, which hampered mass adoption of digital products and services by institutions (Pearce, 2010).

Boyer's Model of Scholarly Work

The distinguished scholar Ernest Boyer researched and presented a groundbreaking report that spotlighted the importance of expanding the definition of scholarship. Boyer (1990) drew attention to the conflict facing professors whose passion for teaching is compromised by the intuitions system for scholars to publish the finding of their research as a means of peer recognition and acquiring tenure. The underpinning of the report focused on the belief that scholarship had drifted away from teaching and learning to acquire tenure into a reward system based on peer-reviewed journal publications and research. Peer review is mainly a quality assurance system for research operated by fellow academics in the same research field and managed by the journal editor or publisher (Moxley, 2001a).

Today's colleges and universities are putting too much emphasis on what happens outside the classroom than what occurs in the classroom, and how this influences the transfers of knowledge from professor to student. Boyer believed that the day-to-day responsibilities of the academic had become muddled with the promise of tenure. When professors have to choose between their passion for teaching and the requirement to meet the institution's demand to publish monographs, it can cripple the professoriate, which can give students a negative perspective of the intuition they selected for their higher education (Garcia-Puente & Rodriguez, 2009).

To be published in a prestige's scholarly journals and or conduct research for the procurement of grants has become paramount to the development of new scholars. It remains the primary means of acquiring tenure or validating one's scholarship. For over two hundred years, this has been the norm. Boyer felt that the scale towards research and publication has shifted to the extent that a change was necessary to include a more interdisciplinary and creative

assessment of what is scholarship for the institution to survive and meet the needs of today's learners. Wood (1998) believed the reward system should be broad enough to recognize those that excel in research but should also include those skilled in the scholarship of teaching. Also, he referenced many of the inequalities that face academic scholars that included issues of diversity in the classroom, lack of minority faculty, the pressures and obligations assigned to young scholars, and the demands of placing research and publication above the professor's passion for teaching.

Boyer's (1990) research resulted in the recommendations of four intersecting principles that are the bellwether of scholarship for the professorate. The principles are: "the scholarship of discovery; the scholarship of integration; the scholarship of application; and the scholarship of teaching" (p. 16). In addition, Boyer (1990) argues that to acknowledge the application of his principles for scholarship the academy must develop a new metric that accepts them as achievements and allows them to be recognized by higher education's reward system. Boyer felt academia should consider alternate forms of scholarship and include the creation of products that would enable scholars to increase their opportunity to be inventive.

One alternative artifact Boyer (1990) supported was the construct of professional portfolios. Boyer believed this would increase creativity in how professors chose to present their portfolio based on the nature of the work. Glassick et al. (1996) concur that to develop a greater understanding of the standards while having an opportunity to use the portfolio to reflective upon, the accumulated artifacts will provide insight regarding one's learning and development. In addition, Glassick et al. (1996) emphasized the need for flexibility, creativity, vision for possibilities, and usage of all available resources to breathe life into the professoriate. Vygotsky

adds to this debate that as we negotiate our environment, our mental tools allows for a deeper understanding of the world around us (Wink & Putney, 2002, p. 61).

The portfolio can be a reflection of the talk that occurs in collaborations, communities of practice and shared spaces. This artifact represents the creative voice of ideas regarding what we have learned and the direction of our learning. Boyer (1990), merely stated, "tomorrow's scholars must be liberally educated. They must think creatively, communicate effectively, and have the capacity and the inclination to place ideas in a larger context" (p. 65). Darling-Hammond and Snyder (2000) suggest that for "an original idea to be creative, it must also have some measure of relevance; it must be valuable" (p. 15). However, Boyer was very clear that these principles can be and should be accomplished by a wide range of methods not limited to research and that the scholar should be allowed to exercise all forms of interdisciplinary collaboration. Boyer (1990) added that a framework of trust must incorporate this evidence into this process so that faculty members feel free to participate in multiple interests. Only then can higher education institutions meet their missions of research, teaching, and service through applied and integrative scholarly work. Glassick et al. (1996) indicated that several colleges and universities have already adopted or amended Boyer's proposal. As with anything, adoption of an innovation can be a burden. There often is confusion in what and how to implement the concept. Boyer (1990) suggests the discussion of two particular areas. The first is how do you define the scholarship of teaching and how do you determine what is being appraised.

Glassick analyzed Boyer's report and published the results in the publication of 'Scholarship Assessed.' Johansson (2006) supports how Boyer has viewed the interaction of discovery, integration, application, and teaching. As a result, six standards guide the assessment

of scholarship that encompasses the full range (body) of scholarly work. Glassick et al. (1996) stated,

> For a work of scholarship to be praised, it must be characterized by these standards:
>
> 1. Clear Goals: includes the purpose of the work and is there a possibility of achieving the objective based on questions that can contribute to a chosen field of study.
>
> 2. Adequate Preparation: is the scholar's skills and knowledge of the research conducted within the area of study, and does the scholar have the ability to acquire the necessary resources to accomplish the goals?
>
> 3. Appropriate Methods is the scholar's ability to select the best approach that will contribute to the discovery of the goals and adaptability of changing environments.
>
> 4. Outstanding Results is the scholar ability to succeed in accomplishing the objective of the work, contribute new knowledge to the field and provide a foundation for additional work in the chosen area.
>
> 5. Effective Communication is when the scholar successfully presents the work with reliability and in environments that understand the purpose of the work.
>
> 6. Reflective Critique is when the scholar does an honest self-assessment of their work while at the same time learning and adding a breath of evidence that allows for the understanding of the decision-making and the evaluative process including providing opportunities to work further in their field.

How these standards intersect will determine if the digital products, services, and activities are worthy of the label of scholarship.

Shulman made the distinction between scholarly teaching and the scholarship of teaching. He states that to be scholarship the work must meet these criteria. (a) The work is publically

available. (b) The work must be available for peer review and critique according to accepted standards. (c) The work must be able to be reproduced and built on by other scholars (Glassick, 2000). It is these intersecting principles that drive this literature review by providing a vision of how innovations of digital products are changing the landscape of what it means to be a scholar and how alternative forms are intersecting traditional canons of scholarship. The reality is the concept that technology is having a profound impact on academia is either accepted or it is not (Glassick et al., 1996).

Glassick (2000) proposes that to navigate in today's world, one needs access to more information. It should be the responsibility of the institution to assist students to learn to negotiate the environment to preserve the social landscape. Glassick (2000) adds to the discussion that when definitions of scholarship are broader, some scholars will submit work that balances discovery, integration, application, and teaching in unusual ways. Baldwin (1998) stated professional performances could and should be judged by other means as well. Boyer (1990) supports the idea that the institution's reward system should be modified to capture faculty members who chose to think outside the box when integrating digital technology.

The need for change is not only by those scholars that chose to be different but from society as well (Glassick et al., 1996). Those that are expressing for a modification in policy believe that technology changes how faculty members share knowledge (Boyer, 1990). Decision-making committees and peer reviewers must devise a framework and methods of appraisal to learn how to view and evaluate these different scholarly contributions and products based on qualitative standards. Link and Scholtz (2000) pose the question to scholars about who among them are exploring different and acceptable methods to evaluate the scholarship of their peers. Is scholars' diffusion of digital products able to create digital products based on Boyer's

recommendation of what would qualify as an alternative form of scholarship to meet the needs of today's digitally connected learners? Professors have a special responsibility to their students, institution, and the community(Pea & Gomez, 1992). In the grand scheme of supporting alternative forms of scholarship, Baldwin (1998) reminds us that although we can give scholarship a broader definition, the issue of appraising alternative forms of scholarship remains. The debate arises not whether to diffuse alternative forms of scholarship but also how to evaluate digital products as a form of scholarship.

The Rise of Digital Scholarship

In 1982, Bibliographic Information Services issued the first digitize edition of the scholarly journal *The Harvard Business Review*, thus ending 340 years of excuse print publication (Boyer, 1990). However, it is still apparent that scholarship is based specifically on research, data analysis, and the distribution of the scholar's findings (Boyer, 1990). Today's online social networks are now an intricate aspect of academia (Willinsky, 2003). Access to digital information has exploded resulting from academician's adoptions of this new form of media (Borgman, 2008). Schmiede (2009) contends "the advent of digital technology makes new ways of sharing resources possible for the benefit of learning, teaching, and research" (p. 107). However, Russell, Weinberger, and Stone (1999) feel that researchers, academic teachers, and students from the multitude of scholarly disciplines are largely absent from the debate in spite of the fact that their current and particularly their future working conditions are at its core. He suggested that adoptions of digital products, services and activities might be stagnant resulting from a lack of standards for the creation of digital spaces. Without a design standard for digital products developing, accessing, retrieving, assemblage, or disseminating knowledge is hampered because of the various application available to users. Schmiede (2009) contents that the ongoing

difficulty with multiple forms of digital content makes it challenging to establish a standard. Furthermore, Schmiede (2009) argue that there is a need to develop new products, techniques, and methods to deal with today's environments and new situations. We also need to consider the opportunities IT affords us to collect and manage data in ways that are more intelligent. In addition, with the adoption of digital products scholars are producing work that supersedes traditional textual peer review journals by having the option of presenting findings with the usage of real-time analytics, visual medias, 3D models, and advanced database analysis.

The adoption of digital products has changed the efficiency and speed at which research can be conducted, data collected, analyzed, and collaborative by embedding knowledge in digital spaces (Remo & Russell, 2010). Currently, digital products have become a mainstay in how scholars create and share knowledge as well as exchange ideas (Lynch & Carleton, 2009).

Baldwin (1998) explores the discussion between academicians and publishers about the selection and preservation of information and how to ensure access over time. The issue of repurposing and adoption is an issue when the contrast and degree of adoption of digital technologies are based on whether the product was designed specifically for academic or privately funded and available for the general user (Borgman, 2008). Walsh, Kucker, Maloney, and Gabbay (2000) believe the question for the professorate is how to design an infrastructure for digital scholarship that enables the users while establishing a financially sustainable model. In addition, digital spaces allow for the assessing of content in a variety of ways that is not possible with traditional monographs (Mietchen et al., 2011). Scholarship based on professional social networks is increasing from a wider range of academic disciplines thereby increasing the volume of computer–mediated content (Quinton, 2013). This increase in digital content has the possibility of changing how academic media centers, scholars, and students interact in online

learning spaces. Questions are arising as to how this interaction will affect learning and understanding of information (Tenopir, 2003). The digital movement of information has resulted in information abundance, causing a radical shift in how authority, significance, and even scholarly validity are established with enormous implications for the social sciences and the humanities (Joan F. Cheverie, Jennifer & Boettcher, & John Buschman, 2009b). The New Media Consortium Horizon 2014 report indicated that in today's online environment, tremendous amounts of data is being generated that can be used in learning spaces and that there is a demand for digital products that can decipher this data and adapt it to improve instructional systems. Although the demand is high, academic institutions have yet to fully adopt these assortments of digital products (Johansson, 2006; Tuten & Marks, 2012).

However, it is because of the innovation of digital spaces that those in the academic community can collaborate globally in real time and are no longer restricted to textual presentations. They can now integrate the digital spaces to social media networks, visual representations and graphics to what was once a static representation of one's research findings (Moxley, 2001a). Digital supported pedagogy has opened the gates of possibilities because the confinement of brick and mortar no longer applies to how communities interact to exchange knowledge. Leaning now can take place without restrictions to time zone, borders, and geographic location (Johnson et al., 2014). This new way to collaborate in digital spaces is allowing scholars to generate innovations and ideas to take on challenges by sharing and conducting research collectively (Clark & Webster, 2012). In addition, social media networks provide scholars with information, real-time data collection, and ways to conduct observations that were unimaginable in the past (Quinton, 2013). However, as enticing as it is to imagine the vast functionality of a de novo information architecture designed to exploit modern digital

technology, the reality is that journals and databases exist today in a form that does not allow for the instant adoption of such a highly connected structure. Nonetheless, we can still aim to improve our current system while working toward an interconnected future (Seringhaus & Gerstein, 2007).

Digital Scholarship through the Boyer Lens

Scholarship reconsidered and the 21st century scholar. Many support the idea of applying Boyer's four principles of scholarship by adopting the applications of digital products because of the ease and unique methods of knowledge sharing. No longer is it at the discretion of the teacher to update their computer literacy skills, but it should be essential due to its very nature to support a constructivist approach to learning. It is believed that this move can be effectively facilitated by adopting the scholarship of teaching and learning through innovative research approaches that benefit the digital age in ways that it is conducted, conveyed, and shared with colleagues and the public. In addition to having the ability to integrate digital technologies into one's teaching to achieve a new level of efficiency and effectiveness (Thomas, 2011). There are a few concerns academicians should consider when adopting innovative products. They must take into account if the digital product is compatible with existing products. More importantly, if their institution will support the adoption of digital spaces that will change how knowledge is shared and influences how learning occurs (Tuten & Marks, 2012).

Often a college or university's reward system can influence the experience of faculty members that chose to be innovative. In addition, if the adoption of digital products increases his or hers workload or if the Human Computer Interface (HCI) design is cumbersome and impedes learning and interaction, the innovation may be less likely to succeed without some form of negotiation within the division of labor. If this occurs, laggards will usually not attempt to

integrate the digital product into their practice (Moser, 2007). In addition, when the design is awkward, learning how to develop the product to mediate the technology will stagnate social interaction among peers. If the interaction becomes negative, early adopters will not support the adoption of digital products.

Many policy decisions will need to be addressed as digital innovations expand the definition of scholarship. However, the easiest one for universities to address is to revise policies that inequitably favor academic research over teaching (Johnson et al., 2014). This has proven to be a conundrum because research can propel the career of a professor more than his or her time spent teaching (Boyer, 1990).   Kaptelinin and Nardi (2006) assert that "a scholar must not confine his or her creative products to folders or computer files, however, risky it may appear to enter the larger arena where ideas are critiqued and evaluated" (p. 66). Furthermore, in many institution systems, it seems that professors have to compromise whether to spend time teaching or conducting research.

Boyer (1990) acknowledged, " according to the dominant view, to be a scholar is to be a researcher and publication is the primary yardstick by which scholarly productivity is measured" (p. 2). However, the act of repurposing digital products is allowing scholars to collaborate and construct digital spaces that were once unimaginable. Husserl Glassick et al. (1996) discussed the word 'act' rather than 'presentation' to refer to the experience and not to the object. Subjects live in the world; they have needs that can be met only by being and acting in the world (1970). This is critical for understanding that experiencing the act of creating and interacting in connected online learning spaces should allow for intrinsic satisfaction and motivation for effective diffusion to occur. Kaptelinin and Nardi (2006) felt that acts are intentional experiences, not mental activities and "carried out by the subject to fulfill its needs" (p. 32). The

aesthetics' and design of the digital products can influence the user's perception, and help

determine if the experience was worthy of the time invested. Löwgren (2008) suggest that the

"use of digital is fundamentally aesthetic, in the sense that it entails emotional and affective

dimension. The work of shaping digital materials to create conditions for good use is known as

interaction design" (p. 383). Furthermore, Löwgren (2008) propose that:

> The feel of the interaction, the hints of complexity unfolding as different options are
>
> explored, the rhythm of the initiative shifting back and forth, the sense of understanding
>
> and insight growing over time, the sometimes almost dramaturgical orchestration of the
>
> interaction from conflict to resolution-all of this is part of the temporal and visuotactile
>
> properties of using the digital artifact. (p. 2)

Boyer (1990), maintained "what we have now is a more restricted view of scholarship,

one that limits it to a hierarchy of functions" (p. 15). One of the functions he referred to was

how publishing was paramount to teaching. "When we speak of being "scholarly, it usually

means having academic rank in a college or university and being engaged in research and

publication" (Boyer, 1990, p. 15).

At one time using digital products was considered a passing trend, however with the

creation of digital spaces communities based on one's practice and interest are flourishing

resulting in quality that is more creative, personal and atheistically pleasing (Johnson et al.,

2014). How can tenure committees and policy makers referee the diffusion of digital scholarship

as a possible alternative to the traditional peer review and reward system that would be

acceptable? The referee is an example of status judges who are in-charge of evaluating the

quality of role-performance in a social system. Status judges are integral to any system of social

control through their evaluation of role performance and their allocation of rewards for that

performance (Clemens et al., 1995, p. 437). Referees seldom receive acknowledgment for their tremendous efforts and hard work when judging academic papers (Pöschl, 2004).

In addition, the difficulty is that before publication these referees are criticizing the research of their peers, which can impact how the papers are presented to the public (Harnad, 1996). Although digital scholarship is gaining recognition, the opinion of many scholars is that the quality of its referee peer review process does not appraise the actual scholarship (Cross, 2008). To compound the problem, scholars who have not designed digital products lack the knowledge of the intricacies required to repurpose digital products to share in digital spaces. Other scholars have the misfortune of having to represent their research on two fronts; one is for promotion and tenure, and the other has to defend the decision to use digital products and digital space as an alternative to traditional methodologies (Cross, 2008). Currently, Boyer's principles of scholarship are part of this growing debate resulting from online digital environments. Included in this discussion is peer reviewed publishing, methods of collaboration, online data gathering, and analysis and possibly in the near future, tenure.   Cheverie et al. (2009b) claims,

Academia values the text, and academics are traditional 'people of the book'; scholars work with text to make different text. In the contemporary tenure system, receiving tenure requires a peer-reviewed monograph; promotion to full professor requires a second monograph; further rewards need additional publications – all in the same vein (p. 224).

The quagmire now adds pressure to scholars because if the digital scholarship does not meet the institution's standards by the end of what is contractually agreed to, the scholars risk being removed from their position (Peer Review in Environmental Technology Development Programs 1998). The current and future state of technologically based or supported instruction may simplistically be reduced to one question which each faculty member must ask himself or

herself, and for which each faculty member must find an acceptable response. Why change? (Moustakas, 1994, p. 84) The usage of digital products by higher education's Universities and Colleges are becoming the norm, resulting in an exponential increase in the innovation of digital spaces. Currently, we are only at the base of what will be a significant learning curve for libraries, publishers, and scholars, for whom this will be an increasing concern (J. W. Miller et al., 2000). This paradigm shift includes the benefit that scholars are collaborating across all disciplines (Johnson et al., 2014). There are pools of learners whose skills are rooted in digital habitats, social medias, and online communities. For over twenty years, digital products have changed the environment in which scholars intersect the workspace, interact in learning spaces, and collaborate with peers (Russell et al., 1999).

However, it is evident that online collaborative spaces are improving knowledge sharing, and how digital products are allowing academic communities to interact in real time (Johnson et al., 2014). Researchers in the soft sciences are gradually acknowledging the transition to digital media and the benefits they provide for knowledge sharing and learning (Markauskaite, 2010). Virtual learning experiences can provide opportunities otherwise not available to many students. For example, from psychology experiments with virtual rats running virtual mazes to the virtual chemistry labs, to computer simulated stock-market portfolios, to examine the relative effects of change and development on sensitive ecosystems; technology-based learning experiences are powerful learning experiences (Miller et al., 2000). In addition, academic institutions are adopting digital technologies as a means of acquiring quantitative research (Konkiel & Scherer, 2013).

The collaborative impact of online social spaces is creating innovation of social dissemination of real-time textual and visual products (Smyrnaios & Rieder, 2013). Scholars are

using digital products and digital spaces to explore ways to create pedagogy methods both digitally and in traditional environments with the usage of blogs, virtual collaborative spaces and communities, micro-blogs, altmetrics, Zotero, Mendeley, Google Scholar Metrics, and online academic journals. All areas of academia are realizing how critical digital spaces are for the advancement of their professional careers (Gruzd, Staves, & Wilk, 2011). In addition, social media networks allow researchers to access and share narratives using various forms of media (Johnson et al., 2014). Online social networks have surpassed a space to collect data but are now a space where data can be observed, and accumulated in real time, and in various forms (Quinton, 2013). These innovations are beginning to redefine the age-old model of scholarship as educators and researcher begin trending towards these alternative experiences and changes. Social software tools can now be adopted to meet targeted objectives. However, research must be collected as to how and what digital products influence the role of knowledge sharing and if learning and teaching are occurring (Minocha et al., 2011). Although digital products have a significant impact on teaching the verdict is still out on digital scholarship (Cross, 2008).

Cheverie (2009) identified two principal components that are complicating the adoption of digital scholarship and digitally supported pedagogy. One contends that tradition printed monograph are the prevailing view, and the pedagogy view is the demand to end print and seek an alternative media. It is time for a method of appraisal and a metric to be designed with the support of the academic institution, corporations, and government agencies (Seringhaus & Gerstein, 2007). Any academy that supports the adopting of digital products to create can engage learners who have adopted digital collaboration and social networks from the early adoption and are utilizing mobile devices and social media as an aspect of daily life (Cassella & Calvi, 2010). This phenomenon of integration of digital products allows for more diversity

without restrictions. One factor is the required commonality in the creative language of digital technologies.

Many academic institutions are increasingly providing collaborating learning spaces to exchange and build knowledge as part of their learning (Boone & Higgins, 2003). The adoption of digital spaces is becoming commonplace with faculty and many institutions (Boyer, 1990, p. 20). Academic institutions have repurposed social media networks to establish informal communications and knowledge sharing that could not occur with any other media. Digital spaces and scholars are creating intersections where communities of practice are developed, learning communities exchange knowledge, narratives are shared, and peers collaborate (Johnson et al., 2014). Although Boyer's model was written in the infancy of the Internet and long before one could foresee the impact of the digital age, it is clear that academic activities and collaboration have expanded into the construct of digital products. This literature review indicates that these new possibilities are not just compatible with Boyer's model, but that Boyer's model is necessary for their diffusion as legitimate scholarship and should be recognized and rewarded by academic institutions promotion and tenure committees.

Digital Scholarship as Innovation

To explore the lack of adoption of Boyer's innovative concept of expanding the definition of scholarship it is useful to include Everett M. Rogers's theory of the diffusion of innovation as an intricate component of the framework for this research. In this study, innovation refers not just to the technological forms of work but also to the not-so-very-old Boyer notion of scholarship as more than research. Also, the theory of diffusion of innovation by Everett M. Rogers will guide the analysis component of this research. Rogers's theory establishes the process by which "innovation is adopted by members of a certain community" (Perkins, 2001,

2003, p. 66). Rogers (2003) reminds us that communities of practice are committed to sharing

knowledge for the sole purpose of maintaining their continual existence. Diffusion provides

insight as to how faculty's innovations of digital products, services and activities influences the

need to expand the definition of scholarship based on Boyer's principle. People will adopt new

technologies if they perceive a sufficient advantage over the present methods to justify the costs

and efforts involved.

In addition, diffusion of innovation includes the decision to adopt an innovation but also

the level at which one interacts with the innovation and incorporates it into their practice ordain

(Jordaan & Jones, 1999). Borgman (2008) defines diffusion as the process by which an

innovation is communicated through certain channels over time among the members of a social

system. It is a particular type of communication, in that the message are concerned with new

ideas. Communication is the process in which participants create and share information with one

another to reach a mutual understanding: when new ideas are invented, diffused, and adopted or

rejected, leading to inevitable consequences, social change will occur. Of cause, such change

can happen in other ways too. (Borgman, 2008, p. 5, 6)

Getz (1997) defines innovation simply as an idea, practice, or object that is viewed as

original and by appearing new, it is, in fact, innovation. He further writes,

Someone may have to know about an innovation for some time but not yet developed a

favorable or unfavorable attitude toward it, nor have adopted or rejected it. The newness

of innovation may be expressed in terms of knowledge, persuasion, or decision to adopt.

(p. 12)

Rogers (2003) thinks innovation is not an issue being objectively new but rather have the

perception of being original.

For this literature review, it is the intersection, adoption, rejection and or perception of innovations that determines if alternative forms of scholarship for the creation of digital products, services, and activities will have a place in the halls of academia. Rogers (2003) contends the issue is not whether you use the products, but when. It must be recognized by academia that the products are valuable and capable of being considered as a scholarly contribution. Straub (Rogers, 2003) expands on this notion of diffusion of innovation by providing five characteristics of innovation as perceived by individuals that help explain the different rates of adoption:

1) Relative advantage is the degree to which an innovation is seen as better than the idea it supersedes. The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption will be.

2) Compatibility is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. An idea that is incompatible with the values and norms of a social system are not adopted as rapidly as an innovation that is compatible.

3) Complexity is the degree to which an innovation is perceived as difficult to understand and use. New ideas that are simpler to understand are adopted more rapidly than innovations that require the adopter to develop new skills and understandings.

4) Trialability is the degree to which an innovation may be experimented with on a limited basis. Innovations that are trialability represent less uncertainty to the individual who is considering it for adoption, as it is possible to learn by doing.

5) Observability is the degree to which the results of innovations are visible to others. The easier it is for individual to see the results of innovations the more likely they are to adopt. (p. 15)

In addition, the innovation will take time before it reaches critical mass within the halls of academia.   Dewey (1997) insists that the principle of continuity of experience in which all knowledge is based on experiences and these experiences are altered based on the new experiences. The intersection of tradition canons of scholarship and digital scholarship allows scholars to develop intellectually and enhance their presence within their professional communities. Hagner and Schneebeck (2001) suggest that professors are willing to adopt innovations because of the possibilities that they can influence the intersection of teaching and learning. However, Dewey (1997) affirmed that many studies have shown that once teachers have finished their initial training, they do not take the initiative to improve their practice and learn new skills. Hagner and Schneebeck (2001) feel this is a possible quagmire and that the standards of scholarship may not be acquired because of a lack of organized materials and ideas that promote new insights and content to research and teaching.

Digital Scholarship Issues and Obstacles

The intersection of Roger's diffusion of innovation and Boyer's scholarship reconsidered. It is imperative to establish the relationship between Boyer's model of scholarship and Rogers's diffusion of innovation. It is important to know Roger's discussion of relative adoption includes how fast the members of a social system are willing to commit to change. This is important to know because it is well established that academics have been slow to recognize the benefits of adopting alternative forms of scholarship. In addition, Rogers's rate of adoption is guided by the desire to gain social status. Even in the digital age many academics

still believe acquiring the profession status of scholar can only be accomplished primarily by being published in traditional peer review journals.

The intersection of Boyer's model of scholarship and Roger's diffusion of innovation is the chosen model for this study because of how the infusion of digital produces, services, and activities have permeated all aspects of teaching, learning, and research. Boyer could not anticipate the explosion of digital technology and the impact they would have on teaching, learning, and research. However, his model could not be timelier with academics' adoption of digital technology. Boyer was correct when suggesting more flexible methods of appraising scholarship. His model allows for the integration of digital products, services, and activities into the culture of digitally connected learning spaces. Roger's diffusion of innovation provides a framework for the difficulties scholars have when restricted to standards that may not meet the creative flexibility that is capable with the adoption of digital scholarship. Both Roger and Boyer understand that change is necessary but not easy to achieve when the culture of scholarship is historically rooted in traditional research and print publishing. These options are quantitatively easy to define as scholarship that makes adoption of digital technology difficult. Digital products, services, and activities allow for creative interaction with the diffusion of digital medias. These digital technologies allow for sharing knowledge, the construct of new ways of engaging knowledge and collaboration across disciplines by designing online digital presence. The findings of this study provide insight as to how experts view the possible application of scholarship in digitally connected learning spaces.

Rogers determined five attributes that establish the rate of adoption. The five attributes are relative advantage, compatibility, complexity, trialability, and observability. This section

will review how Boyer's model of scholarship intersects with Rogers's Diffusion of Innovation theory.

Roger's relative and comparative advantage and Boyer's scholarship of discovery.
Roger's relative advantage intersects with Boyer's scholarship of discovery because discovery is inclusive of the entire process of knowledge creation, research, and knowledge sharing. Comparative advantage is how the innovation provides a greater benefit to the user than what is commonly accepted. It is Boyer's belief that the investigative aspect of research should have greater depth with discovery. Scholars can design and engage in digital activities such as webinar and the construct of digital products with the usage of videos and moots. These digital technologies allow for alternative forms of knowledge sharing, teaching, and learning that can provide a greater exchange of fresh ideas that contribute to the development of reflections that can filter into the discovery process.

Roger's observability and Boyer's scholarship of teaching. Observability is the ability to share innovation with others in the field. Observability provides the view of how innovations are diffused, shared, and made visible to a scholar's professional community. The resulting digital products, services, and activities can be immediately disseminated to peers for further review and discussion. In addition, digital products can be designed as living document allowing for online revision and collaborations. Scholars can use digital products to share in real time and or webinar instruction to assist in perfecting their craft.

Boyer's scholarship of teaching applies a broader stroke with the brush by discussing teaching, learning, and service as an active engagement. The scholarship of teaching allows for knowledge sharing and the construct of knowledge for both the teacher and the learner to share using digital products. Of which, both subjects have the ability to enrich themselves by

interacting in digital spaces such as webinars, videos designed for sharing specific content, and for online collaborative interactions. In addition, scholars can use digital technologies for real-time or recorded observation for peers while in actual or virtual learning spaces. However, observability is not an easy task to accomplish. Policy makers and change agents may restrict the value of this interaction and may not consider the digital product to be worthy of being called scholarship because it lacks standard specifically designed for digital content. In addition, there are concerns whether it is possible to develop digital standards that support diffusion of both the arts and sciences. Digital technology has broadened this landscape by allowing knowledge to be shared online in various forms such as blogs, repository, and websites.

Roger's compatibility and Boyer's scholarship of integration. Rogers's argues that compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters. Change agents and policy makers must share in experiencing empathy with the adoption of digital products, services, and activities to assist in determining what digital technology offers the best practices that are in line with the institution's goals. Boyer's model of scholarship of integration is in line with Roger's compatibility. He suggests that integration includes how scholars would exchange knowledge with other scholars, which can provide a more comprehensive understanding of the research. Although Boyer did not predict the usage of wikis, blogs or online collaborative spaces, these digital technologies allow the academic the opportunity to collaborate with peers globally to establish a broader perspective of the findings. Boyer clearly states that professorate is in need of a change and has been stagnating for many years. One of the concerns is can specific standards be designed and applied to digital products, services, and activities that can meet the criteria of traditional scholarship. Although there are great strides in the construct of digital

products, services, and activities, there are still limitations on the institution's adoption of multiple forms of scholarship that can be applicable for promotion and or tenure.

Complexity. Rogers's complexity attribute entails the potential complications anticipated with the adoption of digital scholarship. As mentioned in the literature review all new digital products may not apply to the institution goals or meet the needs of the scholar. There are issues such as digital literacy, training, and changes in the status quo. It can be challenging for some scholars and institutions to abandon tradition methods of scholarship such as the printed peer review journal. In addition, there are concerns about having the confidence to venture into creating digital products. For example, learning how to create a podcast, videos or webinars may require more effort than the scholar is willing to commit to when being assessed for promotion or tenure. Boyer elaborates that the issue of complexity applies when there is difficulty implementing and evaluating multiple methods of scholarship (Boyer, 1990). In addition, he discusses the issues scholars face when balancing teaching and research and how best to address the needs of students. The culture around students born when Boyer wrote *Scholarship Reconsidered* are different from today's students who are digital natives and interact daily in online digital space. 21st-century learners, who have adopted and have experience with the integration of digital products, services, and activities, are challenging institutions.

Roger's Trialability and Boyer's Scholarship of Application

Rogers's discussed trialability as when the participant is granted time to test the innovation (Rogers, 2003). However, some of the complication with Trialability is the institution may require specific methods of how innovation can be applied to scholarship. Boyer states that it is a known fact that what is considering scholarship is well defined by the institution. The policy makers and change agents may restrict what digital product or activities

constitute scholarship. Boyer suggests that ideas be presented in non-specialists language (Boyer, 1990). This allows the research to reach a wider audience. Therefore, scholars should be provided more opportunities to be creative and to experiment with different digital products, services, and activities. Policies should not restrict the potential that digital technologies can unleash in digital learning spaces as well as integration into tradition brick and mortar academic spaces. This flexibility would place a greater emphasis on future research, learning, and teaching opposed to a single measurement of scholarship blanketed over an entire institution. The scholarship of application based on Boyer's suggestion of greater flexibility in appraising scholarship would grant the scholar the opportunity to try various digital products, services, and activity before making an adoption decision. After that, scholars would be able to differentiate between what are citizenship activities and activities related to scholarly investigation and or teaching. In addition, trialability prevents the possibility of over adoption. Over adoption occurs after committing to an innovation and after that, the experts agree that the particular innovation may not meet the needs of the user. Therefore, it may be imperative for change agents and administrators to negotiate trial periods before fiscally committing to any digital product, service, or activity before an institutional adoption.

Boyer's Model and the Acceptance of Digital Scholarship

The research has shown that scholars do not agree as to what particular digital products and service or activity is more efficient than another. The design of one digital product may not be representative of scholarship within another discipline (Cheverie, 2009). The overall issue is that the digital product might not always be able to convey the ideology of scholarship from the natural sciences to the social sciences. Lynch and Carleton (2009) argued,

Digital technology offers new and expanded doors and windows in those walls, different

means of entrance, egress, and travel. Identifying potential collaborative opportunities

and then developing partnerships to build stronger collections of digital resources has

advantages for all the partners and benefits the clientele of all the institutions involved in

the collaboration (p. 105).

Technology has now filtered into the humanities department because of its ability to analyze

large amounts of data that at one time made research arduous (Straub, 2009). Straw (2009)

contends the cornerstone of all research is the result of scholars collaborating to produce

verifiable data. Cheverie (2009) discussed the growing trend and quagmire when private

organization fund research with a caveat that the data may be shared with other scholars before

publication

Borgman addresses a critical issue regarding the life cycle of digital products, services,

and activities that are overlooked in the adoption of digital technology. Borgman (2008) argues

about the longevity (life cycle) of data and how its adoption (diffusion) shaped the development

of cyberinfrastructure. Cyberinfrastructure is the nomenclature applied to digital research that is

rich with data as a result of collaboration for knowledge sharing. She elaborates on the value of

the digital chain (Lynch & Carleton, 2009), which involves how information originated before

digitalization. In addition, she explores how textual knowledge must be converted into digital

products. Borgman (2008) contents that a digitization of a PDF posted online is not truly a

digital product but merely a text document which lacks the full range of a document created

complexly in a digital format which can include graphics, animation, video, audio, and links. In

addition, Borgman (2008) contents that although there will be extensive amounts of digital

spaces available as time progresses. This is limited due to copyright laws. In addition, search engines that profit from providing access to their repositories may restrict access.

Wilbanks (2008) anticipates an increase in accessible data with the creation of more digital products. Online analytics will provide insight into behaviors that were unimaginable in the past. Lynch and Carleton (2009) stated it is not just, about what scholars do. It is also, how they related and interacted with their scholarly record.

Today many scholars are exploring digital scholarship by learning how to write code as a means of controlling how users interact with content and circumventing traditional monographs by self-publishing their findings. As the interface design becomes more challenging and limitation develops from the selected digital spaces, scholars are finding the need to collaborate with libraries, media specialist, and division of technology (Borgman, 2008). These experiences are altering how we interact with institutional research libraries. Now it is apparent that the vision for how digital spaces are accessed, distributed, and stored must be reevaluated in order to meet the standards of scholarship (Lynch & Carleton, 2009).

The potential impact of using digital technologies for scholarship will be restrictive unless a standard of appraisal is designed that is based on their implementation (Lynch & Carleton, 2009). Burdick and Willis (2011) declare, "by learning how to teach a phenomenon, one learns about the phenomenon itself" (p. 71). This process requires the scholar to interact with the phenomenon of digital innovation by engaging the experience of situated learning (Pea & Gomez, 1992) to actively engage the community of practice for the facilitation of digital scholarship for promotion and tenure.

All members of academia would like their tenure to influence their legacy constructively (Boyer, 1990). Thus, by utilizing the social aspect of adopting digital space, this action affords

the actor the chance to interact with other scholars and universities to learn to construct

alternative forms of scholarship in a non-restrictive online global environment. This interaction

within digital spaces is where scholars learn to negotiate meanings of diffusion and innovations

and better appraise the construct of digital product. Lave and Wenger (2003) may classify this as

intersectional innovation because the canon of scholarship has the potential to become

completely disrupted. Essentially, how we view scholarship will be influenced because of the

potential of interjecting designs that cannot be constructed using tradition methods.

Intersectional innovation does not require expertise in the creation of digital products, nor does

the innovation have to originate from a likely adopter, only that the diffusion changes the status

quo of the culture of scholarship substantially. The ingeniousness of the innovation makes it a

phenomenon.

Leslie Jr (2007) studied three-physic researchers communication and how they

negotiated the phenomenon of blogging as a digital space for scholarship. Kjellberg (2009)

argues,

It is not only the blog itself that is important; one needs to see the blog as part of a wider

context of scholarly communication practice and hence also to emphasize the role of the

blogger as a researcher. Some of the postings might be comparable to papers as stand-

alone units whereas the blog as a whole is equivalent to a journal with a structure that

binds the content together. (p. 12)

Kjellberg (2009) implied the research blogs are compatible with situated genre, which he equated

to scholarly communication.

Lynch and Carleton (2009) correlated diffusion of innovation theory to discuss the

relationship between technology and the academic profession. His study focused on the

influence technology would have on the professoriate and how acceptance or rejection of technology could change how scholars define scholarship. He applied Rogers (2003) theory of diffusion of innovation whereby adoption or rejection of innovations occurs at different times during the diffusion process. Baldwin (1998) suggested early adopters usually have a vision and are willing to take a chance on the implementation of new technologies into their practice. They are confident and optimistic while favoring the opportunity to change. Baldwin held that technology has changed how geographic, or communication limits no longer restrict research and collaboration. The adoption of these digital products is still hindered by the lack of institutional technological support, increased workload, primary functions of a professor and underestimation of the difficulty in adopting new technologies (Rogers, 2003). However, acceptance of technology innovations has the potential to increase the occupational possibilities of scholars that utilize digital spaces by removing physical and geographic limitations associated with traditional methods of interaction.

Academicians who accept the responsibility of being the visionary when applying technology to their practice have the experience to assist others in the adoption of alternative forms of scholarship. Thereby, they benefit by taking on this new role and therefore enriching their skills and knowledge (Baldwin, 1998). Early adopters are likely to have an impact the closer they are to members of their network that contribute to their portfolio (Baldwin, 1998). In addition, Baldwin (1998)thought that academia should only adopt digital products that contribute to the advancement of learning, but he warns us that academics should tread lightly and not feel compelled to experience every digital product that avails itself. In addition, peer review journals and scholarly communication, learning and teaching is changing expeditiously as these spaces and activities are being conducted online with the usage of digital products (Pöschl, 2004).

However, It's one thing to give scholarship a larger meaning, but the real issue revolves around how to assess other forms of scholarship (Glassick et al., 1996, p. 20). No industry or institution is free from the impact of global adoption of online and mobile interactions. Academic institutions are grappling with how to integrate digital products, services, and activities within digital learning spaces while maintaining the rigor and knowledge required of the perspective disciplines (Moxley, 2001a). If digital products support and or enhance integration, application, and teaching as legitimate forms of scholarship, then the academy must evaluate them by a set of standards that capture and acknowledge what they share as scholarly acts (Glassick et al., 1996).

Concerns with Digital Diffusion of Institutional Repositories

There is an ongoing discussion regarding digital repositories by academia. The debate includes quality of content selection and legal rights by writers, publishers, and factors of authenticity (Jones & Laffey, 2000). The issue surrounding diffusion of institutional repositories, and their contribution to scholarship presents obstacles that have hinders university and colleges from investing into an alternative form of scholarly publication, distribution, storage, and knowledge sharing.

Preservation of digital materials is not simply a technical issue; there are legal, economic, and organizational factors to consider (Link & Scholtz, 2000). Ware (2004) added to this debate suggesting that the legal issues of ownership, copyright, and cost must be considered. In addition, academician's level of participation and responsibilities should be added to this conversation. Although many publishers are currently keeping archives of their digital material, most would admit that their interest in such archives is inextricably and understandably linked to its commercial potential, which is considered to last for no more than ten years depending on the subject area (Russell et al., 1999).

Chan examined how institutional repositories acquired scholarly artifacts and how academic institutions benefits from adding these artifacts to their repositories. In this conversation, it should be noted that institutional libraries are facing higher subscription cost but, in fact, are receiving fewer materials for the expenditures. Chan (2004) stated,

Institutional repositories could play an important role in supporting alternative forms of journal publishing and novel forms of digital scholarship in the humanities and social sciences. By preserving and making accessible academic digital objects, datasets, and analytic tools that exist outside of the traditional scholarly publishing system, institutional repositories also represent a recognition of the importance of the broader range of scholarly material that is now part of the scholarly communication process and record (p. 295).

It was concluded that all facets of higher education have the responsibilities of planning and designing open access institutional repositories because they are a cost efficient alternative to traditional management and dissemination of textual scholarship (Chan, 2004).

Chan (2004) argues, as digital collections grow, opportunities for new internal and external partnerships will frequently occur (p. 112). Wilbanks (2008) refutes this assertion since digital objects do not in most senses care for themselves as well as books do, greater resources will need to be devoted to their care. Since maintenance of digital objects will be expensive, policies for acquiring digital objects must become more rigorous than policies have traditionally been for purchasing books.

Straw (2009) argues that thesis and dissertations should be readily available online and that universities that do not adopt these changes could see decreased enrollment. He believed that faculty and students would relish the opportunity to develop new models and genres with the

adoption of electronic thesis and dissertations (ETDs). Burdick and Willis (2011) believe by

requiring graduate students to publish thesis and dissertations in digital libraries, universities

significantly increase access to student research. A document that can be read over the course of

several years by many people is preferable to a document available for a million years and read

only by a few people. (Moxley, 2001b) agrees that scholars would like their research and

findings to be available to other scholars who provides them an opportunity to acquire the

respect and distinction of their peers.

In addition, Moxley (2001b) stated, digital thesis and dissertations would reduce the

cost of publishing while at the same time expanding access to materials, broader recognition

from peers and introducing students to self-publishing. Also, citation rates must be included in

this discussion. They often measure recognition of work, whether by citations to individual

publications or to journals in which the work is published Borgman (2008).

Moxley (2001a) asserts, over the next decade and beyond, scholars will be learning

how to express themselves' digitally. As they do, digital documents will become increasingly

important. At the same time, digital modes of storing and retrieving text appear to be

significantly less expensive than print, and so more information seems likely to be distributed

digitally. Pearce (2010) stated,

> The once distinct walls of individual repositories of knowledge are blurring or completely
>
> disappearing as libraries, archives, and other historical, cultural, and educational
>
> institutions can combine resources for virtual access while still maintaining ownership"
>
> (p. 107).

Libraries have led the digital scholarship movement by organizing and delivering digital

content (Somekh, 2010). In addition, Straw (2009) believes that as a result of digital scholarship,

libraries in higher education are going to evolve into the new state of the art learning spaces.

Digital Collaboration in Online Learning Spaces

Digital spaces now have the ability to construct digital repositories from both textual

scholarship and emerging digital peer review journals. The possibilities are endless if scholars

are willing to use digital products for the design and construct of digital products, services, and

activities when developing new digitally supported pedagogy. However, the commitment may

require that scholars interact in these digital spaces by revealing aspects of their personal lives

that may never have occurred in traditional learning spaces. With the adoption of digital

scholarship peers and student, relationships have the potential of becoming multifarious

(Greenhow et al., 2009). Factors that could change traditional publishing are how we interact in

shared social spaces and social network's impact on research data (Scanlon, 2014). New Media

Consortium (NMC) 2014 Horizon Report indicated,

> Social media is changing the way people interact, present ideas and information, and
>
> judge the quality of content and contributions. More than 1.2 billion people use
>
> Facebook regularly according to the numbers released in October 2013; a recent report by
>
> Business Insider reported 2.7 billion people — almost 40% of the world population
>
> regularly use social media. The top 25 social media platforms worldwide share 6.3
>
> billion accounts among them (Johnson et al., 2014, p. 8)

The vast numbers of participants and the mass adoption of digital social networks must be

recognized (Kietzmann, Silvestre, McCarthy, & Pitt, 2012) as a resource and as a digital space

for scholarly collaboration (Konkiel & Scherer, 2013). Cleary et al. (2012) argue that online

social networks have proven to be invaluable in how research can be shared while providing self-promotion, which poses a challenge to the lethargic traditional peer review process. Scholars that interact in these spaces do so to gain greater exposure to their peers by circumventing tradition dissemination of data methods (Nández & Borrego, 2013). Social software and online network spaces allow for accelerated social interaction with a broader group of peers (Gruzd et al., 2011). It should be noted that even today these social networks have not matured enough to know if they will be widely adopted (Ackland, 2009). Scholars are repurposing non-academic digital products to construct scholarly digital products while participating in digital academic spaces where they are sharing knowledge, resources and personal narratives (Veletsianos, 2011).

Brown and Lippincott (2003) argue for a reevaluation of learning spaces to accommodate digital interactions. Interactions potentially occur in unplanned public spaces, virtual learning spaces, and digital social networks. This supports the concept that "new discoveries, world-changing discoveries, will come from the intersections of disciplines, not from within them" (Johansson, 2006, p. 26). These words ring true today, regardless of one's academic discipline. The context of scholarly research creativity can be defined as the degree to which one's body of work contains novel or original, and potentially valuable, ideas or approaches. There appears to be a strong similarity between this view of creativity and the academic notion of contribution, which is the ultimate goal of a scholarly contribution (Smaby & Crews, 1998). Johansson (2006) suggested, "individuals, teams, or organizations step into the intersection by associating concepts from one field with concepts in another" (p. 15). Scholars and researchers are interacting in these intersections of innovation with online digital products and traditional pedagogy to explore ways to: enhance the learning experiences, transfer knowledge and content, construct communities of practice, global collaboration, and to connect

with peers and friends, as well as creating a digital persona. In spite of all this, peer review

publication is still the foundation that scholars must bow to for recognition and advancement

(Seringhaus & Gerstein, 2007).

Kietzmann et al. (2012) conducted a study based on diffusion of innovation at a small

university to identify those characteristics of instructional technology that may influence a

faculty member's willingness to integrate it into his or her teaching. The objective of the training

was to have a 25% increase in faculty's participation in the university's course management

system (Baldwin, 1998).

When the 30 weeks training was completed, the overall attitudes towards accepting the

integration of the product showed a significant favorable increase with the adoption of the digital

product. This increased the belief in the usefulness of computers as instructional tools, enhanced

belief about improving student's learning experience, and a positive shift with individual faculty

members general attitude towards technology. This assertion was favorable from those who

intended to use the product as part of their pedagogy.

Bennett (2002) concluded that the success of the training was the ability to remove

barriers that inhibit adoption that is grounded by diffusion of innovation theory. Adoption was

accepted when discussing the relative advantage of instructional technology, and offering

demonstrations of how the technology can be utilized to enhance teaching, and learning. It

provides participants with the opportunity to test drive the technology, giving consideration to

the participant's level of comfort with technology, and showing that the technology agrees with

the participant's values and philosophies of teaching.

Bennett (2002) applied diffusion theory as a framework for another study and

development of a model for classroom implementation of collaborative technologies. The

research question addressed how innovations diffuse throughout an educational institution to improve classroom learning processes and the learning and application of concepts. A traditional class of 16 M.B.A. students participated in this 16-week research project. The findings indicated that using digital collaboration could help to improve productivity and organizational performance while reducing costs by allowing people to share resources, reduce redundant processes, and create synergies by sharing knowledge and ideas (Bennett & Bennett, 2002). They also found that resistance to the tool by new users depended on how closely it matched current practices as well as the presence and familiarly of optional communications devices. Successful adoption, diffusion, and implementation of this new technology into an educational setting especially in a business class may be a function of the students' perceptions of several variables. These include its relative advantage benefits over existing technologies, how well it fits in with their existing work routines, the adequacy of training, the complexity and ease of use of the new technology, and incentives to learn and use the new system routinely (Jones & Laffey, 2000).

Scholars who have adopted the construct of digital products, services and activities are exploring alternative methods to disseminate their studies as a means of circumventing traditional publishing models (Burdick & Willis, 2011). Digitalization is allowing scholars to contribute more unpublished findings for scholarly peer review (Straw, 2009). Chan (2004) concurs that "to ensure that the digital fruits of your labor are sampled by as many people as possible, the results need to be widely publicized to the constituencies of each of the partner institutions" (p. 113). This assertion supports Shulman criteria that a scholar's work must be public. Lynch and Carleton (2009) discuss that scholarship once restricted to monograph are now design with digital products. The facilitation of new products can expand one's practice.

However, sometimes the interface of digital products often requires the collaboration of the IT department.

There is a growing debate that digital space can constructively alter how academic communities interact and for the assessment of tenure (Veletsianos & Kimmons, 2011). Moustakas (1994) argues "a community of practice is an intrinsic condition for the existence of knowledge, not least because it provides the interpretive support necessary for making sense of its heritage" (p. 98). Scholars and researchers are expanding their membership outside of traditional brick and mortar communities of practice to enrich the experience of knowledge sharing and knowledge creation. For example, many are using products and services that include blogs, online academic and professional communities, Wikis and social network sites to query ideas and find collaborators. However, it is not exemplified in today's model of scholarship of how the phenomenon of using digital products is changing the experiences of discovery, application, integration and teaching. Dewey (1997) specified, "everything depends upon the quality of the experience which is had" (p. 27), however, Dewey also elaborated that all experiences are not admirable or contribute to positive learning. The inherent quality of the sensory experience may stimulate a scholar's willingness to diffuse digital products, services and or activities for the construct of what they believe to be a form of digital scholarship and also to gain the respect and admiration from his or her peers. However, the issue remains; if what was constructed can be appraised to qualify as a shared experience worthy of being called scholarship.

Lynch and Carleton (2009) support the assertion that diffusion of innovation contributes to the success and promotion of scholarship while providing favorable experiences. However, they are clear that the adoption of digital products or digital spaces may not meet the standards of

scholarship. In addition, diffusion of innovations does not mean to abandon traditional canons of scholarships. It is still the core of the experience that allows for the growth, creation, and application of digital products resulting in digital scholarship.

Diffusion for the Design of Digital Products

When the World Wide Web was first developed in the early 1990's, it was impossible to envision the uses to which it has been put today (Ball, 2004). Often the interaction with digital products will result in digital spaces that were never intended by the designers (Ball, 2004). Cheverie (2009) asserted,

> What we now call 'Googling' is much more sophisticated than anyone could have imagined from using one of the early search engines. The rapid and widespread adoption of sites like Facebook and YouTube has fundamentally changed the way we understand communication and publication. (p. 134)

Kjellberg (2009) researched into the explosion of blogging and indicated that adoption of the digital tool would foster change in mainstream media. It was found that as more researchers entered the blogosphere, it no longer represented what an institution considers as being scholarship. These interactions did not fit the mode of the traditional model. The reason for this disparity is the evaluation of digital products, services, and activities are based on traditional paradigms.

Straw (2009) conceptualized that adoption of digital scholarship opens the door for academicians and designers. Both should consider the implication of the interphase and how the digital dissemination increases knowledge sharing. Scholars will have the ability to use digital products to create living documents that can be shared, collaborate, and updated with the usage of not only words but images, audio, video, and animated graphics. Future scholarship will

create intersections where the integration with digital products, digital spaces, institutions, and agencies are the norm. No longer will scholars be studying the impact of using digital products to design and construct an alternative form of scholarship; digital products, services, and activities will be the instruments that will redefine the canon for how knowledge is shared in learning spaces (Friedberg, 2009). In time, the institution will have studied how scholars learn and teach in online spaces. These scholars who adopt digital scholarship and alternative forms of knowledge sharing will be able to provide valuable insight as to the quality of the work and the construction of digital products worthy of being classified as scholarship.

However, Burdick and Willis (2011) cautiously stated time is essential because of the lack of standards and consistently changing coding. The concern is the time needed for scholars and designers to agree on a viable format that is sustainable over time. Leslie (2007) suggested, "the possibilities for digital partnerships are unlimited" (p. 112), however, "institutions and individuals can conduct successful projects solely on their own" (p. 115).

Diffusion of Digital Services

Virtual presence is directly associated with a desire to communicate synchronously, engage with others in real time, and have more influential interactions (Kjellberg, 2009). In today's digitally connected world, we now have the ability to share, inform and exchange knowledge information, collaborate globally in real time, and develop virtual communities of practice. Using digital spaces for virtual collaboration allows scholars and researchers the opportunity to think together and share thoughts, thus allowing the construct of digital products, services, and activities to come to a realization. In addition, the technology allows the exchange of knowledge and information twenty-four hours seven days a week all with the click of a button, the swipe of a finger, and or with mobile devices. Those scholars who can derive

intrinsic motivation will be supportive of the diffusion of innovations in the construct or usage of digital products, services, or activities (Moser, 2007).

Jones and Laffey (2000) queried 225 postgraduate students of the Continuing Medical Education program to rate the importance of having the Internet in their postgraduate center (centers), Internet availability, and usage patterns. The findings indicated access to the latest research information as the most important. Support for evidence-based medicine and access to information not yet available in the printed literature followed closely. However, librarians being the primary users and with access and support to their clients is often limited. In addition, the lack of funds and certain policy emerged as important barriers to progress (Jones & Laffey, 2000). They concluded that librarians were in the best position to provide digital services and activities in the training and application and construct of digital products.

Another development is the opportunity to establish communities of practice to support the usage of digital products, services, and activities as a mean for students to improve their writing skills (Martin, 2009). By creating an online community of writers, universities also improve the likelihood that students will complete better written, thesis and dissertations that are more relevant. Cheryl Ball argues that new methods of delivering scholarship can be aesthetically superior to traditional methods, and these digital spaces should be an acceptable alternative to textual scholarship (Moxley, 2001a). Burdick and Willis (2011) argues that many of the scholars that do experiment with digital scholarship seldom deviate from the tradition structure of monograph. The very construct of new media scholarship lacks a standard that includes video, blogs, audio, and images that allow scholars to derive meaning from it. Ball's (2004) assertion is for authors to be allowed to use the full spectrum of digital products opposed to relying on peer-review journal publications (2004).

Summary

Scholars are integrating digital products, services, and activities while often simultaneously collaborating in digital spaces as an intricate aspect of the construct digital scholarship opposed to traditional models of teaching, learning, research, and publication. Many are using multiple digital platforms to communicate their ideas and self-promote research findings while bridging and expanding their academic community.

However, these diffusions are still problematic because adoption has not equated to acceptance by many of their institutions and peers. There is no denying that adoption of digital products, services, and activities and the collaboration in digital spaces over the past twenty years have dramatically altered the way we share knowledge for teaching, research, and learning (Hanley, 2001). It may be time to acknowledge the benefits of the diffusion of innovation of digital scholarship and the contribution made to learning and in higher education. Today it is possible that most digital products, services, activities and online collaborations can meet the standards of scholarship (Burdick & Willis, 2011). The issue facing higher education is no longer how interacting with digital technologies contribute to learning, but the discussion should include how these alternatives will change policy and how we perceive digital scholarship (Diem, 2000). Questions arise as to whether alternative forms of digital scholarship can circumvent the current majority measurement of scholarship, which is still the peer review journal. Burdick and Willis (2011) support the belief that scholars from various fields that have adopted digital technologies should be responsible for blazing the trail on the design and interaction of the future of digital scholarship. Their experience with repurposing digital products is what is needed in order to broaden the horizon of scholars. The literature presented shows how diffusion of innovation of digital products, services and activities are being

reinvented to meet the needs of today's scholars. Philips (2007) defines reinvention as the "degree to which an innovation is changed or modified by a user in the process of adoption and implementation" (p. 17).

Burdick and Willis (2011) affirm that to appraise digital scholarship for tenure and promotion, we must understand the impact digital products, services, and activities, and how collaboration in digital spaces has changed the perception of scholarship. In addition, it has altered the business model for monograph and the methods of distribution. It is their assertion that forces the debate on how digital products, services, and activities are changing how we view scholarship today and helps decide what the best methods for appraisal are. Faculty members who have adopted digital scholarship are still disputing that their work is still not receiving the same merit as traditional scholarship (Rogers, 2003). Report of the MLA Task Force on evaluating scholarship for tenure and promotion (2007), added that for widespread adoption of teaching innovations to occur, a holistic approach needs to be taken for integrating educational technology throughout the entire curriculum, and reconsidering assessment practices and policies. In addition, leadership from senior managers and heads of school will be crucial if these initiatives are to succeed.

The intersection of Boyer's model of scholarship and Roger's diffusion of innovation is the best model to explore this study. Although Boyer could not anticipate the explosion of digital technology and the impact they would have on teaching, learning, and research. Boyer was correct when suggesting for more flexible methods of appraising scholarship. His model allows for the integration of digital products, services, and activities into the culture of digitally connected learning spaces. Roger's diffusion of innovation provides a framework for the difficulties scholars have when restricted to standards that may not meet the creative flexibility

required of digital scholarship. Both Roger and Boyer understand that change is necessary but not easy to achieve when the culture of scholarship is rooted in traditional research and print publishing. These options are quantitatively easy to define as scholarship, which makes adoption of digital technology difficulty. Digital products, services, and activities allow for creative interaction with the diffusion of all digital medias. These digital technologies allow for sharing knowledge, construction of new ways of engaging knowledge, collaboration across all disciplines by designing online digital presence. The findings of this study will provide insight as to how experts view the possible application of scholarship in digitally connected learning spaces.

Chapter Three: Methodology

This Delphi study consisted of the opinions of experts in the field of higher education.

The focus of this study is how members of academia use digital products, services, activities and

online collaborations of an academic nature as an alternative form of scholarship. The resulting

digital products, services, and activities should contribute to scholarship by creating new

knowledge through the process of discovery and inquiry. This includes digital technologies for

the purposes of knowledge sharing, integration across the disciplines, learning and teaching in

public or learning spaces.

Restatement of Research Questions

RQ1: According to a panel of experts, does faculty construction of digital products such

as academic blogs, and or professional activities such as engagement with colleagues in online

digital spaces represent the future of academic scholarship in higher education?

RQ2: In what ways, if any, should digital products, services, or activities of an academic

nature influence promotion and tenure policies?

Research Approach and Design

The Delphi technique is a coordinated process that applies a sequence of surveys or

rounds to collect information (Boulkedid, Abdoul, Loustau, Sibony, & Alberti, 2011). The

Delphi process can continue iterations until it achieves a consensus (Hsu, C.-C., Sandford, B.A,

2007, p. 2) or until it appears that the respondents may not agree with the collective opinions of

the participants. In this study, the experts answered the same question at least twice in hopes of

achieving a consensus on the panel's opinion regarding the research statements. Experts are thus

encouraged to comment on their replies and the responses from other members of the group

(Okoli & Pawlowski, 2004). This Delphi study consisted of three rounds to achieve a consensus

among the panel of experts. If by the third round, a consensus was not achievable, the data

collection ceased, and the research statement received a code of non-agreement.

The Delphi method is a collective process with the goal of obtaining the most reliable

agreement of opinions by a group of experts by presenting a series of questionnaires and

providing controlled opinion feedback back to the participants (N. Dalkey & Helmer, 1963). The

Delphi method design is a way to interact with experts who can provide valuable insight as a

way to provide possible solutions to a problem (Linstone & Turoff, 1975).

"Researchers have applied the Delphi method to a wide variety of situations as a tool for

expert problem solving" (Okoli & Pawlowski, 2004, p. 16). "It attempts to achieve this by a

series of intensive questionnaires interspersed with controlled opinion feedback" (N. Dalkey &

Helmer, 1963, p. 458). The Delphi group size does not depend on statistical power, but rather on

group dynamics for arriving at a consensus among experts. The literature recommends 10-18

experts for a Delphi panel (Okoli & Pawlowski, 2004, p. 19). However, for this study thirteen

experts were selected for the panel. The crucial aspect of the Delphi study is maintaining the

anonymity or confidentiality of the participants from each other, which prevents any individual

from influencing the data (N. C. Dalkey, 1972). Although respondents are always anonymous to

each other, they are not anonymous to the researcher (Okoli & Pawlowski, 2004, p. 19).

However, this study is designed to provide anonymity for the participants. This was

accomplished by not including any identifiable markers in rounds two and three.

The Delphi analysis may be best at providing knowledge on the interactions of the first-

hand accounts of adopter's holistic view of how today's scholars mediate digital spaces for the

construct of online digital products as an alternative form of scholarship. The Delphi method is

an excellent way to learn about the vision of things that have yet to come (Cuhis, 2003).

Delbecq, Van de Ven, and Gustafson (1975) specify that the Delphi method can meet the

researcher's objectives when the process has the ability to do the following:

1. Determine or develop a range of possible program alternative;

2. Explore or expose underlying assumptions or information leading to different judgments;

3. Seek out information that may generate a consensus on the part of the respondent group;

4. Correlate informed opinion on a topic spanning a broad range of disciplines, and;

5. Educate the respondent group as to the diverse and interrelated aspects of the topic (p. 11)

Gordon (1994) propose

> The key to a successful Delphi study lies in the selection of participants. Since the results
>
> of a Delphi depend on the knowledge and cooperation of the panelists, it is essential to
>
> include persons who are likely to contribute valuable ideas. (p. 7)

The researcher collected data from scholars with experience from fully accredited institutions

that reflect the current growing diffusion regarding alternative forms of scholarship.

Data Collection

Selection of participants. The search for knowledgeable experts included a search

through the literature for those who have published about this study. The search included online

academic and or professional communities where scholars actively interact. The researcher

collected data from thirteen scholars that reflect the current growing diversity in today's

institutions of higher education. Once these scholars were identified, they were sent an email to

participate that included an anticipated start date. On the start date, the experts were sent an

email that included the informed consent and the questionnaire for round one.

Experts must have experience and or knowledge of any of the following classifications. They should have knowledge of Boyer's model of scholarship or the experience implementing Boyer's model of scholarship at their intuition. Experts can have experience with digital production of academic material, be an activate participant in an online academic community or attend and present at conferences within their studied discipline. They can be a regular contributor to the institution's repository. The participants can also be members of the research, promotion and tenure committee, and or a non-tenure or tenure published scholar. Experts can be academic administrators with responsibilities managing their institution's online presence or academic administrators with influence in policy decision regarding research, tenure, or promotion.

Demographics of Professional Information

The professional information is from the initial questionnaire from round one. Table 1 indicates the years of teaching and conducting research. Three of the experts have six to ten years, six experts have ten to fifteen years, two experts have fifteen to twenty years, and two experts have twenty or more years of teaching and conducting research.

Table 1

Years Teaching and or Conducting Research

	Count	%
0 to 5	0	0.00%
6 to 10	3	23.08%
10 to 15	6	46.15%
15 to 20	2	15.38%
20 or more years	2	15.38%
Total	13	100%

Gender Identification

Table 2 indicates the gender identification of the experts. Nine of the experts (69.23%) indicated themselves as females, and four (30.77%) experts indicated themselves as males.

Table 2

Gender Identification

	Count	%
Female	9	69.23%
Male	4	30.77%
Prefer not to answer	0	0.00%
Total	13	100%

Participant's Academic Career Paths

Tables 3, 4, and 5 are the main criteria for inclusion in this study. These experiences allowed the experts to voice their opinions with some form of authority.

Table 3. The responses to this question are based on the expert's collective professional responsibility for the course of their academic careers. However, this does not reflect their current position. It is a broad roadmap of the panel's career from the beginning to the present. Six are classified as non-tenured instructors. Seven are tenured track instructors. Four are contributors to their institution's repository. Eight have been members of their institution's research promotion and tenure committee. Ten consider themselves producers of digital academic materials.

Eight are active in online academic communities. Four have experience managing their institution's online activity. Twelve have presented at conferences

Table 3

Professional Responsibilities Past and Present

	%	Count
Academic Administrator	5	38.46%
Tenured instructor	6	46.15%
Non-tenured instructor	6	46.15%
Tenured track instructor	7	53.85%
Contributor to institution's repository	4	30.77%
Member of research, promotion, or tenure committee	8	61.54%
Producer of digital academic material	10	76.92%
Active in online academic community	8	61.54%
Manages institution's online activity	4	30.77%
Presenter at conferences	12	92.31%
Total	13	100%

Expert's Published Academic Writings

Table 4. This table includes the expert's experiences with various areas that pertain to the research questions in this study. These experiences allow them to form opinions based on their scholarly contribution and their knowledge of the peer review system. All thirteen of the experts have published in peer review journals, seven are self-published authors, seven have contributed to online repositories, twelve have written conference papers, six have written white papers, and twelve have published chapter submissions. Collectively the thirteen experts have fifty-seven forms of scholarly contributions.

Table 4

Published Academic Writing

	Count	%
Peer Reviewed Journal	13	100.00%
Self-Publishing	7	53.85%
Online Repository	7	53.85%
Conference paper	12	92.31%
White paper	6	46.15%
Chapter submission	12	92.31%
None	0	0.00%
Total	13	100%

Expert's Scholarly Contributions

Table 5 indicates the quantities of their scholarly contributions. These specific contributions allowed this panel of experts to identify with the specific areas being measured for this study:

Peer review publications: four have 0-5, three have 6-10, and six have 10 or more. Self-Publishing; five have 0-5, and two have 10 or more. Online repositories; two have 0-5 contributions, four have 10 or more contributions. For conference papers; three published 0-5 papers; two 6-10, and seven have 10 or more. White papers; six have published 0-5. Chapter submission: six have 0-5, three have 6-10, and three have 10 or more.

Table 5

Scholarly Contributions

Question	0 - 5	%	6 - 10	%	10 or more		Total
Peer Reviewed	4	30.77%	3	23.08%	6	46.15%	13
Self-Publishing	5	71.43%	0	0.00%	2	28.57%	7
Online Repository	2	33.33%	0	0.00%	4	66.67%	6
Conference paper	3	25.00%	2	16.67%	7	58.33%	12
White paper	6	100.00%	0	0.00%	0	0.00%	6
Chapter submission	6	50.00%	3	25.00%	3	25.00%	12
None	0	0.00%	0	0.00%	0	0.00%	0
Total							56

Procedures

Preliminary preparations. The experts received approximately seven emails from the inception to the conclusion of the study. The first email invited them to participate in the study. Once the sample size was achieved, the participants received an email with a link to Qualtrics online data collection containing the informed consent and round one of the questionnaire. The initial questionnaire was the lengthiest. It took approximately 20 minutes to complete. Subsequent rounds took approximately 10 – 20 minutes. It took about 15 weeks to collect data for all three rounds. When necessary, an email was forwarded to the participants thanking them for their participation and to remind them to fill out the instrument. After that, experts receive

approximately two additional rounds of questionnaires. The final email thanked them for participating.

Round One

Round one introduced a series of demographic questions about what qualifies the participants as experts. After that, round one consisted a Likert scale. A Likert scale allows the participants the opportunity to quantify response level of agreement or non-agreement of the proposed research statements. Open-ended questions succeeded the Likert scale question allowing the participants to explain the thinking behind their opinions.

The comments provided the data for round 2. Participants had to input send at the conclusion of each round. The researcher looked for commonalities and coded the data accordingly. Once coded, round one data provided data for the survey instrument for round two.

Preparing for round two. When preparing for round two, researcher included all non-consensus responses from round one into round two. Experts were asked to clarify or add to an opinion, comment or add strategies to implement idea when appropriate or suggest something new. The experts now have the opportunity to add or omit any information that they think is relevant. Where participants had not reached a consensus, the researcher consolidated the opinions and allowed the participants to review the responses. Whenever responses reached a consensus, they were classified as in agreement and removed from the round. After that, participants completed the Likert-scaled based on the consolidation of replies. Participant's responses are anonymous.

Round Two

In round two, all participants received an email thanking them for participating and to informing them when to expect the next round of the study. Five days later, the experts received

an email questionnaire based on the data collected from round one. Once again, the participants

provided their opinion based their levels of agreement and disagreement to the responses from

round one. It is round two where the participants begin to form a consensus based on the replies

from round one. Round two included all responses that lack consensus.

Preparing for round three. When preparing for round three, researcher reviewed the

data based on the opinions from round two. Round three included commonalities from round

two including comments, clarifications, strategies, and ideas. Areas of disagreement and

agreement become more prevalent. The responses where the experts did not receive a consensus

in round two provided the survey instrument for round three.

Round Three

In round three, all participants received an email thanking them for participating in the

study and to inform them when to expect the next round of the study. Five days later the experts

received an email questionnaire that included feedback and areas of disagreement from round

two. Participants use the Likert Scale to determine agreement or non-agreement in hopes of

establishing a consensus. Round three allowed the experts to elaborate or revise their opinions

and if necessary, change their critique of the questions from round two, evaluate feedback, and

suggest methods of implementation.

Analysis of round three. Data collection stopped when there was less than 80% non-

agreement, and the researcher did not expect participants to come to a consensus, and it appears

that participants have answered questions as accurately as possible. Round three consolidated

commonalities and attempt to identify opinions where 80% agreement is achieved, and to

provide insight into the reasoning and thinking behind the opinions. Any areas where the experts

do not show a consensus receive a code of non-agreement. Also, round three was the final round.

The final analysis of the data provided experiential commonalities based on the Boyer model of scholarship. In addition, possibly a vision for future applications, designs, and how experiences influence perception and mediation of the planning for alternative forms of digital scholarship.

Instrumentation

Qualtrics online data collection was the instrument used for both quantitative and qualitative data. The tool primarily consisted of fourteen Delphi method questions (See Appendix B) that allowed the experts to share their opinions of the diffusion of digital technologies for the innovation of alternative forms of scholarship and negotiation of digital appraisal. Informed consent is on the home page of the web-based survey. It stated that by clicking the button, you are agreeing to complete all three rounds of the questionnaire, thereby agreeing to participate in the study. No further consent was required in the subsequent rounds. The survey was emailed to all the experts once the planned sample size was achieved.

The literature review provides the information required to design the instrument. Quantitative data collection consists of a self-assessment web-based survey 4-point Likert scale. Participants wrote a brief comment to explain their opinion.

An example of the 4-point Likert Scale.

Strongly Agree   Agree   Disagree   *Strongly Disagree*

Combining categories occurred to improve scalability when appropriate. Strongly agree and agree = agree, and disagree and strongly disagree = disagree.

For many researchers, the most important thing is to record notes in a personal diary or log. That can include calendar, email address, analytical notes, and expenses (Stake, 1995). Carlson (2010) agrees that keeping observation field notes, journals, records, calendars, and various drafts of interpretations are all parts of creating audit trails and should be secure and filed for three years. The data for this study was coded, stored on a password-protected computer in the researcher's residence, and on cloud-based storage. In three years, the data will be destroyed.

Sample of the survey.

Section 1
Publishing: This section is about digital alternatives to published peer review journals.
RQ1 1) Publishing articles through online repositories dedicated to academic scholarships such as Research Gate or Academia, is as valuable as publishing in traditional peer-reviewed journals.   Literature Review reference and corresponding page numbers   (Glassick, 2000, p. 20)   (Chan, 2004, p. 46)   (Ball, 2004, p. 56)   (Joan F. Cheverie, Jennifer & Boettcher, & John. Buschman, 2009a, p. 31)   (Cleary et al., 2012, p. 49)
RQ 1   2) Digital products constructed by faculty, such as podcasts or online curricula are as valuable as publishing in traditional peer-reviewed journals   Literature Review reference and corresponding page numbers   (Boyer, 1990, p. 21)

(Glassick, 2000, p. 20)

(Seringhaus & Gerstein, 2007, p. 31)

(Smyrnaios & Rieder, 2013, p. 30)

(Straw, 2009, p. 54)

(Diem, 2000, p. 57)

Section 2

Assessment and Evaluation: This section's focus is on how the adoption of digital technologies influences the assessment and evaluation process.

RQ 1 3) A faculty member's online presence is as important as their print and conference presence.

Literature Review reference and corresponding page numbers

(Moxley, 2001a, p. 24)

(Seringhaus & Gerstein, 2007, p. 50)

(Kjellberg, 2009, p. 55)

RQ 1 4) The number of followers on a professor's blog or the number of views on a professor's video or podcast channel should determine its scholastic value, much as the science citation index did in the past.

Literature Review reference and corresponding page numbers

(Gruzd et al., 2011, p. 30)

(Kjellberg, 2009, p. 44)

(Moxley, 2001b, p. 48)

RQ 2 5) Research promotion and tenure committees should consider faculty digital products and online professional networking activities as part of the promotion and tenure portfolio.

Literature Review reference and corresponding page numbers

(Glassick et al., 1996, p. 18)

(Russell et al., 1999, p. 29)

(Seringhaus & Gerstein, 2007, p. 24)

(Moxley, 2001a, p. 45)

(Lynch & Carleton, 2009, p. 42)

(Lynch & Carleton, 2009, p. 44)

(Burdick & Willis, 2011, p. 56)

RQ 2	6) Colleges and universities should adopt specific standards for digital scholarship in addition to the traditional scholarship models.

Literature Review reference and corresponding page numbers

(Boyer, 1990, p. 19)

(Glassick et al., 1996, p. 19)

(Glassick et al., 1996, p. 21)

(Boone & Higgins, 2003, p. 31)

(Schmiede, 2009, p. 22)

(Burdick & Willis, 2011, p. 55)

Section 3

Promotion and Tenure: This section focus is the how digital product can have an influence on promotion and tenure with academic scholars.

RQ 2	7) Creating digital curriculum products such as video lectures or websites should impact the evaluation of an academic for tenure or promotion.

Literature Review reference and corresponding page numbers

(Cross, 2008, p. 28)

(Rogers, 2003, p. 64)

	(Brown & Lippincott, 2003, p. 56)

RQ 2	8) Faculty should maintain a digital portfolio to support promotion and tenure opportunities.
	Literature Review reference and corresponding page numbers
	(Johansson, 2006, p. 26)
	(Boyer, 1990, p. 17)
	(Friedberg, 2009, p. 55)
RQ 2	9) Endorsements and recommendations of professional talents as found in professional networks, such as LinkedIn, should be considered along with letters of support in the evaluation of an academic for tenure and promotions.
	Literature Review reference and corresponding page numbers
	(Glassick et al., 1996, p. 18)
Section 4	Scholarship as Service: These questions focus on Boyer's model of using digital products as a means of providing service as a form of scholarship.
RQ 2	10) Leadership roles in online academic communities through listservs or LinkedIn groups, professional organization forums, should qualify as scholarly service to an academic community or educational organization.
	Literature Review reference and corresponding page numbers
	(Boyer, 1990, p. 31)
	(Baldwin, 1998, p. 44)
	(Greenhow et al., 2009, p. 11)
	(Burdick & Willis, 2011, p. 57)

RQ 2	11) Academics knowledge of and ability to integrate digital products, services, and activities into their practice is the most effective way for sharing knowledge as opposed to the traditional face to face and brick and mortar teaching.

Literature Review reference and corresponding page numbers

      (Schmiede, 2009, p. 22)

      (Thomas, 2011, p. 25)

      (Boyer, 1990, p. 26)

      (Kaptelinin & Nardi, 2006, p. 26)

      (Bennett, 2002, p. 51)

Section 5

      Online Learning Spaces: This section focus is on alternative models of knowledge sharing in online learning spaces.

RQ 2	12) Interactions with students in online communities are as important as mentoring students face-to-face.

Literature Review reference and corresponding page numbers

      (Tuten & Marks, 2012, p. 25)

      (Johnson et al., 2014, p. 29)

      (Hagner & Schneebeck, 2001, p. 34)

RQ 2	13) A webinar should be accorded the same respect as an invited address or conference workshop.

Literature Review reference and corresponding page numbers

      (Johnson et al., 2014, p. 31 30)

RQ 1	14) Digital products have redefined the role of a scholar's responsibilities to teaching and learning.

Literature Review reference and corresponding page numbers

(Boyer, 1990, p. 21)

(Schmiede, 2009, p. 22)

(Quinton, 2013, p. 24)

(Burdick & Willis, 2011, p. 47 52)

Analysis Procedures for Data Interpretation and Achievement

Qualtrics analysis platform provided the structure for coding the responses. A narrative summary was made of the qualitative data indicating areas of agreement and non-agreement. Qualitative data was segmented where there were similarities in the narratives; for example, actions, feeling decisions, and opinions and where there is non-agreement.

In addition, the researcher focused on comments where the experts shared their expertise based on qualifying conditions. When conditions were not explicitly stated, conditions were identified when the conjunctions if, and, or, but was used in their opinions. Color codes were used to highlight similar conjunction, phases and descriptive terminology that referenced the same intentions. This color-coding was important to identify relationships with their peers where specific condition had to be met for diffusion to occur. Color-coding was implemented without discretion and regardless if the experts agreed or disagreed with each other. There were many instances when the experts might have disagreed with each other on the Likert scale but still concurred with their peer's suggestions and or recommendations in the open-ended question section of the questionnaire.

Validity and Reliability of Instruments

Validity is about whether the research is measuring what it intended to measure, or, alternatively, whether it is plausible or credible, and if there is enough evidence to support the argument. "Reliability in Survey research is about being able to ensure that if another person came along and did the same study, they would have the same findings" (O'Reilly, 2005, p. 227).

The researcher conducted a pilot study to test the validity of the questionnaire. Before the experts received the survey, a trial study was given to individuals that have knowledge of tenure and promotion policies, the construct of digital products, interaction in online profession networks and or online learning spaces. To ensure the reliability of data, researcher worked with advisor between cycles to code participant's responses based on commonalities.

However, the disadvantage of the Delphi process is the time it takes to complete the multiple rounds (Gordon, 1994). For this study, the participants had to complete a series of questionnaires in the midst of potentially having a busy work, the completion of an academic semester, and personal responsibilities (Boulkedid et al., 2011). In addition, the question arises as to who is an expert and what biases they have relating to the subject (Landeta, 2006). The process also can reduce the personal intonation of the participant's feelings (Linstone & Turoff, 1975). Common surveys try to identify "what is" whereas the Delphi technique attempts to address what could/should be (L. E. Miller, 2006). In addition, good researchers want assurance of what they are seeing and hearing. They want assurance that they are not oversimplifying the situation. Researchers worry that they are perhaps reading too much, into what they see. They want assurance that most of the meaning gained by a reader from their interpretations is the meaning they intend to convey (Morrow, 2005).

Narrative inquiry is concerned with human experience, thought, memory, and interpretation, all of which, by nature, are subject to continuous change and transformation (Clandinin & Connelly, 2000). "More specifically, the feedback process allows and encourages the selected Delphi participants to reassess their initial judgment about the information provided in previous iteration" (Hsu, C.-C., Sandford, B.A, 2007, p. 2). The researcher coded the responses into a single voice so that participants can focus on their main contributions and not be

distracted or embarrassed in seeing places where they were off topic. The researcher left the experts grammar and phrasing intact when suitable. This has the ability to establish a tone in the narrative (Carlson, 2010). Qualitative sampling is always purposeful because specific participants can provide the most information-rich data possible (Harvey, 2015). Purposeful sampling consists of individuals who have experience with the central phenomenon (Morrow, 2005).

IRB Considerations

The following steps were taken to ensure participant confidentiality and security. All participants had the right to speak off the record. A link for informed consent is on the home page of the web-based survey. The home page included a statement that acknowledges and guarantee the participant's rights once they start the investigation. Confidentiality means ensuring that what you hear goes no further (or is not attributed) to anyone who is identifiable (Carlson, 2010). Confidentiality maintains protection in the finalization of the study by numerically coding each returned questionnaire. Participants will be informed when the data is shared with the professional community.

Summary

Scholars are integrating digital products, services, and activities while often times simultaneously collaborating in digital spaces as an intricate aspect of the construct of digital scholarship. This is opposed to tradition models of teaching, learning, research, and publication. Many are using multiple digital platforms to communicate their ideas and self-promote research findings while bridging and expanding their academic community.

However, these diffusions are still problematic because adoption has not equated to acceptance by many of their institutions and peers. There is no denying that adoption of digital products,

services, and activities and collaboration in digital spaces over the past twenty years have

dramatically altered the way we share knowledge for teaching, research, and learning (Hanley,

2001). It may be time to acknowledge the benefits of the diffusion of digital scholarship and the

contribution the innovation has made to learning in higher education.

Today it is possible that most digital products, services, activities and online

collaborations can meet the standards of scholarship (Burdick & Willis, 2011). The issue facing

higher education is no longer how interacting with digital technologies contribute to learning, but

the discussion should include how these alternatives will change policy and how we view digital

scholarship (Diem, 2000). Questions arise as to whether alternative forms of digital scholarship

can circumvent the current majority measurement of scholarship, which is still the peer-reviewed

journal. Burdick and Willis (2011) support the belief that scholars from various fields who have

adopted digital technologies should be responsible for blazing the trail on the design and

interaction of the future of digital scholarship. Their experience with repurposing digital

products is what is needed in order to broaden the horizon for scholars. The literature presented

shows how diffusion of innovation of digital products, services and activities are being

reinvented to meet the needs of today's scholars. Philips (2005) defines reinvention as the

"degree to which an innovation is changed or modified by a user in the process of adoption and

implementation" (p. 17).

Burdick and Willis (2011) affirm that to appraise digital scholarship for tenure and

promotion, we must understand the impact of digital products, services, and activities and how

collaboration in digital spaces has changed the perception of scholarship. In addition, it has

altered the business model for monograph and the methods of distribution. It is their assertion

that forces the debate on how digital products, services, and activities are changing how we view

scholarship today and help decide what the best methods for appraisal are. The dispute remains that when faculty members integrate digital scholarship within their practice are not receiving the same merit as they would with traditional scholarship (Rogers, 2003). *Report of the MLA task force on evaluating scholarship for tenure and promotion* 2007) added that for widespread adoption of teaching innovations to occur, a holistic approach needs to be taken, integrating educational technology throughout the entire curriculum, and reconsidering assessment practices and policies. In addition, leadership from senior managers and heads of school will be crucial if these initiatives are to succeed.

The intersection of Boyer's model of scholarship and Roger's diffusion of innovation is the best model to explore this study. Although, Boyer could not anticipate the explosion of digital technology and the impact it would have on teaching, learning, and research. Boyer was correct when suggesting more flexible methods of appraising scholarship. His model of scholarship allows for the integration of digital products, services, and activities into the culture of digitally connected learning spaces. Roger's diffusion of innovation provides a framework for the difficulties scholars have when restricted to standards that may not meet the creative flexibility required of digital scholarship. Both Roger and Boyer understand that change is necessary but not easy to achieve when the culture of scholarship is rooted in traditional research and print publishing. These options are quantitatively easy to define as scholarship, which makes adoption of digital technology difficulty. Digital products, services, and activities allow for creative interaction with the diffusion of digital medias. These digital technologies allow for sharing knowledge, the construct of new ways of engaging knowledge, collaboration across all disciplines by designing digital online presence. The findings of this study provided insight as to

how experts view the possible application of Boyer's model of scholarship in digitally connected

learning spaces.

In conclusion, Chapter 3 discusses the Delphi method as the methodology and methods of

its implementation. The researcher analyzed the data by making sense of the expert's opinions

of the participant's narratives. Common themes in the questionnaire were sorted and return to

participants to seek a consensus regarding their opinions of the adoption of digital technologies

as a form of scholarship and possibly establishing applicable methods of appraisal and design.

Chapter Four: Results

Purpose of Study

This study queried thirteen academic scholars to reach a consensus regarding their

opinions and interactions with the diffusion of digital products, services, and activities based on

the Boyer model of scholarship. The study asks these experts about their views on the

possibilities of receiving recognition when diffusing digital products, services and or activities as

an alternative form of scholarship, which can be recognition as a contribution to scholarship and

included in the faculty member's evaluation package for promotion and or tenure.

The study used the Qualtrics Research platform as the foundation to design a survey

instrument based on the Delphi Methodology. The instrument consisted of fourteen questions

(see Appendix B.), and a Likert scale asked the panel of experts if they strongly disagree,

disagree, agree or strongly agree with the research statement. The study started with 13 experts

for round one. Round two had 11experts, and round three concluded with 10 participants. After

the experts had selected their level of agreement, open-ended questions asked them to explain the

basis of their decision. After the conclusion of round one, experts were allowed to read all the

opinions of their peers. After reading the opinions, the panel of experts was asked to use the

Likert scale to state the level of disagreement or agreement with the statements. After that, they

were asked an open-ended question to again, explain the reason for their decision. The experts

were allowed the opportunity to change their mind, comment, make suggestions and or make

recommendations. There were no restrictions as to how they had to comment on the open-ended

question. This procedure continued for the remaining rounds whenever there was less than an

80% consensus with the research questions.

However, an adjustment had to be made regarding the 80% consensus. The researcher made the decision to adjust the 80% to 77% because of the human factor. It would take ten experts to reach a consensus at 77% versus 11 participants that would equal 85%. Round two had 11 participants, and round three had 10 participants. A consensus of eight participants equaled 73%. The researcher felt this was too low. Therefore, a consensus was considered achieved with 9 participants that equaled 81% for round two. A consensus for round three would be 8 for an 80% consensus. For the purpose of this study the responses from the Likert scale were combined when determining if a consensus was reached. All the strongly agree and agree was aggregated for agree, and all the strongly disagree and disagree was aggregated for disagree. "No opinion" was not an option because of the depth of the experience required for participation; these experts should have an opinion.

Round one data collection lasted three weeks. Nineteen questionnaires consisting of 14 questions were emailed to the participants. Thirteen were completed. Out of the thirteen completed, the panel of experts came to a consensus with eight of the research statements. Research statements 1,5,6,7,8,9,10, and 14 (see Appendix C) were retired at the conclusion of the first round. The remaining questions were analyzed and prepared for round two. Round two began with six research statements, numbers 2,3,4,11,12 and 13. The questionnaire was returned to the participants with the anonymous comments from round one. At the conclusion of 2 weeks 13 questionnaires were opened; however, only eleven questionnaires were returned completed. Two questionnaires were opened but were never started by the participants. At the conclusion of three weeks questions 2,3, and 4 reached a consensus and were retired from the questionnaire. After analyzing the responses, research statements 11,12, and 13 were prepaid for round three. At the conclusion of two weeks research statements 11, 12, and 13 did not come to a consensus.

These questions were analyzed and sent back to the participants with the anonymous statements from round two. After two weeks questions 11, 12, and 13 had not reached a consensus. The researcher made the decision that these items would not reach an agreement based on the criteria, and the research statements were retired from the questionnaire, thus concluding the data collection.

Restatement of Research Questions

- **RQ1**: According to a panel of experts, does faculty construction of digital products such as academic blogs, and or professional activities such as engagement with colleagues in online digital spaces represent the future of academic scholarship in higher education?

- **RQ2**: In what ways, if any, should digital products, services, or activities of an academic nature influence promotion and tenure policies?

Round One Consensus Results

At the conclusion of round one eight research statements numbered: 1, 4, 5, 7, 8, 9,10, and 14 reached the criterion for removal from the questionnaire and were retired. Those are listed in Tables 6,7,8,9,10,11,12 and discussed here individually.

Research statement #1. Publishing articles in online repositories dedicated to academic scholarships, such as Research Gate or Academia is as valuable as publishing in traditional peer-reviewed journals. See results in Table 6.

Table 6

Online Repositories

	Round 1
	n=13
	Response
Strongly Agree	0
Agree	3
Disagree	3
Strongly Disagree	7
Total	13

Disagree: consensus. The experts argue that currently there is little incentive to contribute to online repositories because they lack the merit of a peer review system. That is not to say that they agreed with the current peer review system. The experts were critical of the current review system and believed that its structure promotes bias and does not afford a level playing field. In addition, it is referenced in many of the opinions that the options are limited for online repository contributions because they are not recognized for promotion and tenure.

The experts reject the notion that contribution to online repositories is as valuable as traditional peer review journals. They agreed that maintaining the peer review process is paramount to establishing what would be a scholarly contribution. Expert 2 suggested that simply uploading a paper that has not been reviewed was not considered a contribution to scholarship. The experts argued that if the online repository were to be peer reviewed, then the quality would be upheld. Expert 6 suggest that it gives to much control to commercial companies. Comments were made that questioned the quality of online repositories:

- Although not perfect, journals raise the quality of the final product.

- Peer review is critical to the quality of the publication.

- Need more digital options for peer review for non-traditional digital works such as 3D models, interactive maps, etc.

- Publishing through an online repository excludes a peer-review process

Agree. These experts reiterate the need that online repositories should meet the same quality as long as the documents are peer reviewed. Expert 1 argues that there is support for publishers allowing some access to peer review journals in online repositories without incurring a cost. Expert 9 expands on the possibility of adoption of the online repository if the scholar's work is already peer reviewed before submission to the repository. However, it was noted that the online aspect does have a few distinct characteristics, notably:

- Access, speed, tagging, mobilizing, connecting, community

Expert 5 expressed a strong argument for online repositories:

> When you share peer-reviewed, scholarly work that is published from academic journals or conferences proceedings to online repositories that are open, typically your work is easier to find in general search results beyond Google Scholars or any electronic databases. Google will pick up this publication so that a pre-print paper can be accessed, downloaded, and cited by scholars with or without institutional affiliation, that is to bypass the cost of purchasing an article from the institutional license or self.

Research statement #4. The number of followers on a professor's blog or the number of views on a professor's video or podcast channel should determine its scholastic value, much as the science citation index did in the past. See results in Table 7.

Table 7

Online Followers and Views

	Round 1	
	n=13	
	Response	
Strongly Agree	0	
Agree	2	
Disagree	4	
Strongly Disagree	7	
Total	13	

Round one.

Disagree: consensus. An overwhelming majority of the experts disagreed that the number

of followers or views should determine its scholastic value. It was not considered critical or

relevant for scholastic value. It was suggested that followers might have little interest in the

actual content. Followers can be the result of postings that is based on trending subjects that

have no reference to scholarly work. This has the potential to become a popularity contest that

can be manipulated by both the faculty member that does the posting and or his or her followers.

Having a large following does not necessarily make you a better scholar, nor should the number

of followers determine its value to scholarship. Experts 7 was clear do distinguish between

followers and citation that are specifically intricate to research. However, the question was not

completely discredited. Questions arose as to content. Specifically, does the content on a blog,

video and or podcast promote inquiry? Are the postings an intricate aspect of knowledge

sharing? Expert 8 suggests consideration should be given if the video, blog, or podcast emphasizes teaching scholarship, methodologies and or peer-reviewed papers. Other expert viewpoints:

- Being followed does not make you a better scholar

- It's a metric that favors first-movers and group blogs.

Agree. Expert 9 suggested that it could be insightful if certain altmetrics can be applied towards the sharing of original work. The assertion is based on the idea that digital tools have the ability to communicate with a wider audience than traditional methods. Expert 1 suggests, "The number of shares of an originally authored blog-post is meaningful." Expert ten argues, " What is vital is not the number of views, but whether scholarship or science is actually incorporated in subsequent work." The experts suggested that reaching a relevant audience is what is important.

Research statement #5. Research promotion and tenure committees should consider faculty digital products and online professional networking activities as part of the promotion and tenure portfolio. See results in Table 8.

Table 8

Faculty's Digital Products

	Round 1
	n=13
	Response
Strongly Agree	4
Agree	9
Disagree	0
Strongly Disagree	0
Total	13

Round one.

Agree: consensus. There was a complete consensus that agrees that digital products, services, and activities should be considered for promotion and tenure. With the widespread adoption of digital publication, it seems justified that promotion and tenure committees should consider methods of inclusion when evaluating faculty members. However, they should be judged by the same rigor as peer review publications. Expert ten argues:

The creation of digital products is not merely a replication of traditional products and in many cases a new type of scholarship in and of itself. We must take these activities into account for promotions and tenure, or we are not only doing a disservice to tenure-track faculty but the academy in general. We should be fostering and rewarding new research avenues!

Also, the experts agreed that social networks could be problematic and difficult to evaluate based on the review system. However, the experts concur that the adoption of digital scholarship is the way of the future. The evidence behind digital products supports its value to scholarship. Faculty members should be allowed to gradually integrated digital content into their evaluation process. Expert 3 recommends that presently, participation should be at the discretion of the scholar. However, Expert 9 suggest, if the scholar believes their identity is a critical aspect of digital media, then their digital products should be allowed to be included in their evaluation for promotion and tenure. However, digital products should meet the same quality of peer-reviewed journals for adoption to occur.

Research statement #7. Creating digital curriculum products such as video lectures or websites should impact the evaluation of an academic for tenure or promotion. See results in Table 9.

Table 9

Digital Curriculum

	Round 1
	n=13
	Response
Strongly Agree	2
Agree	9
Disagree	2
Strongly Disagree	0
Total	13

Round one.

Disagree. These experts disagreed based the decision on the quality of the content and not merely creating digital curricula. It is suggested that digital curricula should not be appraised until there is some form of the evaluation process in place.

Agree: consensus. There was an overwhelming consensus that creating digital curricula should impact a scholar's evaluation. This can be justified if the digital curricula meet the same standards as traditional curricula. There was a lack of agreement as to the applicable academic areas for digital curriculum. It was recommended that digital curricula should be reserved for the scholarship of teaching and others felt it should apply to the scholarship of service. It was suggested that digital curricula might not be considered in a research institution unless a method of peer review could be implemented. The experts suggested that adoption would be more acceptable in a teaching institution. Although there are conflicting opinions regarding the type

of institution, overall digital curricula are still viewed favorably. However, it was asserted that the adoption of digital curricula would indicate a shift towards progress because a metric would need to be designed to determine how it meets the expectation of scholarship. The experts agree that digital curricula have the potential of recognizing teaching as scholarship. There is support for adoption if the coursework includes digital learning objectives. Expert 2 argues that safeguards need to be in place for faculty members that create digital curricula that could be considered controversial and has no academic merit.

Research statement #8. Faculty should maintain a digital portfolio to support promotion and tenure opportunities. See results in Table 10.

Table 10

Digital Portfolio

	Round 1
	n=13
	Response
Strongly Agree	4
Agree	6
Disagree	2
Strongly Disagree	1
Total	13

Round one.

Disagree. The experts suggest professional and academic values would be based on the type of institution and that it should be a faculty member's choice to create a digital portfolio.

Agree: consensus. The experts agree that maintaining a digital portfolio is the best method to archive academic artifacts. It is suggested that artifacts selected for the digital portfolio should vary and the value should be based on the type institution. Many experts suggest that it is better for organizing materials and for accessing collected works. It addition, the digital portfolio is capable of being a living repository accessible to the academic and professional community and including one's peers. A digital portfolio could include a collection of work that typically might not be included in a promotion and tenure package. Expert 7 and 9 argues that a digital portfolio should not be required and the decision to create it should be determined by the institution. Expert 3 suggested that digital portfolio could foster unintended positive experiences. Namely, the opportunities to design, create interaction and maintain a living portfolio potentially could enhance a scholar's digital literacy. Digital literacy is now considered to be an expectation in our digital age.

Research statement #9. Endorsements and recommendations of professional talents as found in professional networks, such as LinkedIn, should be considered along with letters of support in the evaluation of an academic for tenure and promotions. See results in Table 11.

Table 11

Online Endorsements and Recommendations

	Round 1
	n=13
	Response
Strongly Agree	1
Agree	1
Disagree	6
Strongly Disagree	5
Total	13

Round one.

Disagree: consensus. The experts overwhelmingly disagreed that endorsements from professional digital networks should be included as part of the evaluation process. The legitimacy of who is making the recommendation was in questions, and the nature of the relationship that a scholar may have with the followers may prove questionable. There were many concerns about possible manipulation by followers, and that could become a question of ethics. This could result from a lack of control as to who is allowed to make endorsements. Even where there was agreement with receiving endorsements, there was still the concern of manipulation for favoritism and at the other extreme for lack of favoritism, which could impact a scholar's career. It is suggested that the process lacks transparency and could prove to be unreliable.

Agree. Some experts agreed that endorsements and recommendation should be applicable where selective conditions could be met. It would be based on who is making the recommendations and how the interactions between the followers and scholars are controlled. It was suggested that a recommendation or endorsement could not have merit but could still have practical application. Expert 5 argues that the endorsements could be one part of a recommendation package. It would allow for more interaction with peers and students. This seems to reduce the possibilities of ethical issues because of the inherent relationship with the endorsers. With this restricted application, it is suggested adoption is possible.

Research statement #10. Leadership roles in online academic communities through listservs or LinkedIn groups, professional organization forums, should qualify as scholarly service to an academic community or educational organization. See results in Table 12.

Table 12

Online Leadership

	Round 1
	n=13
	Response
Strongly Agree	3
Agree	8
Disagree	2
Strongly Disagree	0
Total	13

Round one.

Disagree. One expert disagreed and suggested that this type of interaction would detract scholars from conducting research. Based on this assumption adoption would reflect the type of institution. Therefore, consideration may have to be incorporated into how a research institution versus a teaching institution would incorporate this into the tenure and promotion model. It is recommended that faculty members receive training to understand expectation.

Agree: consensus. The experts overwhelming concur that leadership in online academic communities is essential and should qualify as scholarly service to the community and the profession. It provides an opportunity to interact with peers by expanding a scholar's exposure to multiple online academic and professional communities. It is argued this has the capability to allow a broad range of academic and or professional communities to critique the scholar's research. The leadership role should be meaningful, and contributions should have an impact on scholarship. There was concern that leadership roles in online academic communities should not be a complete replacement for face to face. It is recommended that this should qualify as a service to the community. Peer review of the activity would add value and influence adoption by faculty and institutions.

Research statement #14. Digital products have redefined the role of a scholar's responsibilities to teaching and learning. See results in Table 13.

Table 13.

Digital Products

	Round 1
	n = 13
	Response
Strongly Agree	8
Agree	3
Disagree	2
Strongly Disagree	0
Total	13

Disagree. The experts still acknowledge that digital products have made an impact on the profession. It is suggested that "redefine" may not be an appropriate description. They also consider digital products to be a supplement. It was also suggested that it might be a sense of negligence if scholars do not implement digital products into their practice.

Agree: consensus. The experts agreed that the benefits of accessibility and integration of digital products had impacted teaching and learning. The lack of digital integration could reduce a scholar or an institution's ability to engage today's learners effectively. Digital products broaden faculty members reach to access and engage the learner in multiple ways. They provide a more enriching learning experience, especially when having to accommodate a variety of learning styles. In today's society, the reality is the adoption of many of the digital tools repurposed by academia has already achieved critical mass.

The experts concur that faculty members have an obligation to integrate digital products into their practice. Expert 8 argues digital products allow personal access to faculty members that could not be achieved otherwise. Scholars would be doing a disservice to their practice by not

learning how to navigate the vast amount of knowledge and information available online. The

experts argue that this must be a consideration for scholars to model expectations for their

students.

Round Two Consensus Results

Three research statements numbered: 2, 3, and 6 reached the criterion for removal from

the questionnaire and were retired at the conclusion of round two. Those are listed in Tables

14,15, 16 and discussed here individually.

Research statement #2. Digital products constructed by faculty, such as podcasts or

online curricula are as valuable as publishing in traditional peer-reviewed journals. See results in

Table 14.

Table 14.

Online Curricula

	Round 1	Round 2
	n=13	*n*=11
	Response	Response
Strongly Agree	1	0
Agree	4	2
Disagree	0	8
Strongly Disagree	8	1
Total	13	11

Round one.

Disagree. Many experts rejected the notion based on the standards of their institution and the lack of acceptance by their promotion and tenure committee. It was a moot point solely because their institution has no planned standard for evaluating digital products and the reality that peer review journals have more credibility than curricula. It is the same status quo that research is valued more than teaching by many scholars. The distinction is more favorable for those experts where teaching and research have equal recognition. However, they suggested that although there is no value for online curricula digital products. When measured by the same standard they should have equal value as traditional peer-reviewed journals.

The experts agree that the impact factor for peer review is greater than digital curricula. Expert 1 argues peer review papers can have the ability to be cited more frequency and are perceived to be taken more seriously. Expert 12 acknowledges the value of digital products, but still, recommends to his or her colleagues not to contribute time to developing digital curricula because it lacks peer review. However, it was suggested if digital curricula were an option to a peer review journal then it should have the same merit. Still, the distinction is made that digital curricula and peer reviewed journals cannot be compared. They serve to specifically different purposes. Disagreement is characterized by these opinions:

- Development process does not seem to be as transparent as peer-reviewed research

- Not peer-reviewed, so no filter.

Agree. These experts support the idea that some form of peer review should be part of the process. However, just like those experts that disagreed with the fact that currently digital products are not recognized by the promotion and tenure committee makes adoption less likely.

There was a consensus regarding the lack of value for digital products until they are peer reviewed. The experts agreed that without a peer review process digital product and traditional peer review journals serve a different purpose. However, expert five argues that digital product has a peer review method already in place:

Although these online productions might not be "peer-reviewed" in the traditional sense, providing scholarly communities with you ideas, research, publications, or work in digital formats, such as podcasts, blogs, online courses, can offer insights into your teaching, service, or research scholarship. Your peers do have the potential to review, by commenting, sharing, providing feedback, referencing, or remixing some or you work if shared with Creative Commons' license.

Expert 4 suggest, "It depends on the responsibilities of a faculty member. If they are 40% teaching, and 50% research and 10% service then the digital products should also be valued accordingly." Experts10 stated, "My strong agreement depends on quality guaranteed by accepted community standards Prejudices against a medium per se are simply Irrational."

Round two.

Disagree: consensus. In round two a consensus was reached when many of the experts changed from agree to disagree. They support the assertion that peer review is the defining factor that would give weight to digital curricula. The experts also maintain that digital products and the peer review journal serve two different purposes and that the two promote scholarship in different ways. However, in this second round the question of what is "valuable" was challenged and what is "perceived" as more valuable specifically for the promotion and tenure committee and when sharing research with others. The measurement is influenced by the type

and expectations of the institution. However, if digital products can be reviewed, then they should be recognized as valuable as traditional peer-reviewed journals.

Research statement #3. A faculty member's online presence is as important as their print and conference presence. See results in Table 15.

Table 15

Online Presence

	Round 1	Round 2
	n=13	*n*=11
	Response	Response
Strongly Agree	1	0
Agree	8	2
Disagree	3	7
Strongly Disagree	1	2
Total	13	11

Round one: non-consensus.

Disagree. The experts suggest that the format is not as critical as the quality of the content. There was also concern that it is inconceivable to evaluate all faculty members' online presence. However, online presence has the potential to be a valuable activity. However, it will not be recognized as scholarship because it lacks an evaluation method. Expert 5 acknowledges recognition is only given for actual scholarly, publications in peer-reviewed academic journals or published in conference proceedings. Other opinions that are representative of disagree:

- The format is secondary to the content.

- Everyone is online, but that has no indication of the work's value.

Agree. The experts argue that online presence and print are not interactive. Online presence enhances the exposure of a faculty member's scholarship. Expert 3 suggested that institutions with restricted library funds would benefit from those faculty members that post their peer review publications online for free. However, there is an expectation that the online presence contains works that have the same quality and rigor as traditional print. Expert 6 suggests that having the capability of building online relationships removes the isolation associated with research. The experts concur that after a scholar's work is peer review, it should be allowed to be included in the faculty member's online presence. It will be more accessible when shared on professional sites such as Academia, Mendeley, and or Research Gate.   The online presence would be just as significant if it can be evaluated and proven to have the same rigor. An online presence can promote public discourse. However, without meeting the standards of traditional peer review adoption is less likely to occur with promotion and tenure committees. Here are other perspectives to this research question:

- The two are highly interactive; one must have traditional publications and then disseminated through social media.

- Can make a faculty member more visible to the larger community.

- Making data and results available to the public is an academic responsibility.

Round two. After reviewing the response from round one, there was a significant shift to disagree. 82% of the experts disagreed versus 30.71% from round one.

Disagree: consensus. The experts argued that a faculty member's online presence is important or is as valuable as a conference presence because it has the capability to promote a faculty member's contribution to scholarship. The venue allows the researcher the ability to widely distribute data results effortlessly. It is suggested that online presence should be classified

as the scholarship of service. Many experts stated that evaluation should be based on the quality of the contribution and that digital presence should support a faculty member's authority that is primarily grounded in a peer-reviewed publication. The experts voiced a few concerns not indicated in round one. Expert 6 argues

I think an online presence is as important or as valuable as conference presence, depending on what people are sharing. However, I also want to recognize the significant barriers to an online presence for women and people of color as examples- some people may feel threatened or unwelcome in these online spaces, which limit their engagement, and that, should never be considered against them.

In addition, it was suggested that online interactions might suffer if a hostile environment develops based on a faculty member's controversial or inflammatory contribution. Safeguards should be considered to support adoption if this situation arises. A persistent theme with the experts was that participation should not become an obstacle to promotion and tenure. Expert 2 expressed concern that maintaining an online presence would detract scholars from research. Hereto, the type of institution becomes an issue.

Agree. The one expert that agreed suggested that both activities are important.

Research statement #6. Colleges and universities should adopt specific standards for digital scholarship in addition to the traditional scholarship models. See results in Table 16.

Table 16

Standards for Digital Scholarship

	Round 1	Round 2	
	n = 13	*n* = 11	
	Response	Response	
Strongly Agree	2	2	
Agree	6	7	
Disagree	3	2	
Strongly Disagree	2	0	
Total	13	11	

Round one: non-consensus.

Disagree. The experts address their concerns about having a standard that varied from the traditional cannon that scholars have become accustomed too. It is suggested that regardless of the medium, it must include a method of peer review and the content should address its intended audience. The experts agreed that a specific metric would be beneficial if it could be designed and adopted by the promotion and tenure committee.

Agree. These experts argued that the institution should play a larger role in learning the value of digital scholarship and determine how digital scholarship should be evaluated. Expert 3 recommended that having a metrics would influence the perception of digital scholarship and increase its value in academia. In addition, having language dedicated to digital scholarship would prove beneficial to future decision-making committees regarding promotion and tenure. With the adoption of a metric, scholars would be inclined to share content online. Including clear expectations in the language would also encourage approval by faculty members.

Round two.

Disagree. The experts that disagreed reflected on the previous round and reconsidered that standards may not be required for digital scholarship but a peer review system for digital products structured on the traditional review model. Digital standards would legitimize a faculty member's digital scholarship. Expert 5 suggest, "It would be nice to show a metrics and measurements for what "counts" towards digital scholarship." The panel recommended that digital scholarship should be appraised in its original media and it should not be converted to a textual format. Safeguards should be in place to curtail online negative criticism that would detract from the research being reviewed.

Agree: consensus. There was no significant change from round one to round two. The major influence was that round one had 13 responses and round two had 11 replies. However, the opinions reflected in round two are more favorable towards adoption if a peer review standard would be approved. Although there was not a significant change between agreement and disagreement: there were more comments reflecting the concept that the standards should be the same for digital scholarship and traditional scholarship. Expert 2 argues, "It would be in our interest to develop some language around our digital presence and how it may or may not align with T&P decisions."

Round Three Non-Consensus Results

Three research statements numbered: 11, 12, and 13 did not reach the criterion for consensus. These three questions were retired from the questionnaire as non-agreement. The researcher based this on the Likert Scale and the opinions to the panel. These research statements are listed on Tables 17,18, 19 and discussed here individually.

Research statement #11. Academics knowledge and the ability to integrate digital products, services, and activities into their practice is the most effective way for sharing knowledge as opposed to the traditional face to face and brick and mortar teaching. See results in Table 17.

Table 17

Digital Integration

	Round 1	Round 2	Round 3
	n =13	*n* =11	*n* =10
	Response	Response	Response
Strongly Agree	3	0	0
Agree	4	0	5
Disagree	4	5	4
Strongly Disagree	2	6	1
Total	13	11	10

Round one: non-consensus.

Disagree. These experts argued that online are not a replacement for face to face. However, they were clear to state that online does allow for a balance when blended. Also, it is suggested the format is not as important as overcoming the obstacle of establishing digital collaborative learning spaces. This is usually not an issue with face-to-face interactions. The experts argue that digital tools and face to face should work in concert. There is agreement that it is not the format, but the quality of the content that is the determining factor.

Agree. These experts also support the integration of online and traditional teaching and learning spaces. It was suggested that the balance might need to shift based on the situation and

the institution. However, face-to-face was considered central to teaching, but it would benefit greatly from the integration of digital tools. There was no definitive argument regarding which was superior to the other. It was agreed that this is an empirical issue and more research is required. Acknowledgment was given to the fact that digital tools have become transparent for many generations that are enrolled in today's institutions. Faculty members should argument their teaching and learning although they may not yet be creating digital products. Experts also agreed that technologies allow faculty members to have teaching and learning experiences based on the overall learning objectives. Scholar's teaching and learning benefit when they negotiate digital products that allow them unlimited opportunities to share content, support peer interactions and increase accessibility of resources.

Round two: non-consensus.

Disagree. The experts disagreed and remain steadfast that integration is best. Expert 6 argues that the usage of digital tools does not improve inferior pedagogues and without more research, it is difficult to prove one method is better than the other. It is suggested that the overarching benefit of digital tools includes allowing scholars to easily share and collaborate with peers beyond the boundaries of their institution.

Agree. The experts agreed that the integration of digital products, services, and activities and traditional teaching and learning provides the most efficient learning opportunities. In addition, they concur that a blend is the most effective and draws on the best practices of the two models.

Round three: non-consensus.

Disagree. In round three, the experts split down the middle after reflecting on the questions in round one and round two. Those that disagreed acknowledge that digital products

reach a wider audience but that in of itself does not make the format effective pedagogy. However, there is still agreement that teaching and learning benefits from the blending of both digital products and traditional learning spaces. The negotiation of digital products and traditional-leaning spaces should support the exchange of knowledge sharing and effective communication.

Agree. These experts also support a blended method of delivering content and knowledge sharing in learning spaces. They suggested that the integration of digital products and face-to-face in online learning spaces offer valuable insight. In addition, the online experience seems to promote the reflection of one's pedagogies, and research when interacting with students in online learning spaces. The experts recommended the adoption of digital tools by scholars should be established with empirical research for scholars to understand how to negotiate and integrate digital products into their practice. Expert 3 argues,

> Actually, these interactions with students in online communities may be even more important than teacher-student interaction in an f2f environment. It's more challenging to establish a sense of presence in a virtual environment, and it requires a different set of strategies. Any faculty member who wishes to incorporate online tools and online interactions with their student should, in my opinion, start to develop a repertoire of strategies in order to connect with students. In this way a student who only has online interaction may actually be even more engaged than a student in an f2f setting, depending on the faculty's expertise in online communication.

Research statement #12. Interactions with students in online communities are as important as mentoring students face-to-face. See results in Table 18.

Table 18

Online Mentoring

	Round 1	Round 2	Round 3
	n=13	*n*=11	*n*=10
	Response	Response	Response
Strongly Agree	3	1	1
Agree	6	6	6
Disagree	4	4	3
Strongly Disagree	0	0	0
Total	13	11	10

Round one: non-consensus.

Disagree. The experts state that to be effective in both online communities and face-to-face interactions should be integrated. Interestingly, both the experts that agreed and disagreed concur that using online digital products like Skype, for example, is invaluable. It seems that audio and visual interaction in real time has an added benefit than non-visual online interactions. In addition, it is asserted that creating a standard for online interaction with students is not an efficient engagement.

Agree. These experts support the assertion that both interactions can be effective and are relatively the same. It is suggested that the interactions are not much different from each other. The experts indicate that the intricacies between the two depend on the nature of the instruction. There is acknowledgment that with the current trend of blended learning faculty members must learn how to navigate online learning spaces. These interactions have the ability to foster quality relationship between students and between faculty and students independent of tradition teaching

and learning spaces. It is also suggested that online tools can argument learning in ways that

many faculty members have yet to explore because of the lack of support and mentoring.

Round two.

Disagree. These experts preferred face-to-face but now acknowledge that online teaching

and learning is a viable option when class size is an issue and with regards to distance learning.

There is also concern that time management may be problematic with video conferencing. The

experts that disagreed argued that interaction in online communities is not a replacement for face

to face. One expert suggested that creating these standards would deprive faculty members of

quality time with their students. Assistance with the selection of digital products and mentoring

faculty members on time management may improve adoption.

Agree. These experts support the assertion that online interactions have the benefit of

expanding their reach of teaching and learning experiences. They are consistent with the

contention that blended is best until more research is conducted to establish a preferential

relationship. It is suggested that the design of the digital product influences the rigor of the

interaction and the quality of the engagement. Online communities have difficulties when

establishing teaching strategies for collaboration and community building. The weight of the

quality of the online interaction should be grounded in the design and strategy for enhancing

community building. These concerns are influenced by the faculty members experience in

developing and sustaining communications in online learning spaces. It is recognized that

currently many faculty members successfully collaborate and mentor using online platforms.

Round three.

Disagree. These experts base their opinions on having to choose between face-to-face

and online interactions. If the faculty has a one-to-one ratio, then face-to-face was the

preference. Once the ratio changes then online are the prefer interaction. However, it was suggested that after the face-to-face relationship is established then based on the faculty member's experience, online teaching, and learning is sustainable.

Agree. There was a significant shift with the expert from disagreeing to agree. These experts defend that there is relatively no difference between the two if the faculty member has experience negotiating a structure for engaging students online. It was noted that there are difficulties with students in online learning spaces. It was considered imperative that faculty members receive support on how to mentor online. This is crucial to assisting students in their learning. It is suggested that mentoring should also be provided to faculty members that may not realize the benefit of engaging students in online communities. Expert 4 states, "it is especially important to engage students in conversation/dialog in whatever means available to allow for deeper interaction with course concepts, etc." Expert 1 reminds us that the "Purpose and intention should be the focus and method/approach designed with this purpose in mind." Expert 3 tells us that "One of the key responsibilities of virtual teachers is to engage online students in frequent interactions and be available for mentoring very frequently, probably more often than in an f2f setting."

Research statement #13. A webinar should be accorded the same respect as an invited address or conference workshop. See results in Table 19.

Table 19

Webinar

| | Round 1 | | Round 2 | | Round 3 | |
| | n=13 | | n=11 | | n=10 | |
	Response	%	Response	%	Response	%
Strongly Agree	2	15.38	1	9.09	1	10
Agree	7	53.85	7	63.64	6	60
Strongly Disagree	2	15.38	0	0.0	0	0.0
Disagree	2	15.38	3	27.27	3	30
Total	13	100%	11	100%	10	100%

Round one: non-consensus.

Disagree. The experts did not explicitly state they were against receiving credit for a webinar but were clear that the webinar must be an invited venue. The webinar should also be part of a peer review process and or have the same rigor as the traditional peer review process.

Agree. These experts affirm that credit should be granted because there are no differences between the two as longs as specific conditions are met. It is recommended that the webinar should be invited, consist of the same rigor as in-person, facilitated by an organization or professional community, and the same societal norms should apply. In addition, it was suggested that a webinar could be a good option for disseminating research to a wider audience.

Round two: non-consensus.

Disagree. These experts assert that the format is not the determining factor. It is the rigor and having an association with a large organization that is critical.

Agree. The experts that are in agreement maintain that as long as it is an invited webinar and contains the same rigor, there is not a difference between the two. In addition, it is more favorable if the scholar has travel restrictions for whatever reason. If the scholar's preparation is as demanding as an invited address or conference, then it should be evaluated the same way. The webinar should count towards a faculty's contribution towards scholarship. Expert 4 suggest, "Scholars should be prepared to provide evidence as to the value of the engagement."

Round three: non-consensus.

Disagree. The experts that disagreed in the previous round added an exception. These experts recommend that an invited webinar that is a "keynote" address should unequivocally qualify for credit. An invitation to participate does not warrant the same creditability. The scholar's measure of participation needs to be defined between an invited webinar and a webinar requesting proposal submission. Expert 4 argues it must be differentiated between the purpose of the webinar and the nature of the lecture.

Agree. The experts still maintain that a webinar and a conference are the same. The experts recommend that there should be guidelines establishing the quality of the content, the purpose of the talk, and maintaining societal norms should be the contributing factors to receiving credit. Expert 5 suggests, "That is some ways the webinar can exceed expectations." In addition, if the webinar is sharing a significant finding or research contribution then it warrants the same merit, and it should be considered a contribution to scholarship. Expert 9 suggest, "If a significant contribution is made via digital technology, then it is as important as any other significant contribution."

Research Questions

Research question 1. According to a panel of experts does faculty construction of digital products such as academic blogs, and or professional activities such as engagement with colleagues in online digital spaces represent the future of academic scholarship in higher education?

Overview of RQ 1

There was a consensus reached for all research statement for RQ1. Based on the qualitative data from this study the experts were very selective in their opinions based on the application of digital product, service and or activity.   Often, when indicating that they disagreed with the research statement, the experts provided insight and conditions for methods of adoption. The conditions are based on academic norms, student teaching and learning, peer relations and personal, professional experiences. This is how it is done or accepted at my institution was a continual narrative. The expert's opinions were usually not supportive of their institution's policy regarding digital products, services, activities and or faculty member's online presence. The dissatisfaction had more to do with the institution not having approved language for these interactions that was recognized by the promotion and tenure committee. Without specific language the interaction with digital scholarship is limited. This results in restricted engagement with faculty members.   The overlapping narrative for the lack of adoption of digital products, services and or activities is the lack of a peer review or metric to indicate clear expectations.

RS 1. Publishing articles in online repositories dedicated to academic scholarship, such as Research Gate or Academia is as valuable as publishing in traditional peer-reviewed journals. Many of the expert's opinions were based on specific conditions being met to recognize online repository as the future of scholarship. However, the primary condition is the

lack of a peer-review. Expert 12 states, "Not peer-reviewed. No credentialing required." The panel did not fully reject online repositories as much as suggesting it would not be as valuable without facilitating a method of peer review. This was the leading disclaimer for support and or participation with submitting article to online repositories. The panel of experts highly values the editorial system of the journal as a means of upholding the quality if the peer review process. Expert 9 argues,

> It depends. If the online repository is just a way to self-publish with no editorial or peer review mechanism, it isn't as valuable because it is not curated in the same way. If the online repository is distributing material that was published originally in a peer-reviewed journal, it is equally as valuable. The distribution method doesn't matter. The editing of the content does.

A majority of the experts concur that for online repositories to be widely adopted, it must have a peer review system.   Expert 7 echoes the sentiment of the panel, "Peer review is the key. Online vs. tradition seems irrelevant. Online is as good as traditional only if it is also peer reviewed in a similar fashion." Otherwise, it becomes a place to store articles with questionable contributions to scholarship. Experts 3 claims,

> As far as I know, publishing through an online repository excludes a peer-review process. The online repository at our university is a mere instrument of record to gather the faculty's publications systematically. There's not a review involved. Peer-review is critical to the quality of the publication. Each round of revision results in an improved paper.
>
> Only two experts suggested that accessing articles in the online repository was valued without mentioning a vetting process. Therefore, RS #1 regarding online

repositories is rejected and not consider representative of the future of scholarship without a peer review process.

RS 2. Digital products constructed by faculty, such as podcasts or online curricula are as valuable as publishing in traditional peer-reviewed journals. When the debate changed to online curricula, the experts could not come to a consensus until the second round. The most notable differences were that round one had eight disagree and five agree. In the subsequent round, nine disagreed, and two agreed. The change was a direct reflection of the comments made in the previous round. The data indicated the primary reason for rejection of online curricula is the lack of a review process. Expert 2 explains,

> I was unsure about this one. Developing curricula should be considered a great product, just like peer-review. This is especially true for individuals in my field-educational technology. However, I know that this is not the case. My institution only values peer-reviewed articles over curriculum development initiatives.

The peer review journal is the standard for measurement. Therefore, without a method of appraisal, online curricula are not considered as valuable. Whereas in round one, the panel concurs that online curricula are just a valuable but without a peer review process, it was suggested to have a diminished impact factor. Expert 13 explains, "This depends on the purpose of the products – if used as course materials, then no. If these are an alternative approach to an article and are peer reviewed, then yes."

However, in round two, the panel agreed that it is hard to compare online curricula to a peer review journal in the literal sense. Expert 8 echoes the panel, "You can't compare artifacts and scholarship." Also, expert three indicated, "They don't seem to serve a comparable purpose. Whereas podcasts or online curricula promote learning and serve to make learning materials

widely accessible, peer-reviewed publications focus on promoting research, which will later inform teaching practices." On close examination of the data, the opinions are consistent with the literature that teaching is valued less than research until a method of evaluating digital artifacts is consider an acceptable scholarly contribution. Online curricula will be regarded as an alternative for future scholastic contributions with the adoption of a policy that recognizes the merits of teaching as much as research. The study indicates that online curricula may prove difficult in a research institutional without the adoption of specific language identifying online curricula as scholarship. Therefore, based on this study the experts reject RS #1 as the future of scholarship.

RS 3. A faculty member's online presence is as important as their print and conference presence. The discussion of online presence required two rounds before the panel of experts came to a consensus. Round one had nine experts agree with the research statement versus four experts disagreeing. This round was one person short of reaching a consensus. After the panel was given a second round to read the opinions of their peers, the panel changed their opinions. Agreement remained at nine verses two experts disagreeing. When the analysis is made of the data, the experts argue that it can be as valuable if it can meet the same standards as traditional scholarship. Experts 7 asserts,

> "Where their online presence seems much less important than the content and review
> processes around what they are presenting. If online means less rigor or review, then
> online is worse. If it entails the same rigor and review, then online is good or better."

 It is suggested that online presence, print, and conferences are interactive and the medium in not as important as the content. Expert ten states, "My strong agreement depends on the simple fact that the medium is never relevant. It is always the quality of the product that counts." The expert panel recognizes online presence as a valuable contribution. Expert 2 argues,

The online presence of a faculty member might include accessing their online writings in peer-reviewed journals. The reputation of a faculty member, however, goes beyond the aggregate of his or her writing. Use of social media outlets and Web 2.0 tools can really make a faculty member more visible to the larger community.

The adoption of online presence value will be based on establishing a language that is the same as the tradition peer-reviewed publication. Experts 10 suggest, "Clearly online presence can improve and enhance one's reputation, but that reputation must be founded in peer-reviewed publications." The panel rejects the RS #5 because there is no way to measure the value of online presence.

RS 4. The number of followers on a professor's blog or the number of views on a professor's video or podcast channel should determine its scholastic value, as much as the Science Citation Index did in the past. The overwhelming majority of experts reject research statement RS #4 suggesting that the number of followers or views has no scholastic value. The data indicated that as a collective group, the panel was consistent in their reasoning for this rejection. Expert ten argues, " What is vital is not the number of views, but whether scholarship or science is actually incorporated in subsequent work." Expert 3 argues, "I don't think it should determine its value necessarily. I think this is one thing that people look at. It's a metric that favors first-movers and group blogs." A majority of the panel suggested that there are too many ways the data can be skewed. Two experts that dissented from the majority thought that it would have value if a metric with strict guidelines can be applied. Also, the panel rejects the suggestion that blogs can be compared to the science citation index. Expert 9 chose to think outside the box and suggested, "Reaching a relevant audience is what is important, and certain impact can be measured through the kind of altmetrics mentioned here." However, the panel of experts

rejected RS #4 because the perception of measuring followers and views is no indication of a scholarly contribution. It is suggested that the postings could have achieved popularity for any reason not related to scholarship.   For example, Expert 2 contends, "Just because you are being followed, does not make you a better scholar. You might just be posting politically relevant subject matter that interests the readers.   Scholarship goes beyond having a following."

RS 14. Digital products have redefined the role of a scholar's responsibilities to teaching and learning. A consensus was reached in round one of the study. The data indicate that 8 of the 11 experts strongly agreed with the RS #14 with two experts dissenting. The experts concur that how research is digitally conducted, shared, accessed and disseminated in online teaching and learning spaces have been greatly impacted by digital products. Experts have strong opinions regarding digital products, and the responsibility faculty members should use the most progressive methods of digital knowledge sharing with regards to the influence it has on teaching and learning. Expert 13 noted, "It is critical to integrate traditional and digital product for teaching to address multiple learning types and expose students to digital tools that are becoming critical skills in everyday society." Expert 6 suggests, " They have provided new and proven better methods for teaching and learning, such as the incorporation of more active learning, the flipped classroom, etc."

Expert 10 discussed the obligation that the academics have as a direct result of the adoption of digital products. The two dissenting experts argue that the wording of the research statements may be inadequate. Expert 6 suggest,

> No, I think the responsibilities are the same, but digital has made it more visible or
> focused these responsibilities. i.e., You can share, so why wouldn't you, you can bring
> the Internet and outside world into the classroom now, so why wouldn't you, you can do

interesting new digital projects with people around the world, teaching is different, but your responsibilities are the same.

Expert 10 considered online interaction as a helpful supplement. However, the majority of the experts reached a consensus that digital products have changed the playing field. Expert 2 argues, "There is not doubt in my mind that the digital playing field has changed out roles as scholars." It is clear from the opinions of the panel that digital products have altered the perspective of the scholar's responsibility to their practice. Expert ten states, "It is a new world, and we had better get used to it."

Throughout the questionnaire digital products, services and activities were analyzed and debated by the experts as an alternative form of scholarship. RS #14 established the groundwork regarding the impact and its immense and far-reaching implications. RS #14 finally allows the experts to take a position relating to the usage of digital products, services, and activities. The majority supports the assertion that digital products have redefined a scholar's responsibility to teaching and learning. It also can be concluded from the data for RS #14 that the widespread adoption of digital products is imminent.

Research Question 2

In what ways, if any, should digital products, services, or activities of an academic nature influence promotion and tenure policies?

Overview of RQ 2

The panel of experts debated many of the research statements applicable to research question. There was a consensus reached for research statements 5,6, 7, 8, 9, and 10. However, a consensus was not achieved for question 11,1 2, and 13. Just like RQ1, the experts were meticulous in analyzing the research statements and opinions of their peers. The researcher

examined the responses collectively in the final analysis unless there were significant shifts in the data. Where this occurs, researchers indicated data for the changed opinions.

RS 5. Research promotion and tenure committees should consider faculty digital products and online professional networking activities as part of the promotion and tenure portfolio. This is the first unanimous consensus by the panel experts. However, the discussion revolved around digital products and not online professional networking activities. The experts expounded on the merits of digital products. Also, with the explosion of digital publication, the experts proposed that the promotion and tenure committees must devise a method to recognize digital products as scholarship. Expert 8 suggested, "Digital products could be part of a design research efforts." However, the panel was clear to state that faculty's construct of digital products is not a replacement for tradition but an addition. Expert 4 echoes the sentiment of some of the other experts by recognizing digital products as being different from traditional scholarship. Expert 10 suggest that profession networks have no values as it relates to the research statement. The panel recognizes RS #5 as digital products being valuable to the future of scholarship.

RS 6. Colleges and universities should adopt specific standards for digital scholarship in addition to the traditional scholarship models. This research statement also had changed from disagreeing to agree. In round one, eight experts agreed, and five disagree. A consensus was reached in round two based on a significant switch from disagreeing to agree. In round two, nine agreed, and two disagreed. Many on the panel expressed the same sentiment in both rounds. The data indicated an overarching attitude that language needs to be added to acknowledge digital scholarship as a scholarly contribution. Expert 4 argues,

A set of 'best practices' for digital scholarship would be ideal to provide both to tenure-track faculty and promotion and tenure committee members to allow for appropriate evaluation of digital tools. For example, digital scholarship should be evaluated in its original medium and not simply translated into "printed' text and then evaluated. Too much is lost in translation.

The standards would provide a clear expectation for faculty members. Expert 7 suggests that the review committee needs to be educated on what they are appraising.

However, expert three stated, "Reading the above comments has made me change my opinion. We may not need standards for digital scholarship. Rather, we need to implement a peer-review system for digital products using similarly rigorous methods that in traditional review processes." Other experts suggested that in some ways the new standards should not be a major deviation from standards already establish for traditional scholarship. The panel overwhelmingly welcomes the adoption of standards for digital scholarship to influence its impact factor with the promoting and tenure committee. This becomes a policy issue for the promotion and tenure committee to adopt specific language that has clear expectation. Therefore, the experts accept RS #6 as the future of scholarship.

RS 7. Creating digital curriculum products such as video lectures or websites should impact the evaluation of an academic for tenure or promotion. RS #7 was retired in the first round with an overwhelming majority of 11 experts agreeing versus two experts dissenting. The panel's near unanimous opinions is reflective towards the acceptations of digital curriculum. The data recommends that digital curricula should be included as scholarship of teaching. The panel endorses the inclusion of language and a matrix to establish digital curricula as credible scholarship.

Many of the experts categorize these artifacts as teaching scholarship. Expert 5 argues this as scholarship of teaching, and Expert 12 and seven considers it scholarship of service. The panel recommends the evaluation should be based on the quality of the content. The expert's opinion suggests adoption is possible and should be considered. There were no conditional recommendations for implementation. The data was not conclusive as to should it fall under the scholarship of teaching or the scholarship of service. Should the language make it required or optional? Rogers' would support giving the faculty members the option and trialability to gain momentum from early adopters. Expert 12 acknowledges that peer review should be a consideration. Experts 3 dissenting and concur with expert five arguing that evaluation cannot occur without language explicitly affirming expectations. Therefore, adoption is likely where teaching is recognized as scholarship. Expert 1 reminds us that research institutions would have to add language that recognizes teaching as scholarship before adoption can occur. Therefore, based on the experiences of the experts they accept RS 7 as the future of scholarship.

RS 8. Faculty should maintain a digital portfolio to support promotion and tenure opportunities. RS #8 was retired in the first round with a consensus of 10 experts. The data indicate that those experts that dissented did so on the premise that digital portfolios should not be required. It should remain optional. Expert 5 echoes the panel,

> I think so. It helps to keep track of publication, production, work, teaching, and more that would go into a T& P package for promotion. It should be good practice to document and put that digitally somewhere for review, and regular updates to showcase your work to colleagues and or peers. It provides a method of convenience for the promotion and tenure committee.

Expert 3 argues that it would promote online interaction by faculty members. Therefore, the benefit is faculty member's research become easily searchable and accessible. This accessibility was echo by other panel members. None of the experts placed any conditions on adoption that cannot be met with language that supports and explains the benefits of the construct of digital portfolios. This is a policy issue with the institution to recommend and support faculty member's construct of digital portfolios. Based on the data of this study the experts accept RS #8 as the future of scholarship.

RS 9. Endorsements and recommendations of professional talents as found in professional networks, such as Linkedin, should be considered along with letters of support in the evaluation of an academic for tenure and promotions. RS. #9 was retired in round one with 11 experts disagreeing. The opinions of the panel are reflective with research statement #4 regarding the number of followers or views. The data indicated there were concerns regarding who is making the endorsements and what is their relationship to the faculty members if any at all. It is suggested by Expert 3, "To me, many of these recommendations seem rather non-transparent and arbitrary." Endorsement and recommendation lack a control and verification system. Expert ten echoes the panel with his opinion, "Again, online comments, likes, views can so easily be hacked or gamed. I'm a senior computer scientist and don't trust online data unless there are rigorous controls and verification, mechanisms. Like voting, you want a paper trail for important decision like tenure."

Perception and design hamper recommendation and or endorsement from adoption. Unlike the benefits of sharing a blog or twitter feed. This is simply checking a box for approval. The experts recognize a lack of trust in this online product. It is unlikely to be considered as a part of an evaluation package for future scholarship without a structural design change. Two

opposing experts share the same viewpoint. They both suggest if selectivity and restriction on the interaction could become possible, it may qualify to be part of a recommendation package. However, the design of the platform does not support the suggested restrictions. Also, the perspective of measuring followers or views does not reflect a contribution to scholarship. Therefore, the experts reject RS #9, as the future of scholarship without significant changes is the design of the platform.

RS 10. Leadership roles in online academic communities through listservs or Linkedin groups, professional organization forums, should qualify as scholarly service to an academic community or educational organization. RS. #10 was retired in the first round with 11 experts agreeing with the research statement with one expert dissenting. The panel recognizes the importance of a faculty member's leadership roles in online communities, and they recommend that it qualify as scholarship. However, the panel made many excellent suggestions for a successful adoption. Expert 2 states, "Yes, this type of activity is important in today's professional development climate. Expert 7, "We should consider this type of work as service to the community and profession." Consideration must be acknowledged that it depends on the community and the leadership role. This is an important distinction because the expert recognizes that not all online leadership roles may be considered scholarly contribution. Here language must be developed that would act as a guide for faculty member's interaction in these online communities. Expert 6 suggested, "They are no different from other service opportunities, IMHO." Expert 5 suggest,

> More and more of our professional work and practice to the field, discipline or our
>
> professional organizations are now in a digital form. A number of leadership position in
>
> these disciplines require virtual teaming, distance meetings, online collaboration, and

curating repositories for information sharing and knowledge management beyond a

typical listserv and or social media site

The experts accept RS #10 for online leadership to be the future of scholarship.

RS 11. Academics knowledge and the ability to integrate digital products, services, and activities into their practice is the most effective way for sharing knowledge as oppose to the traditional face to face and brick and mortar teaching. The panel of experts wrestled with this assertion for three rounds and still did not come to a consensus. The data indicated that first; the experts made comparisons of integration of digital products, services, and activities versus face-to-face. The data suggest that many experts assumed that it was a use one or the other decision. However, throughout all three rounds, the majority of the panel recognized that a blended approach was best until research proves otherwise. Expert ten argues, "So long as face-to-face is an integral part of instruction. At the undergraduate level, face-to-face may not produce results as good as or better than online. That is an empirical issue, but until that is settled. I am in favor of a mix. Of course, training to be a researcher always requires face-to-face."

The narrative throughout the questionnaire was that the transfer of knowledge facilitated by digital products, services, and activities was adoptable by faculty members, but it was not recognized as a replacement for face-to-face. Expert 4 suggest, "A combination of face-to-face with digital tools and or technologies to enrich learning is ideal. The digital does not replace a person interaction." It was even disputed that the format is not the issue as much as the content and quality of the pedagogy. This inclination was echo by other panel members. Expert 13 suggest, "I believe emerging technologies inform pedagogues and, therefore, allow for more and

better teaching and learning. Of course, this is completely dependent on the quality of the overall cause, not just the fact that the instructor is using digital products."

However, there is a consensus with a majority of the panel that when digital and traditional is blended, it is an excellent way to meet the needs of the student. The quality must be consistent with tradition knowledge sharing. It is recommended that research be conducted as evidence for its value to widen its adoption. Therefore, the data indicates RS #11 is rejected based on a preference for face-to-face. The outcome might have been different if RS #11 was based on the integration of digital and tradition.

RS 12. Interactions with students in online communities are as important as mentoring students face-to-face. The experts vacillated this premise for three rounds and never came to a consensus. RS #12 was one person short in both round 1, and round 3 from achieving a consensus. The data indicated that a majority of the experts concur that the two were relatively the same. In addition, the majority of the panel also suggests that a combination of the two is preferred. Expert 10 suggest, "Again, a mix is necessary until research tells us otherwise." It is suggested; faculty members should have the option to choose which method to implement. It was repeated throughout the rounds that research is necessary to provide preferential evidence. However, Expert 3 asserts,

> I would still claim that interactions with online student are even more important than a face-to-face setting. Research suggests that online students have a higher risk of dropping out due to an increased sense of isolation. Therefore, one of the key responsibilities of virtual teachers is to engage online students in frequent interactions and are available for mentoring very frequently, probably more often than in face-to-face settings.

The data concludes that adoption of online mentoring is a viable option to tradition face-to-face mentoring. The experts support the blended approach and acknowledge that this is situational. It was concluded that online could be equally as valuable as face-to-face. Based on the data of this study credit should be granted to those faculty members that choose to interact with students using digital products, services, and activities. Therefore, it is concluded that RS #12 did not come to a consensus and is rejected because of the current design and the lack of clear expectations. However, it should be noted that if the suggestions are implemented the adoption of online mentoring could be considered as a scholarly contribution and could be the future of scholarship.

RS 13. A webinar should be accorded the same respect as an invited address or conference workshop. The panel oscillated with this concept for three rounds and still did not come to a consensus. However, there were areas in the data where the panel was in agreement with RS #13. It was recognized by a significant amount of experts that a webinar and an invited address or conferences were relative the same. Expert 9 echoes the panel, "If it is serving the same purpose, yes it should be evaluated in the same way."

In the first two rounds, the data indicated that the perception of the webinar lacks creditability. The panel expressed many concerns. Expert 7 argues, "The webinar if a larger professional association community facilitates it; it should be regarded as the same. If you are just inviting people to a session without affiliation to a profession network, I do not think it should be considered."

On the other end of the spectrum, the data indicated conditional acceptance of RS #13. If the webinar could meet the same standards as a tradition interaction, the faculty member should

receive the same credit. Expert 12 suggest, "Depending on the webinar- In theory I agree you should get credit for invited address or workshops even if you telecommute."

Therefore, for credit to be awarded, the experts recommended particular conditions are included in the language for this digital interaction. For example, a professional association or community should facilitate the webinar. It should require the same preparation and rigor as an invited address or conference. It should be invited. The content addresses the community. The societal norms are the same as an invited lecture or conference. If it meets these same criterions of a traditional address or conference, then credit should be granted. Also, if the webinar is a keynote address, it is suggested that this has equal status as a tradition keynote address or conference. The institution's policy should address language that includes these recommendations to be adoptable by the promotion and tenure committee. This may have to be collaborated with scholars, administers, adopters of digital activities, products and or services, and the promotion and tenure committee. RS #13 is rejected based on the lack of rigor of current webinars and their perception and lack of structure.

Chapter Five: Findings, Conclusions, and Implications

Introduction

The purpose of this study was to investigate if the diffusion of digital products, services and activities can be an alternative form of scholarship. Chapter 5 offers the conclusion to the data collected in chapter 4. This Delphi study was conducted by asking experts who have adopted digital products, services, and or activities as part of their practice. The findings in this chapter reference the literature review found in chapter two. It is important to know how the literature compares to the opinion of the experts in this study. The questions were designed with the assumption that it is possible to have a digital alternative to the peer review publications. The conceptual framework is based on Earnest R. Boyer's model of scholarship. The framework is structured on Everett Roger's theory of the diffusion of innovations. The overarching issue is it possible to have a digital alternative to traditional methods of scholarship.

Review of the Findings

This study is grounded on two research questions.

- **RQ 1:** According to a panel of experts, does faculty construction of digital products such as academic blogs, and or professional activities such as engagement with colleagues in online digital spaces represent the future of academic scholarship in higher education?

- **RQ 2**: In what ways, if any, should digital products, services, or activities of an academic nature influence promotion and tenure policies?

Summary of the Findings

Research Question 1

  Research statement #1. The literature review in Chapter two details a long history of scholars debating the question, what is scholarship? This has been an ongoing issue started as early as the middle of the third century. Now with the diffusion of digital products, services, and activities, scholars are using digital online methods to explore alternatives to the peer review publications. However, after 340 years (Boyer, 1990) when discussing scholarly contributions, the peer review journal is still considered the gold standard. The experts in this study concur that with all the digital tools available the peer review process is crucial to maintaining the quality of the final product. The editorial process of the peer review journal is what separates what is consider scholarship and what is not. The experts were asked their opinions regarding the merits of online repositories. It was a consensus among the experts that for an online repository to archive the recognition of the peer review journal it must have a review process. Having the ability to be accessible did not out weight the value of the editorial system of the peer review process. This was interesting because throughout the study many of the experts were critical of the inherent bias of the peer review system. Also, the panel acknowledges that promotion and tenure committees do not recognize submissions to online repositories as scholarly contributions. The primary reason is online repositories lack a peer review system. Without this system, online repositories act merely as storage for faculty members to store their work. This assertion was supported even when the contribution can only be presented digitally. However, there was the consideration for diffusion if the repository could develop a method of editorial review of scholarly submissions. One expert recommended that work submitted to the repository should only include the faculty member's peer review publications.

Research statement #2. The literature was inconclusive in this area. It was suggested that there are tremendous benefits to exploring new ways to share knowledge. It is recognized that currently, digital products allow for real-time interactions (Johnson et al., 2014). However, the literature is in favor of digital products, and they should be recognized as scholarship when it supports the scholarship of teaching and integration. The experts in this study were inconclusive in round one but came to a consensus in round two. The major factor was the expert's institution's rejection of digital products not being as valuable as peer review journals. There were distinctions made regarding teaching verse research and which type of institution has the potential for adoption. However, even the experts concurred with the literature that if digital products can be measured by the same standard, then it should be recognized as a scholarly contribution. However, the experts concur that without a review process digital products and peer review serve different objectives.

Research statement #3. Digital access has removed the restrictions inherent with brick and mortar learning spaces. Faculty members have created online presences as a way to interact with peers and academic communities globally. Kjellberg (2009) suggest those that engage in online presence have an appetite to interact with others in real time to build relationships. Online collaborations allow scholars the opportunity to share knowledge in digital spaces. The literature also supports that scholars receive intrinsic satisfaction with these digital collaborations. Often these interactions develop new and creative digital communities. This is not restricted to creating, debating and or disseminating scholarship, but often time to promote quality relationship with students. The experts did not reach a consensus until the second round. They suggested that having an online presence was a valuable activity, but did not believe an institution has the ability to evaluate this type of engagement. There was agreement that it

enhances a faculty member's exposure to other scholars. However, there was concern about the quality of the work in online collaborative spaces.

It was suggested by the experts, for online presences to be considered it should only contain per review work by the scholar. In round 2 the expert's viewpoint changed and concurred that some online presence has far reaching abilities, and it is as important as a conference presence because it can promote a scholar's contribution. It was recommended that online presence could be considered as scholarship of service. Boyer would recognize this as scholarship of application and concur with the study that credit should be granted based on rigor and the quality of the contribution. However, the experts express concerns about negative online interaction with the public and the time it may take to maintain an online presence actively.

Research statement #4. The literature indicated that there was considerable expectation with the increase in the adoption of researchers into the blogosphere and that changes in the scholastic paradigm would occur. The literature indicated that it was difficult to appraised blogs based on the traditional model of peer evaluation. The data of this study concurs with the literature. However, the experts agreed for very different reasons. They argue that the numbers of followers or views on a blog were insignificant for scholastic value. The panel argues that there is no relationship between followers and index citations design specifically for researchers. It was clear that the experts were concern with ethical issues and with the potential of manipulation of data in online public spaces. The question of content quality was raised as to the postings and how they contribute to scholastic value. One expert agreed with research statement #4 but suggested that the application of an altimetric would provide insightful data when sharing original work. However, the findings indicated the experts did not consider the number of followers as relevant to scholarship.

Research statement #14. Boyer (1990) recommends that the institution should change its reward system to provide a benefit to faculty members who adopt an innovation that meets the rigors of the peer review process. Johnson et al. (2014) recommend policy changes that can balance the scale when recognizing teaching and research. The experts concur with the impact that digital products have made in scholarship. The experts agreed with the literature that digital products provide a more enriching learning experience. Digital products can provide experiences not available with tradition teaching methods. The experts concur with the literature. It is recommended that scholars learn how to navigate the vast amounts of information available online in order to model for their students. The experts agree that online digital products expand a researcher's professional community. If researchers recognize this engagement as a benefit, then Roger's compatibility advantage would support the possibility of adoption. The advantage of digital products would be in line with current scholarship values. Therefore, it becomes a policy issue to adopt these efforts as scholarly contributions.

Research Question 2

Research statement #5. The literature and the experts concur that there is significant evidence that supports the adoption of digital products by the faculty members. Boyer (1990) suggested that scholars should have unlimited freedom to experiment. The policy should not hinder the exploration of digital products for application in online and traditional learning spaces. Boyer's scholarship of application argues for flexibility when evaluating scholarship. Leadership is required to change policy for promotion and tenure in order for scholars to be willing to explore the potential of digital products, services, and activities. The experts were unanimous and concurred that digital products and service should be considered for promotion and tenure.

They stipulated that if they met the same rigor as traditional peer review methods, then it should be recognized as scholarly contributions.

Early adopters will be the ones that will lay the framework for other scholars entering into this intersection. Boyer's scholarship of discovery acknowledges that if digital products can meet the rigor of peer review because of their ability to share and exchange knowledge in untraditional ways, then it should be considered a scholarly contribution. This would meet the requirement for Roger's diffusion of innovation because of the comparative advantage. In addition, the experts suggested that participation should be at the scholar's discretion. Roger's condition of trialability claims that adoption is more likely if the scholars have the option on how to explore this new way to construct scholarship. Boyer's scholarship of application supports Roger's assertion because it grants the scholars the opportunity to experiment with digital products, services, and activities before adopting any particular methods.

Research statement #6. Boyer (1990) argues that to accept a new paradigm for scholarship a new metric has to be designed and recognized by the promotion and tenure committee. Those that are responsible for policy must develop a framework to learn how to appraise digital scholarship's contributions based on qualitative standards. The experts did not come to a consensus with this premise until round two. However, they concurred with the literature when suggesting that the institution should play a larger role in learning the value of digital scholarship. The experts were concern about having a new standard that deviates from traditional canons. The literature supports this claim that institutions are aware that digital spaces will change how knowledge is shared.

The experts concur with Boyer request for a new metric. The experts stated adoption of the language would give creditability to recognizing digital scholarship. They reasoned that it is

the negative perception regarding digital products that has to change for more scholars to infuse this into their practice. Glassick (2000) stated clear goals are required for the assessment of scholarship. The experts concur suggesting clear expectation would promote engagement. However, in round two the experts withdrew their support for a new standard as discussed in the literature and suggested that maybe digital scholarship should have a method of peer review structured on tradition methods. This assertion supports the concern scholars have when they are faced with adopting something that is different. Roger's complexity attribute recognizes that some scholars and institution would be reluctant to adopt anything that deviates from the tradition peer review system.

Research statement #7. Boyer (1990) suggests that the academia's perspective limits creative approaches to new measurement of scholarship. Scholars are forced to choose between designing new approaches to teaching and learning or conducting research for promotion and tenure. The institution's scale weighs heavily toward research and peer review publications. Scholars are exploring new way to impart knowledge in digital learning spaces and online collaborative environments without receiving credit for their endeavors. The experts concur that if digital curricula meet the same standard, as traditional curricula, scholars should receive credit. Recognition of digital curricula would indicate a swing in the paradigm. Clear expectation (Glassick et al., 1996) would keep scholars focused on the institution's expectations. However, it would be necessary to allow scholars time to develop the required resources to integrate into their practice. Roger's trialability (2001) and selection of the most appropriate method (Glassick et al., 1996) would ensure a level of adoptability. However, the experts in this study are concern that digital curricula may not be diffused in research institutions. Straub (2009) suggest that the values of digital curricula might not be compatible with the goals and mission of a research

institution. Research institutions would be required to discover their unique needs for adoption**.**

Research Statement #8. Boyer (1990) suggests that a faculty member could use their imagination when assembling a portfolio of their work. It would reflect collaboration, shared worked and professional communities' reflection of the scholar's work.   Maeroff (Glassick et al., 1996) suggest that the portfolio reflects an accumulation of the scholar's work and insight into their learning. The experts came to a consensus that digital portfolios are best for archiving artifacts. It would be a collaboration of what their institution suggests and what the scholar wishes to document. However, the experts agree that at present, the construct of digital portfolios should be at the discretion of the scholar. Rogers would support this option because it would be considered a radical change for scholars that lack experience in the digital organization of artifacts. If sufficient time is not allotted for design and experimentation, rejection for digital portfolios could become an issue. In addition, the experts concur with Rogers that researchers who have not designed digital products should be provided support from their institution.   When scholars learn how to navigate the construct of digital portfolios, they would have the ability to share this experience in their teaching and learning (Burdick & Willis, 2011). In addition, the experts concur that unintended results would occur because the scholar's engagement would intrinsically increase their digital literacy.

Research statement #9. Gruzd et al. (2011) recognize that online network spaces have the ability to connect and promote online social interactions. Veletsianos (2011) concurs that the repurposing of professional networks allows scholars the shared knowledge, recourses and narratives and the possibility of receiving feedback. The experts agree that recommendation or endorsement in these online communities can serve a purpose. It is suggested that the recommendation and endorsements could be a part of the recommendation package. The experts

confirm that the recommendations and or endorsement should be from the scholar's peers and in some situations the students. However, the consensus did not agree and expressed concern about ethical issue of from the possibility of manipulation of information that occurs in digital public communities. They referenced the plausibility of random comments made by followers with no relationship to the faculty member. The experts argue that without control methods the system lacks transparency. Ackland (2009) supports this assertion that social networks have not been explored enough by scholars to establish a purpose for diffusion in academia.

Research statement #10. Gruzd et al. (2011) recognize how critical digital spaces are to scholars in providing a venue for interaction with peers. They provide a format for expanding leadership beyond their institution and across disciplines. Roger's diffusion of innovation exemplifies how repurposing digital activities products and or services in academic digital learning spaces. Boyer's model of scholarship integrates digital products, services, and activities as a vehicle for creative thinking when defining what scholarship is.

The experts came to a consensus and agreed that leadership in online academic communities is essential, and should be considered as scholarly service to the community and the profession. Boyer (1990) would identify this as scholarship of application because the interaction is tired directly to the scholar's field of knowledge and their ability to lead knowledge sharing. The experts suggest that this interaction with peers should be meaningful and geared towards scholarly contributions. If promotion and tenure committee were to recognize digital activity, then training should be provided to meet the expectations of the institution. However, the experts that disagreed stated that digital activity would detract from research and may not meet the conditions of scholarship at research institutions.

Research statement #11. Glassick et al. (1996) recognize the need for flexibility and

opportunities to have access and use all available resources to enrich the teaching and learning experiences. Scholars are creating more works from the integration of digital products, services, and activities. They can be accessed and utilized anytime outside of the traditional methods of knowledge sharing. This phenomenon of integration of digital products, services and activities remove the restrictions imposed by face-to-face and brick and mortar teaching. Scholars and researcher are entering these intersections formed by digital products, services, and activities and traditional pedagogy. The experts did not come to a consensus after three rounds. Thought-out the rounds they argued that online is not a replacement but that blending draws on the best practices of both methods. The panel suggests that this is situational and diffusion is reflective of the policy of the institution. The experts that disagree rejected the notion that the format was more critical than the content. They asserted that digital products, services, and activities do not argument inferior teaching. There was a consensus among all experts that blending is the most efficient. Experts that concur with research statement #11 suggest that traditional teaching would be the beneficiary of digital products, services, and activities. The support is strengthened when acknowledging that for today's students many of these digital products are transparent and have achieved critical mass.

In addition, the experts suggest that scholars intrinsically benefit from the experience derived from integrating digital products, services, and activities into their traditional practice. Vygotsky (Wink & Putney, 2002) suggested that as scholars negotiate the circumstance in their space, they would derive empathy for the space they share with others. Moser (2007) suggest that scholars that are intrinsically motivated are more incline for diffusion into their pedagogy. It was unanimous with the panel that research is required to decide and assist scholars in the negotiation and integration of digital products, services, and activities into tradition teaching and

learning models. Minocha et al. (2011) concur that research is required to determine what digital products, services, and activities facilitate knowledge sharing and the impact they have on teaching and learning.

Research statement #12. Johnson et al. (2014) argue that online learning and online communities have removed the restriction imposed by traditional learning spaces. There are now intersections composed of online communities, peer collaboration, and knowledge sharing to support teaching and learning. Cassella and Calvi (2010) suggest that institutions that have diffused online communities into their model for student interaction have the ability to engage early adopters of mobile devices and social networks. Martin (2009) suggests that by establishing online communities of practice, students have the potential to improve learning and developing relationships. Interestingly, there was not a consensus with the experts after three rounds. The experts that were in disagreement with the literature argue as though they had to choose between one method or the other. In that situation, face-to-face was the preferred interaction. If given a choice they would integrate face-to-face with online communities. However, the experts discussed conditions where online was the prefer engagement. If the student-teacher ratio is greater than one-to–one, these experts choose online interaction. It was also suggested that once a face-to-face relationship was established then online interaction is sustainable. There was a consensus with all the experts that online products like Skype are invaluable real-time tools.

The experts that agreed with research statement #12 suggest that the two were relatively the same. These experts did not assume that they had to choose between online or face–to-face. They argue that blended has the ability to strengthen the relationship between the mentor and the mentee. Concern was expressed that the quality of this interaction would be influenced by the

course work. In addition, they feared that if standards were created to implement this process, it would deprive the faculty member of quality time with students. Faculty members would have to be provided with training and mentoring to learn to facultative community building and to share the benefits of this method of engagement.

Adoption of online communities would be greatly influenced by the student's perspective. However, Jones and Laffey (2000) suggest adoption with this type of online community would be based on Roger's relative advantage benefit. Concerns would have to be addressed regarding how this works into the established routine of delivering knowledge, the quality of the support, and what are the incentives for participation.

Research statement #13. Cheverie et al. (2009a) argues that the design of a digital product might not meet the standards across disciplines. What works in one area might not be acceptable in another. Roger's complexity attribute includes the confidence to create digital products and the effort to acquire a working knowledge.   Rogers (2003) would concur that a webinar has the potential for adoption if the faculty perceived a sufficient advantage over their present method of disseminating content.   The experts that agreed with this assertion argued that the two are the same and the format is secondary to the purpose, content, quality, and contribution to scholarship. Rogers (2003) relative adoption questions how fast faculty member would be willing to commit to change. Also, adoption based on Roger's observability would determine how the webinar is shared and or made accessible to the scholar's professional community.

Adoption is possible if the webinar maintains the rigor of a traditional invited address or conference as recommended by the experts. This could quite well meet the requirements for Boyer's scholarship of teaching. All subjects have the ability to enrich themselves in the digital

activity and establish if the rigor is compatible with traditional methods.

Limitations of the Study

The time the questionnaire was emailed to the participants was near the end of the 2017 fall semester. Data collection continued until the beginning of the spring term. This is a very busy time for anyone in the field of education. The experts had the responsibilities of administering and grading final papers, preparing for personal vacation time, and completing any last-minute paperwork for their institution.

Many of the experts were not familiar with a Delphi study. There were unaware they had to read the opinions of their peers before answering the next question. Some were not sure how to response to the prompts. In the beginning, I had to explain individually to some of the panel members how to interact with each round of the study.

The Qualtrics platform is not designed to accommodate the data collection method of a Delphi study. There were gaps as long as two weeks while attempting to work with tech support to redesigning the tool to accommodate the specifics' of this study.

The researcher thought it was important to know the profession history of the experts. However, in collecting this data, it was difficult to identify the current position the experts hold with their employer.

Recommendations for Future Study

The Delphi study asks credible experts in the field about the construct, professional interaction, and engagement with peers using digital artifacts. The researcher wanted to know if these digital artifacts and interactions are the future of scholarship and can they be used as an alternative form of scholarship for promotion and tenure. The panel of experts made research recommendations throughout all areas of consensus and non-agreement. These recommendations

for future study are at the core of the narrative throughout this study. Many of the

recommendations are reflective of policy changes or the addition of language recognizing digital

products, services, and activities.

- How can online repositories design a secure open platform grounded in digital peer review that is acceptable to promotion and tenure committees?

- How does the promotion and tenure committee evaluate scholars that chose to self-publish without going through the tradition peer review process?

- How does sharing digital artifacts such as blogs and Twitter promote scholarship?

- How can the promotion and tenure committee adopt language that includes digital products, services, and activities?

- How does digital peer review differ from tradition peer review?

- How do engaging students in online learning communities impact teaching and learning?

- How do online communities remove the isolation associated with research?

- How can online repositories construct a platform that includes language for peer review?

- How would a metric for digital products, services, and activities vary between a teaching institution and a research institution?

Summary

This study concluded after three rounds. Round one had a consensus for eight questions

(1,4,5,7,8,9,10,14).   Round two had a consensus for three questions (2,3,6). The questions for

round three received non-agreement, and no consensus was reached for three questions

(11,12,13). Throughout all the rounds, experts made suggestions, changed opinions, and after

agreeing or disagreeing the participants concurred on many of the same issues. The overarching

opinions were clear that peer review journals are still the gold standards. For digital products,

services, and activities to receive equal recognition, credit and consideration for promotion and tenure it is suggested that they must meet the same standards as peer review journals or with the referred editorial process. It is suggested that although they must meet the same standards, digital activities, products, and services are not recognized as the same as a peer review publication.

It was often recommended that the course of study and the type of institution would often influence the diffusion of digital products, services, and activities. The experts suggested that the institution should exercise leadership in exploring the value of digital scholarship. In addition, they should be responsible for providing support and mentoring to faculty members. The experts agreed that integration of online teaching and learning and traditional teaching provides the best method for academic engagement. For diffusion by faculty members to occur, the institution must include language in its promotion and tenure policy that the committee will adopt. In many instances, the experts concur that online activities were relatively the same as traditional methods of the scholarship of teaching, the scholarship of learning, and the scholarship of service

The determining factor for diffusion would be determined by developing a method for peer review for digital content.

Conclusion

After careful analysis for any level of signification adoption to occur in both the research and or teaching institution, the teaching institution will have to take a leadership role in discovery. Research institutions at present do not have the incentive or motivation to explore the integration of digital activities, products or services as an alternative form of scholarship. With

more research, teaching institutions can develop a framework for adoptable language acceptable

by the research tenure and promotion committee and soon after by research institutions.

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APPENDIX A

Active Digital Products, Services, Activities, and Online Collaborative Spaces

1. Base

    BASE is one of the world's most voluminous search engines especially for academic

    open access web resources. Bielefeld University Library operates BASE.

2. Citeulike

    Citeulike is a free service for managing and discovering scholarly references.

3. Refseek

    RefSeek is a web search engine for students and researchers that aim to make   academic

    information easily accessible to everyone. RefSeek searches more than one billion

    documents, including web pages, books, encyclopedias, journals, and newspapers.

4. Neuroethics & Law Blog

    An interdisciplinary forum for legal and ethical issues related to the mind and brain

5. Openstax cnx

    View and share free educational material in small modules that can be organized as

    courses, books, reports or other academic assignments.

6. Scholarly Open Access

    Critical analysis of scholarly open-access publishing

7. Linkedin

    LinkedIn is the world's largest professional network with more than 400 million members

    in 200 countries and territories around the globe.

8. If:book

   A project of the Institute for the Future of the Book

9. BibSonomy

   The blue social bookmark and publication sharing system

10. The Association for Computers and the Humanities

    Our most important activity center on cultivating and strengthening the field of

    digital humanities, and providing guidance and support to those entering the field.

11. The Academic Commons

    Academic Commons is Columbia University's digital repository where faculty, students,

    and staff of Columbia and its affiliate institutions can deposit the results of their scholarly

    work and research. Content in Academic Commons is freely available to the public.

12. Emerging Media & Communication

    Located within the School of Arts, Technology, and Emerging Communication the

    Emerging Media and Communication degree addresses the importance of understanding

    the social and cultural implications of an "always on" world.

13. Kairosn4ews

    A Weblog for Discussing Rhetoric, Technology and Pedagogy

14. . Lessig Blog

    Curated by Lawrence Lessig who is the Roy L. Furman Professor of Law and Leadership

    at Harvard Law School

15. ProfHacker

    ProfHacker delivers tips, tutorials, and commentary on pedagogy, productivity, and

    technology in higher education.

16. The Hidden Level

    Curated by Jacob Habgood Senior Lecturer in Game Development at Sheffield Hallam. This work relates to the use of hobbyist programming tools to teach programming and game design principles.

17. WRT: Writer Response Theory

    A blog and podcast dedicated to discussing text arts forms

18. Silversprite

    This information kit incorporates a wide range of viewpoints and demonstrates that gamification in education cannot be reduced to a simple good/bad binary.

19. Connected Researchers

    Digital tools for researchers curated by Dr. Crouzier who is a researcher, experienced in the fields of biomaterials and biopolymers.

20. Shaun R. Harper

    Dr. Harper is a tenured faculty member in the Graduate School of Education, Africana Studies, and Gender Studies at University of Pennsylvania. Shaun R. Harper's research examines race and gender in education and social contexts, equity trends and racial climates on college campuses, Black and Latino male student success in high school and higher education, and college student engagement.

21. Concessions of an Aca-Fan

    Curated by Henry Jenkins is the Provost's Professor of Communication, Journalism, and Cinematic Arts at the University of Southern California.

22. Mimi Ito

    Curated by Mimi Ito a cultural anthropologist specializing in learning and new media, particularly among young people in Japan and the US.

23. Good Morning Comics

    Curated by Scott McCloud

24. Connected Learning Research Network

    Dedicated to researching and reimaging learning for the 21st century

25. SPARC Digital Repositories

    SPARC's membership and mandate encourages a focus on developing institutional repositories

26. First Monday

    First Monday is one of the first openly accessible, peer–reviewed journals on the Internet, solely devoted to the Internet.

27. Questia

    Questia's library of academic journals contains hundreds of thousands of full-text journal articles from some of the world's leading publishers.

28. WorldCat

    World Cat is the world's largest network of library content and services. World Cat libraries are dedicated to providing access to their resources on the Web, where most people start their search for information.

29. Scholastica

    Easily track manuscripts and collaborate with your editors, authors, and reviewers.

30. The Scholarly Kitchen

The mission of the Society for Scholarly Publishing is "to advance scholarly   publishing and communication, and the professional development of its members through education, collaboration, and networking." The Scholarly Kitchen is a moderated and independent blog aimed to help fulfill this mission by bringing together differing opinions, commentary, and ideas, and presenting them openly.

31. eLearning Industry

    eLearning Industry is the largest online community of professionals involved in the eLearning industry. This site has the best collection of eLearning articles, eLearning concepts, eLearning software, and eLearning resources based on the top eLearning authors.

32. We make money not art

    Régine Debatty is a writer, curator and critic, and founder of we-make-money-not-art.com. Régine is known for her writings on the intersection between art, science, technology, and social issues. She writes and lectures internationally about the way artists, hackers and designers use technology as a medium for critical discussion.

33. Robert Hook's London

    The posts on this blog arise from my ongoing academic research into Hooke and the early Royal Society. Like most academic work, they contain a mixture of material drawn from primary sources and material drawn from secondary sources (mostly the former). Unlike formal articles published in peer-reviewed journals, they do not generally cite sources because they are intended for a wide audience and are short pieces of 'work in progress' rather than polished arguments.

34. Wynken de Worde

Curated by Sarah Werner on books and early modern culture.

35. Mind Hacks

    Neuroscience and psychology tricks to find out what is going on inside your brain.

36. Addiction Inbox

    Curated by Dirk Hanson with articles and health studies about drugs, addiction and alcoholism, including the most recent scientific and medical findings.

37. Barking Up The Wrong Tree

    Curated by Eric Barker; this site brings you science-based answers and expert insight on how to be awesome at life.

38. Oscillatory Thoughts

    Curated by Bradley Voytek, a neuroscientist combining large scale data-mining, machine-learning techniques, and brain computer interfacing with hypothesis-driven experimental research to understand the relationships between the human frontal lobes, cognition, and disease.

39. The Psychology of Video Games

    Curated by Jamie Madigan, PhD, who is examining the intersection of psychology and video games. This website offers something unique: a discussion of how the psychology behind games shapes our behavior, manipulates our beliefs, and rigs our purchasing decisions.

40. Edible Geography

    Nicola Twilley's spatial investigations of food

41. Eukids Online

This is the twitter account for the EU Kids Online project, researching children and online risks and opportunities.

42. The Professor is in

    Curated by Karen Kelsky, aka, The Professor, is a former tenured professor and Department Head with 15 years of experience teaching at the University of Oregon and the University of Illinois at Urbana-Champaign. She considers her blog to be the definitive career guide for graduate students, adjuncts, post-docs and anyone else eager to get tenure or turn their Ph.D. into their ideal job.

43. The Future of the Internet

    Curated by Jonathan Zittrain, a Professor of Law at and the Kennedy School of Government, Professor of Computer Science at Harvard's School of Engineering and Applied Sciences, and a co-founder of the Berkman Center for Internet & Society at Harvard University

44. Association of Internet Researchers

    Twitter feed of The Association of Internet Researchers is an academic association dedicated to the advancement of the cross-disciplinary field of Internet studies

45. Amanda Lenhart

    Amanda Lenhart is a Researcher at the Data & Society Research Institute, where she leads a one-year project – funded by the Digital Trust Foundation – examining the prevalence of cyberstalking and digital domestic abuse in the United States.

46. Annette Markham

    She is an itinerant scholar, studying the social use and impact of digital media

47. The Digital Scholar

The Digital Scholar serves as a resource for independent scholars, academics, and other thought leaders who want to take advantage of these new publishing technologies. By using the resources on this website, you can begin to take control over the distribution of your writing, ideas, and scholarship, whether you are an academic or a scholar who is unaffiliated with an educational institution.

48. The Historic Present

   The Historic Present is led by R. Sós, an independent scholar and freelance writer living in the historic present.

49. Early American Crime

   Anthony Vaver has broad expertise in the social and cultural history of crime and punishment. He holds a Ph.D. from the State University of New York at Stony Brook and an M.L.S. from Rutgers University

50. Digital Scholarship in the Humanities

   Lisa Spiro is the executive director of Digital Scholarship Services at Rice University's Fondren Library

51. Dan Cohen

   Dan Cohen is the Executive Director of the Digital Public Library of America

52. Hastac

   HASTAC (Humanities, Arts, Science, and Technology Alliance and Collaboratory) is an interdisciplinary community of humanists, artists, social scientists, scientists, and technologists that are changing the way we teach and learn. Our 13,000+ members from over 400+ affiliate organizations share news, tools, research, insights, pedagogy,

methods, and projects--including Digital Humanities and other born-digital scholarship -- and collaborate on various HASTAC initiatives.

53. Xlibris

Xlibris is a book publishing company

54. The Dutch PhD Coach

This is the blog of The Dutch PhD Coach, written by Arjenne Louter. The blog is filled with tips and useful information, meant to help you finish your thesis successfully and in time. - This blog, from the Netherlands, offers both life, writing, teaching, and general well-being tidbits for Ph.D. candidates and students.

55. I am Dr. Will

Curated by Dr. Will Deyamport, III who is a globally recognized Connected Educator and Connected Ed Consultant this blog offers general thoughts on heading to graduate school, obtaining a Ph.D., and most particularly, how technology and educational media plays a roll in the process

56. The grad cafe

This forum offers a vibrant community sharing insights and camaraderie for those in graduate school. Sign in to view and share content on a variety of topics

57. Pro Quest

This platform allows graduate students to communicate about finishing their dissertations, as well as to upload their work to be cross-referenced and commented on by other graduate students

58. Faculty Focus

Faculty Focus publishes articles on effective teaching strategies for the college classroom both face-to-face and online. Faculty Focus was created in 2003 by Magna Publications.

59. Practical Ethics

Practical Ethics is where you can find daily ethical analysis of news events written by authors drawn from students and researchers in four centers based at the Philosophy Faculty, University of Oxford, and from our visitors and guest authors. We focus on current events with practical ethical relevance, including developments in science and technology, environmental policy, public health, and information ethics.

60. Scholarly Publishing @ MIT Libraries

Curated by Ellen Finnie, Head, Scholarly Communications & Collections Strategy (previously Program Manager for the Office since 2006) is the author of this web site. The MIT Libraries' Office of Scholarly Publishing, Copyright & Licensing supports MIT faculty and researchers who have questions about their options and rights in the world of scholarly publishing, which has evolved dramatically with the advent of the digital age.

61. Research Gate

Founded in 2008 by physicians Dr. Ijad Madisch and Dr. Sören Hofmayer, and computer scientist Horst Fickenscher. Research Gate today has more than 8 million members. We strive to help them make progress happen faster. Their mission is to connect researchers and make it easy for them to share and access scientific output, knowledge, and expertise. On Research Gate, they find what they need to advance their research.

62. Academia

Academia.edu is a platform for academics to share research papers. The company's mission is to accelerate the world's research. Academics use Academia.edu to share their

research, monitor deep analytics around the impact of their research, and track the research of academics they follow. 30,792,768 academics have signed up to Academia.edu, adding 8,503,876 papers and 1,792,675 research interests. Academia.edu attracts over 36 million unique visitors a month.

63. Mendeley

Organize, share, and discover research papers. Mendeley is a research management tool for desktop & web. You can also explore research trends and connect to other academics in your discipline.

64. UCF Libraries

The site provides resources on the definition of digital scholarship

65. refseek

Currently in public beta, RefSeek is a web search engine for students and researchers that aim to make academic information easily accessible to everyone. RefSeek searches more than one billion documents, including web pages, books, encyclopedias, journals, and newspapers.

66. The Virtual Learning Resource Center

The Virtual LRC, a completely free resource, is the creation of Dr. Michael Bell, former state chair of the Texas Association of School Librarians. The mission of the Virtual Learning Resources Center is to index thousands of the best academic information websites, selected by teachers and library professionals worldwide, in order to provide to students and teachers current, valid information for school and university academic projects.

67. Digital Library Of The Commons

The Digital Library of the Commons (DLC) is a gateway to the international literature on the commons. The DLC provides free and open access to full-text articles, papers, and dissertations. This site contains an author-submission portal; an Image Database; the Comprehensive Bibliography of the Commons; a Keyword Thesaurus, and links to relevant reference sources on the study of the commons.

68. Microsoft Academic Search

Microsoft's academic search engine offers access to more than 38 million different publications, with features including maps, graphing, trends, and paths that show how authors are connected.

69. Library Journal

LJ provides groundbreaking features and analytical news reports covering technology, management, policy and other professional concerns to public, academic and institutional libraries. Our hefty review sections evaluate 8000+ reviews annually of books, eBooks, audiobooks, videos/DVDs, databases, systems and websites. Our team of library and literary experts communicate with our audience through print, digital, and live content and continuously strive to stay on the cutting edge of the ever-evolving world of libraries.

70. Digital Georgetown

Digital Georgetown is the unified portal for Georgetown University's institutional repository and digital collections, providing online access to academic scholarship and unique digitized special collections.

71. The Impact Blog

The London School of Economics and Political Science blog is a hub for researchers, administrative staff, librarians, students, think tanks, government, and anyone else

interested in maximizing the impact of academic work in the social sciences and other disciplines. We hope to encourage debate, share best practice and keep the impact community up to date with news, events and the latest research.

72. The Scientist

The Scientist is the magazine for life science professionals—a publication dedicated to covering a wide range of topics central to the study of cell and molecular biology, genetics, and other life-science fields. It is read by leading researchers in industry and academia who value penetrating analyses and broad perspectives on life-science topics both within and beyond their areas of expertise. Written by prominent scientists and professional journalists, articles in The Scientist are concise, accurate, accessible, and entertaining.

73. Center for Globalization and Strategy

IESE Cities in Motion Strategies is a research platform that was launched by the IESE Business School Center for Globalization and Strategy and the IESE Department of Strategy. The initiative connects a worldwide network of city experts and specialized private companies with local administrations all over the world, with the goal of developing valuable ideas and innovative tools that can generate smarter cities and promote change at the local level.

74. Matthew Finders Twitter: https://twitter.com/politicalspike

Matthew Flinders is Director of the Sir Bernard Crick Centre for the Public Understanding of Politics at the University of Sheffield

75. ADMINISTRATIO PUBLICA

Curated by Vedran Đulabić, PhD, public administration & administrative law, assistant professor, Faculty of Law at University of Zagreb.

76. My Garden Pond

Curated by Ruth Dixon's an Associate Member of the Department of Politics and International Relations at the University of Oxford. From 2010 to 2013 She was funded by the Leverhulme Trust to study changes in executive government over the past 30-40 years.

77. UCL Faculty of Laws

For almost 200 years, UCL Laws has been one of the leading centers of legal education in the world.

78. OUPblog

Since 2005, the talented authors, staff, and friends of Oxford University Press provide daily commentary on nearly every subject under the sun, from philosophy to literature to economics. OUPblog is a source like no other on the blogosphere for learning, understanding and reflection, providing academic insights for the thinking world.

79. Jonathan Wolff

Professor of Philosophy and Dean of Arts and Humanities University College London

80. Google Scholar

Google Scholar provides a simple way to broadly search for scholarly literature. From one place, you can search across many disciplines and sources: articles, thesis, books, abstracts and court opinions, from academic publishers, professional societies, online

repositories, universities and other web sites. Google Scholar helps you find relevant work across the world of scholarly research.

81. Jane Tinkler https://www.ucl.ac.uk/steapp/people/tinkler

Jane Tinkler is seconded full time to the UK Parliamentary Office of Science and Technology (POST) as Senior Adviser in social science. She has been a social science researcher for nearly ten years working on applied projects with government, civil society and academic partners.

82. Rachel Pain

Professor of Human Geography at Durham University, UK, specializing in violence research. Remapping violence: different forms and scales of violence as linked.

83. Professor Lauren Klein

Curated by Lauren Klein is an assistant professor in the School of Literature, Media, and Communication, where she also directs the Digital Humanities Lab. Digital Humanities: this site documents "Digital Humanities," a course conducted in the School of Literature, Communication and Culture at Georgia Tech in Spring 2012.

84. Digital Art Curation

Dighist.org is the blog for a series of courses in digital curation and digital history. Currently, it hosts a course on the curation and conservation of digital art. It has previously hosted courses on digital history and digital public history. This is the course blog for Digital Art Curation a course at the University of Maryland College Park. One of the explicit goals of this course is for us to develop as communicators on the public web.

85. Richard Ashcroft

Professor of Bioethics in the School of Law at QMUL

86. Educause

Educause is a nonprofit association and the foremost community of IT leaders and professionals committed to advancing higher education. EDUCAUSE helps those who lead, manage, and use information technology to shape strategic IT decisions at every level within higher education. IT is more than technology to EDUCAUSE members. It is a system of people, processes, organizations, and challenges that are constantly evolving. Over 1,800 colleges and universities create a network where valuable perspectives on IT strategies are shared.

87. Center for Digital Research in the Humanities

The Center for Digital Research in the Humanities (CDRH) advances interdisciplinary, collaborative research. Humanities faculty and students affiliated with the Center are expanding our understanding of history, literature, languages, and culture. The Center also develops unique digital content and tools for scholarly discovery, and offers workshops and forums on humanities topics.

88. Danah Boyd | apophenia

Danah Boyd is a Principal Researcher at Microsoft Research and the founder/president of Data & Society.

89. Gina Neff

Gina Neff is an Associate Professor at the University of Washington. She studies the relationship between society and communication technologies, as well as between culture and communication.

90. Anna Hushlak

Anna Hushlak is a digital campaign's specialist based out of the University of Oxford. She is the founder and creative director of Why Do We Care. Information should be shared and change should be accessible. WDWC is a hub. We curate resources for everyday campaigners. Why? Because we care.

91. Learning with 'e's

Steve Wheeler Associate Professor of learning technology in the Plymouth Institute of Education at Plymouth University

92. Cynthia Breazeal

Dr. Cynthia Breazeal is an Associate Professor of Media Arts and Sciences at the Massachusetts Institute of Technology where she founded and directs the Personal Robots Group at the Media Lab.

93. Mitchel Resnick

I direct the Lifelong Kindergarten group at the Media Laboratory at Massachusetts Institute of Technology.

My group develops new technologies to engage people (particularly children) in creative learning experiences.

94. New Black Man (in Exile)

Mark Anthony Neal is an American author and academic. He is Professor of Black Popular Culture in the Department of African and African-American Studies at Duke University, where he won the 2010 Robert B. Cox Award for Teaching.

95. Dirt

Digital Research Tools. The DiRT Directory aggregates information about digital

research tools for scholarly use. It evolved from "Bamboo DiRT", a version of the

directory developed by Project Bamboo, which itself developed out of Lisa Spiro's DiRT

wiki.

96. Wynken de Worde

Wynken de Worde, a blog named after one of the earliest English printers and where I

write about early printed books, book history, and the digital technologies that can help

us learn about books and reading.

97. First Monday

First Monday is one of the first openly accessible, peer–reviewed journals on the Internet,

solely devoted to the Internet.

98. You Tube Ex. creating an online syllabus, How does teaching influence learning, Jerome

Bruner

YouTube allows billions of people to discover, watch and share originally created videos.

YouTube provides a forum for people to connect, inform, and inspire others across the

globe and acts as a distribution platform for original content creators and advertisers large

and small.

99. AERA

The American Educational Research Association (AERA), founded in 1916, is concerned

with improving the educational process by encouraging scholarly inquiry related to

education and evaluation and by promoting the dissemination and practical application of

research results. AERA's more than 25,000 members are faculty, researchers, graduate

students, and other distinguished professionals with rich and diverse expertise in education research.

100.   Dml Research Hub

The Digital Media and Learning Research Hub's mission is to advance research in the service of a more equitable, participatory, and effective ecosystem of learning keyed to the digital and networked era. Located at the system-wide University of California Humanities Research Institute at UC Irvine, we are an international research center that is committed to promoting compelling research collaborations about best participatory learning practices, applications, programs and their assessments that engage digital media. We support emerging research on digital media and learning through two interdisciplinary research networks — Connected Learning and Youth and Participatory Politics — and the Connecting Youth Project.

101.   Gamification

Curated by Kevin Werbach of Wharton University of Pennsylvania is a technology analyst, business school professor, and policy maven. He focuses on the intersection of business, law, and technology in the converging worlds of the Internet, media, and communications.

102.   Justin Wolfers

Justin Wolfers is a Professor of Economics and a Professor of Public Policy at the University of Michigan.

103.   Merlot ll

MERLOT is a curated collection of free and open online teaching, learning, and faculty development services contributed and used by an international education community.

104.   SSRC Digital Projects

The Social Science Research Council (SSRC) is an independent, international, nonprofit organization founded in 1923. It fosters innovative research, nurtures new generations of social scientists, deepens how inquiry is practice within and across disciplines, and mobilizes necessary knowledge on important public issues.

APPENDIX B

Sample of Questionnaire

PEPPERDINE UNIVERSITY
Graduate School of Education and Psychology

INSPIRATION *for change*

Informed consent
Thank you for agreeing to participate in this research study about Boyer's model of expanding the definition of scholarship.

This research study is in partial fulfillment of the requirements for the Doctorate of Education in Learning Technologies at Pepperdine University. This Delphi study is to seek consensus from scholars about digital products, services, and or activities. The study consists of three rounds of questions. The first round consists of 14 questions. The questions include demographic information and your views regarding the content of the study. The second round allows you the opportunity to modify your responses to the questions and to comment on areas of non-agreement. The third round consists of areas of non-agreement to the questions and allows you to include comments.

Your participation will be noted on the research document. However, your responses are confidential, and there will be no personal identifiers within the data collected from each round or presented in the culminating report. Every effort will be made to keep your responses confidential. Your participation in the study is strictly voluntary and you may opt-out at any time during the study. After each statement, you will be asked to state your level of agreement or disagreement on the Likert Scale. After the Likert Scale, please write a brief comment to explain your level of agreement. The Delphi method provides an efficient way to develop group consensus while protecting the anonymity of individuals.

This Delphi study will gather information about from scholars with experience or expertise in the following areas. They should have knowledge of Boyer's model of scholarship or the experience implementing a Boyer's model of scholarship at their intuition. Experts can have experience with digital production of academic material, be an activate participant in an online academic community and or attend and participate in conferences within the studied discipline. They can be a regular contributor to the institution's repository. Also, they can be

members of the research, promotion and tenure committee, and or a non-tenure or tenure published scholar. Experts can be academic administrators with responsibilities managing institution's online presence or academic administrators with influence in policy decision regarding research, tenure, or promotion.

Electronic consent

By selecting the agree button below, the participant is acknowledging that they have read and understand the informed consent information provided. In addition, this is the only time you will be requested to agree to participate. It is implied that by selecting the agree button, you agree to take part in all three rounds of the study. To decline participation in this research study, please select the disagree button.

Agree	Disagree
○	○

Demographic Information
This information will assist in the analysis of the data.

Years teaching and or conducting research.

0 to 5	6 to 10	10 to 15	15 to 20	20 or more years
○	○	○	○	○

Gender Identification

[dropdown]

Please check all the responsibilities that apply to you:

☐ Academic Administorator   ☐ Member of reserch, promotion, or tenure committee

☐ Tenure instructor   ☐ Producer of digital academic material

☐ Non-tenure instructor   ☐ Active in online academic community

☐ Tenure track insturctor   ☐ Manage's institution's online activity

☐ Contributor to institution's repository   ☐ Presentor at conferences

Have you published any of the following?

Peer Reviewed	Self-Publishing	Online Repository	Conference paper	White paper	Chapter submission	None
☐	☐	☐	☐	☐	☐	☐

>>

PEPPERDINE UNIVERSITY
Graduate School of Education and Psychology

INSPIRATION
for change

Section 1
Publishing
This section is about digital alternatives to published peer review journals.

1) Publishing articles through online repositories dedicated to academic scholarship, such as Research Gate or Academia, is as valuable as publishing in traditional peer-reviewed journals.

Strongly Agree	Agree	Disagree	Strongly Disagree
○	○	○	○

Please briefly explain your choice

[text box]

2) Digital products constructed by faculty, such as podcasts or online curricula are as valuable as publishing in traditional peer-reviewed journals

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

Please briefly explain your choice

Section 2
Assessment and Evaluation:
This section focus is on how the adoption of digital technologies influences the assessment and evaluation process.

Section 2
Assessment and Evaluation:
This section focus is on how the adoption of digital technologies influences the assessment and evaluation process.

3) A faculty member's online presence is as important as their print and conference presence.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

Please briefly explain your choice

4) The number of followers on a professor's blog or the number of views on a professor's video or podcast channel should determine its scholastic value, much as the science citation index did in the past.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

Please briefly explain your choice

5) Research promotion and tenure committees should consider faculty digital products and online professional networking activities as part of the promotion and tenure portfolio.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

Please briefly explain your choice

6) Colleges and universities should adopt specific standards for digital scholarship in addition to the traditional scholarship models.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

Please briefly explain your choice

Section 3
Promotion and Tenure: This section focus is the how digital product can have an influence on promotion and tenure with academic scholars.

7) Creating digital curriculum products such as video lectures or websites should impact the evaluation of an academic for tenure or promotion.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

Please briefly explain your choice

8) Faculty should maintain a digital portfolio to support promotion and tenure opportunities.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

Please briefly explain your choice

9) Endorsements and recommendations of professional talents as found in professional networks, such as LinkedIn, should be considered along with letters of support in the evaluation of an academic for tenure and promotions.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

Please briefly explain your choice

Section 4
Scholarship as Service:
These questions focus on Boyer's model of using digital products as a means of providing service as a form of scholarship.

10) Leadership roles in online academic communities through listservs or LinkedIn groups, professional organization forums, should qualify as scholarly service to an academic community or educational organization.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

Please briefly explain your choice

11) Academics knowledge of and ability to integrate digital products, services, and activities into their practice is the most effect way for sharing knowledge as oppose to the traditional face to face and brick and mortar teaching.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

Please briefly explain your choice

Section 5
Online Learning Spaces: This section focus is on alternative models of knowledge sharing in online learning spaces.

12) Interactions with students in online communities are as important as mentoring students face-to-face.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

Please briefly explain your choice

13) A webinar should be accorded the same respect as an invited address or conference workshop.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

Please briefly explain your choice

14) Digital products have redefined the role of a scholar's responsibilities to teaching and learning.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

Please briefly explain your choice

APPENDIX C

Consensus for Research Questions

Research Statement	Research Question	Round	Agree	Disagree	Non-Agreement
1	1	1	Consensus		
2	1	2		Consensus	
3	1	2		Consensus	
4	1	1		Consensus	
5	2	1	Consensus		
6	2	2	Consensus		
7	2	1	Consensus		
8	2	1	Consensus		
9	2	1	Consensus		
10	2	1	Consensus		
11	2	3			Non-Agreement
12	2	3			Non-Agreement
13	2	3			Non-Agreement
14	1	1	Consensus		

APPENDIX D

IRB Approval

PEPPERDINE

NOTICE OF APPROVAL FOR HUMAN RESEARCH

Date: October 26, 2016

Protocol Investigator Name: Dwight Mc Bride

Protocol #: 16-06-295

Project Title: A "DIFFUSION OF INNOVATION" ANALYSIS OF THE ACCEPTANCE OF DIGITAL ACTIVITES, PRODUCTS, AND SERVICES AS SCHOLARSHIP IN A BOYER MODEL OF ACADEMIC SCHOLARSHIP

School: Graduate School of Education and Psychology

Dear Dwight Mc Bride:

Thank you for submitting your application for exempt review to Pepperdine University's Institutional Review Board (IRB). We appreciate the work you have done on your proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations 45 CFR 46.101 that govern the protections of human subjects.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit an amendment to the IRB. Since your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite the best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the IRB as soon as possible. We will ask for a complete written explanation of the event and your written response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the IRB and documenting the adverse event can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* at community.pepperdine.edu/irb.

Please refer to the protocol number denoted above in all communication or correspondence related to your application and this approval. Should you have additional questions or require clarification of the contents of this letter, please contact the IRB Office. On behalf of the IRB, I wish you success in this scholarly pursuit.

Sincerely,

Judy Ho, Ph.D., IRB Chair

PEPPERDINE

cc: Dr. Lee Kats, Vice Provost for Research and Strategic Initiatives
Mr. Brett Leach, Regulatory Affairs Specialist