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## A Novel Application: Using Mobile Technology to Connect Physical and Virtual Reference Collections

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## CHAPTER 10\*

# A Novel Application

## Using Mobile Technology to Connect Physical and Virtual Reference Collections

*Hailie D. Posey*

### Introduction

Librarians are constantly considering the most effective ways to connect our users with content. This chapter outlines an innovative implementation of iPad kiosks to blur the lines between physical and virtual library collections. The kiosk presents the Theology Collections Portal, a web-based guide to electronic resources in theology available from Providence College's Phillips Memorial Library. The Theology Collections Portal content is presented to students and faculty through an iPad kiosk physically located within the library's theology collection (figure 10.1).

Providence College's Phillips Memorial Library + Commons began lending iPads to students, faculty, and staff in 2012. In addition to lending the devices, library staff dedicated time to learning about both task-based and subject-based mobile applications that would be of use to our community. A small group of library staff tested, discussed, and vetted a variety of apps that would be installed on the circulating iPads. Efforts were made to promote the use and discovery of various apps through thoughtful organization of the apps on the devices themselves, programming around applications, and the creation of an online research guide

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designed to teach the community more about the apps. Despite these initiatives, assessment data from the iPad-lending program suggests that patrons borrowing the iPads use them primarily for accessing the Internet (Safari, Chrome, etc.) and social media (Facebook, Twitter, etc.) and consuming media (YouTube, Netflix, Pandora, Spotify, etc.) (DeCesare, Poser & Belloti, 2013, p. 33–36).

**FIGURE 10.1**

The Theology Collections Portal situated within the theology collection.



With this analysis in mind, library staff began to think of alternative ways to connect our patrons with useful, content-based mobile applications and library resources. Drawing on research focused on the Internet of Things and the integration of digital technologies with our daily lives, the Digital Publishing Services Coordinator suggested positioning iPad kiosks strategically within the library's physical book collection as a means of connecting patrons with the library's online resources related to a given subject area. Planning then began to bring a subject-based kiosk to life. Working collaboratively, the Digital Publishing Services Coordinator and the Commons Technology Specialist discussed how to image the iPad and how to manage the kiosk for optimal usability. The Digital Publishing Services Coordinator suggested that the kiosk pilot be aimed at students doing research in theology. Providence College is a Dominican Catholic institution, and students at Providence College are required to take coursework in the development of western civilization. Anecdotes from research librarians, as well as data from our research question-tracking system, LibStats, revealed a high frequency of research questions from theology students. This history of research inquiries, couples with the library's existing relationship with several theology faculty prompted the decision to develop pilot content for the kiosks with the aim of connecting theology scholars and students to the library's theology resources.

While information kiosks are present in many public spaces (retail stores, banks, airports, etc.), literature on information kiosks in libraries is relatively scant. Publications on the subject include an analysis of government information kiosks, library kiosks as OPAC terminals, a review of the role of health information kiosks (Wang & Shih, 2008), a discussion of an iPad vending machine kiosk at Drexel University ("Drexel U", 2015), and the use of OverDrive kiosks for browsing e-book collections at school and public libraries ("Kiosks made easy," 2014; Sun, 2015). One more robust review of the use of kiosks describes work done by a team of librarians at Texas Tech University to create an information kiosk that aims to provide "general information for frequently asked questions in a more efficient, creative, and interactive way" (Litsey et al., 2015, p. 31). Kiosk design at Texas Tech was guided by graphic design principles, including the explicit goal of being "adaptive, interactive, and usable" (Litsey et al., 2015, p. 33). The kiosk was built using a touch-screen Smart Board and programmed locally using PHP, JQuery, and Flash. Analysis of the information kiosk usage at Texas Tech has shown that the frequency of certain directional questions at the library has declined as a result of making the information readily available to patrons via the kiosk. The Texas Tech study, with its emphasis on design and usability, provides a good road map for considering a local kiosk implementation.

As part of our iPad initiative at the Phillips Memorial Library, we purchased a stand-alone iPad kiosk that housed an iPad 2 ("Standalone iPad Kiosk", 2016). The kiosk was placed in a high traffic area on the first floor of the library and was used as a quick-look-up library OPAC station. While the kiosk did get some us-

age, the library iPad team agreed that repurposing it in order to experiment with subject-based kiosk content was a better and more interesting use of the tool. Before the existing OPAC terminal kiosk was moved and reprogrammed, research was undertaken to plan for content options on the subject-based theology kiosk. A review of the literature in which librarians critically evaluated research guides proved critical to understanding strengths and weaknesses of guide creation and using that knowledge to inform the design of the theology collections kiosk. The body of writing on research guide effectiveness highlights concepts of usability and user experience that provide the foundation for choices around content and layout of the theology kiosk pilot project at Providence College.

## Research Guides and the User Experience

Research guides, also called subject guides or pathfinders, are web-based tools curated by librarians that provide students and researchers both access to and information about library resources. Librarians spend a great deal of time and energy creating these guides at both the discipline and course levels. Many libraries subscribe to content management system, which librarians use to create research guides, the most popular of which is Springshare's LibGuides system (Springshare, 2016). A recent study of ARL libraries found that 71 percent (of 101 responding libraries) used LibGuides as a CMS (Jackson & Stacy-Bastes, 2016, p. 222). Providence College also subscribes to LibGuides.

Much attention is paid to research guides in the library literature. In their recent analysis of the "Enduring Landscape of Online Subject Research Guides," Jackson and Stacy-Bates identify three primary themes of research guide-related scholarship present in the literature since 2002: guide content and arrangement, the use and discoverability of guides, and the promotion of guides (Jackson & Stacy-Bastes, 2016, p. 220–221). Notably absent from these discussions is research on usability and the user experience in relation to research guide use and creation (Jackson & Stacy-Bates, 2016, p. 228; Sinkinson, Alexander, Hicks & Kahn, p.63).

The literature on library research guides provides interesting observations about how librarians approach the research guide creation process. In his book *Modern Pathfinders: Creating Better Research Guides*, Jason Puckett observes that librarians tend to be text-centric and "completionist," meaning they believe it is "better to include too much information than too little" and that "a long list is better because it's more comprehensive and more likely to include the needed resource" (Puckett, 2015, p. 64). While this tendency to provide exhaustive information is immensely valuable in some situations, text-heavy and lengthy content is not often well suited to writing for the Web. In fact, in interviews with students regarding their perceptions of research guide usability at Concordia University

College of Alberta, Dana Ouellette found that the majority of the students were confused by unclear tab labels that included library jargon and that the majority of these students felt confused and discouraged when attempting to navigate a research guide (2011, p. 446–447). Beyond misunderstandings of language between research guide users and creators, several researchers have pointed to inherent differences between the mental models of research used by librarians and those used by students (Sinkinson et al, 2012; Reeb & Gibbons, 2004; Ouellette, 2011). Clearly, students and librarians have different needs and conceptualizations of research. While librarians “recognize that students approach research differently, research guides often reflect librarian mental models of research rather than replicating student preferences” (Sinkinson et al, 2012, p. 78). Librarians appear to want students to strive to emulate their model of research knowledge and thus create guides that present “the ideal” of information ecosystem understanding: an ideal that very few students will need or want to achieve as undergraduates. While librarians have a responsibility to teach students information literacy, this research suggests that librarians should consider a tiered approach to content creation in which the intended audience of a guide and that audience’s information goals are given greater consideration. The needs of an undergraduate quickly looking for information in order to complete an assignment are very different from the needs of a graduate student or faculty member embarking on an in-depth research project.

Of the recent studies that account for user perceptions of research guides, a theme emerges around guide content specificity in relation to coursework. Reeb and Gibbons (2004) suggest that “library resources organized or delivered at the course level are more in line with how undergraduates do research” (p. 123). They suggest that undergraduate students’ research mental models are more focused on coursework than on the scholarly discipline. This mental model, they contend, is not well suited to library subject guides that require an understanding of the discipline (Reeb and Gibbons, 2004, p. 126). Course-level guides that are highly customized to meet specific information needs would be much more useful and helpful to undergraduate students. To students who live in a digital environment laden with customization options, a general research guide appears impersonal and often unhelpful as it assists in the completion of no discrete, course-based project or assignment. Ouellette drives home this point by stating that “research has overwhelmingly shown that undergraduate students search for information in the easiest way possible to complete research quickly” (2011, p. 437). In order for research guides to add value for undergraduate users, they need to be customized, personalized, clear, and easy to use.

Because the kiosk project is focused on creating a mobile-friendly guide to the library’s theology collections, a brief review of the work of Gerrit van Dyk (2015) on theology LibGuides is also warranted. Van Dyk examined theology and religion LibGuides at thirty-seven institutions. He found similarities in the structure

and organization of the guides examined, but otherwise did not find a great deal of overlap. Tabs (or pages) on the theology LibGuides the author examined fell into the categories of “topical tabs, format tabs, religious tradition tabs, and help tabs” (van Dyk, 2015, p. 41). Only five of the thirty-seven guides contained religious tradition tabs. Van Dyk remarked that “this was surprising considering how many of the LibGuides were functionally combined Religious Studies/Theology guides, where information on religious traditions would be thought likely to find a place” (2015, p. 41). Of the 305 total databases listed on the guides examined, 143 were unique. Van Dyk states that “the resources and collections highlighted were so diverse that there were only a few resource types, databases in particular, where data overlapped enough to be of interest to theological librarians” (2015, p. 37). Eighteen of the 143 unique databases were used on four or more of the guides. Van Dyk’s findings point back to the earlier assertion that librarians are completists and tend to take an everything-but-the-kitchen-sink approach. The extreme variety of database resources for a single discipline is surprising, and one must question the utility of presenting such a wide range of resources to students. Van Dyk concludes his discussion with a musing on whether or not the division of LibGuides by format is valuable to users or whether they would be better served by expanded topical tabs built to meet the needs of the local audience (van Dyk, 2015, 44).

Building on the aforementioned research, as the content and organization of the Theology Collections Portal developed, explicit consideration of the kiosk portal’s target audience became key. At Providence College a large portion of the student body engages with theology resources. Undergraduate students are required to take four semesters of coursework in the development of western civilization (DWC). Many theology courses are cross-listed with DWC. This means that many undergraduates conduct research on theology topics early in their academic career. However, a majority of these students will not pursue theology as their main course of study. Non-majors, in particular, are likely to exhibit the mental models of research outlined by Reeb and Gibbons (2004), Ouellette (2011), and Sinkinson and colleagues (2012), that is, that they will seek to locate information quickly in order to complete coursework but are less interested in gaining deep knowledge of the conventions of theology scholarship. These students, novice undergraduate researchers working in theology and religion, are the target audience for the Theology Collections Portal. Its aim is to connect such students with the library’s theology collections in a way that is quick and comprehensible.

With a stated audience in mind, design of the Theology Collections Portal project began with a focus on usability and the user experience. In line with the relevant literature, throughout the design process the aim of the kiosk portal was to meet users where they are (Reeb and Gibbons, 2004, p. 129), create guides that align with student mental models of research and actual user needs (Sink-

inson et al, 2012, p. 64), and rise to student expectations (Quintel, 2016, p. 8). Of course, only extensive usability testing and continued conversation with students and faculty around the effectiveness of the kiosk in meeting these needs will determine if this user-centered approach was, in fact, helpful. Nevertheless, recommendations put forth by those researchers who have done work on subject guide usability were carefully considered and implemented in order to optimize the user experience of the Theology Collections Portal. These practices included engaging users with interesting visuals; using simple, easy-to-understand language; avoiding jargon; and presenting clear pathways through content, making navigation seamless.

## Building the Theology Collections Portal in Scalar

The theology kiosk was initially conceived of as an iPad kiosk that would be loaded with subject-specific content and organized using web clips. After completing the investigation around research guides and their usability, it became clear that the presentation, navigability, and general usability of the kiosk were of the utmost importance if it was to be an effective tool. The author considered a variety of content management systems that might allow users to follow customized paths into the kiosk based on their particular research needs. Fortuitously, the author and the Head of Digital Publishing Services and Cataloging happened to be collaborating with a local cultural heritage institution around the creation of an open-access e-textbook. Among the tools being considered for the e-text project was Scalar. Scalar is a digital publishing tool created by the Alliance for Networked Visual Culture (ANVC) led by Tara McPherson at the University of Southern California in Los Angeles. The ANVC “aims to close the gap between digital visual archives and scholarly publication by enabling scholars to work more organically with archival materials, creating interpretive pathways through materials and enabling new forms of analysis” (McPherson, 2010, p. 6). In support of this mission, the ANVC created Scalar, which was released in beta in 2011 and has recently been released as Scalar 2 (The Alliance for Networking Visual Culture, 2016). Scalar is a content management system that seeks to provide scholars with the ability to create publications that include a variety of media. Users can embed media alongside text to easily create a digital “book” or website. Pages are created using a variety of flexible templates, and content can be viewed in a variety of ways, including “media-centric views, text-centric views, graph views, grid views, etc.” (McPherson, 2010, p. 7). A signature design element in Scalar is the ability to create multiple narrative paths through a work. Scalar also allows for extensive annotation of both text and media by both authors and readers. Additionally, Sca-



lar presents built-in visualization tools, which allow creators to explore and adjust the relationships between content in different ways.

Only two studies in the library and information studies literature make reference to Scalar, and both do so in the context of library support for the digital humanities. Anita Say Chan and Harriet Green (2014) examine Scalar as a tool for fostering digital literacy in the humanities classroom. They suggest that encouraging the use of Scalar and other new digital publishing tools and platforms as part of the humanities curriculum fosters “collaborative student engagement” and “encourage[s] playful student tinkering” (Chan & Green, 2014, p. 1). Their findings, based on case studies of two media and cinema studies courses in which a librarian partnered with a teaching faculty member to promote digital publishing tools, suggest that while students are avid consumers of digital content, they have less experience creating such content. They point to research that cautions against seeing “digital natives” as “independently able to generate the adequate literacies necessary to manage the complexity of networked lives” (Chan & Green, 2014, p. 18). Exposure to a variety of digital publishing tools, even those that are “under-tested” in the pedagogical sphere, “empowers students to produce interactive scholarship that develops their digital literacies by collating and evaluating research sources, synthesizing information, and designing new scholarly works” (Chan & Green, 2014, p. 18–19)

At the University of Illinois at Urbana–Champaign, librarians partnered with the platform’s developers and began marketing Scalar to their user community as a digital publishing tool (Tracy, 2016). Tracy conducted a survey of twenty Scalar users (primarily faculty and graduate students) as well as eight interviews with Scalar users (seven faculty and one staff member). Survey and interview respondents provided several reasons Scalar appealed to them for research and teaching, among them the ability to incorporate multimedia and images, the ability to create multiple paths through a set of research objects, the desire to have students engage with technology in the classroom, and enabling complex annotation and conversation around digital items (Tracy, 2016, p. 170). Tracy’s study underlines some usability issues within Scalar, including snags in the media upload process and difficulty using the annotation tools (these issues seem to have been addressed with the release Scalar 2). More importantly, Tracy’s study echoes that of Chan and Green in pointing to the fact that some respondents (and their students) have not had the opportunity to develop the mental models necessary for teaching and learning in the digital environment. Tracy points to the fact that very few survey respondents or interviewees made use of Scalar’s organizational flexibility, not making use of multiple paths through their content, but instead following a linear structure of a series of pages.

While no formal writing has been published around the use of Scalar to create research guide–like content, Scalar’s functionality, specifically its nonhierarchical organization and promotion of multiple narratives, affords the opportunity to build an interactive tool in which users have greater control over

their research experience. The relevant literature having been investigated, work began to create the Theology Collections Portal using Scalar (Theology Collections Portal, 2016; Posey, 2016). Content within the kiosk portal has been divided in to five major sections. The first three of these sections allow users to engage with and explore library resources; the final two provide information on getting further help from library staff and allow users to provide feedback on the kiosk.

### ***Find Scholarly Sources for a Paper***

The first major path in the Theology Collections Portal is designed to connect users to scholarly content, both physical and virtual. Of the options provided to users, this path is the most closely related to traditional research guide structure in that it is divided by format. Users have the option to find articles in a theology database, find a specific journal, or find a book or e-book. The page presenting the-ology databases links to ATLA Religion Database, Catholic Periodical and Literature Index, and ATLA Historical Monographs Series 1 and 2 (Posey, 2016, p. 5). Users can directly access these databases and complete their search on the kiosk. Some users may want to access these databases on their own machine or device. Direct e-mailing of links from the kiosk is not possible because of the locked-down nature of Kiosk Pro App, the tool used to manage the iPad within the kiosk (more on Kiosk Pro App below). In order to make kiosk content available to patrons who may seek to view it on their own devices, cards containing the Portal URL and a QR code linking to it are available at the kiosk.

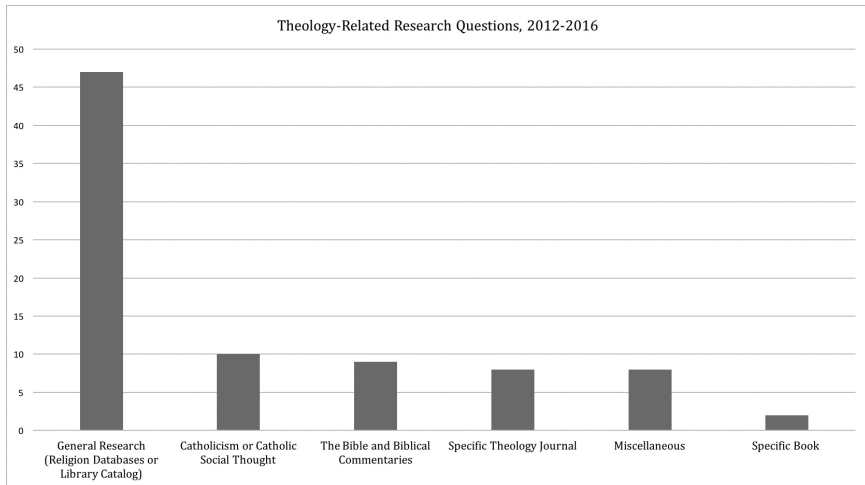
The page presenting specific journals links to the library's Publication Finder tool and explains how to use it to search for a journal by name (Posey, 2016, p. 6). It includes a couple of images of the Publication Finder and reiterates that one would use this tool to find and browse a specific journal or to find an article based on a citation. Patrons are then guided to a page instructing them on finding a book or e-book (Posey, 2016, p. 7). The page describes the search process and links to the library catalog. It shows students where to enter their keyword search term and briefly explains how to utilize the facets or filters to refine a search. It explains how to order books from other libraries within the HELIN Consortium and how to access e-books from within a catalog search.

### ***Explore Theology Topics***

Currently, in this first iteration, the theology topics section of the kiosk contains three primary paths: Major Religions, Thomas Aquinas, and Catholicism and Catholic Social Thought (Posey, 2016, p. 8). These areas were selected through an analysis of research questions fielded by librarians over the course of the last five years. Research questions are documented using a system called LibStats. The

author ran a search on questions containing the word *theology* or *religion* over the last five years. These questions were then coded to determine recurring questions and content inquiry themes (figure 10.2).

**FIGURE 10.2**  
Theology-related research questions by category.



This section of the Theology Collections Portal could be significantly expanded through partnerships with theology faculty to contain pages for specific courses or specific assignments.

The Major Religions path begins with links to electronic reference materials on world religions including several dictionaries of world religion and an encyclopedia of global religion. Users are then able to select from a list of major religions: Judaism, Islam, Christianity, Buddhism, or Hinduism (Posey, 2016, p. 9). Each of these topic pages presents a variety of content in several formats. Preference was given to resources available electronically, but information about print resources is also included when the print resources better serve the research need. One example illustrates the general layout and presentation of the Major Religions pages. The Islam page (Posey, 2016, p. 10) presents the following content: a link to an electronic version of the Qu'ran; links to several digital reference works, call numbers for print reference works, the ability to browse journals in Islamic Studies using BrowZine Web,<sup>\*</sup> links to a few relevant e-books, and a link to a precompleted search in the Encore catalog system presenting over 1,000 e-books on the subject of Islam (Posey, 2016, p. 12).

\* BrowZine is both a mobile app and a website created by Third Iron, Inc., with the aim of presenting a library's journal holdings in a browse-able fashion. For more on BrowZine see <http://thirdiron.com>.

An additional precompleted search link providing a list of over 1,000 print books available at the library at Providence College is also listed, with a note about their location in the physical stacks (in most cases, directly behind the kiosk).

The topic pages related to Thomas Aquinas and Catholicism and Catholic Social Thought are similarly organized. Each page links to databases, as relevant; to specific e-books and to precompleted e-book catalog search; and to a list of several print books accessible near the kiosk. A major benefit of these topic pages is that they provide information about the topic in a variety of formats all in one place without the student having to navigate to discrete sections of the library website.

### ***Find Bibles and Biblical Commentary***

Given the curriculum at Providence College, questions related to the Bible were extremely prevalent. Many questions also demonstrated that students sought biblical commentary but had trouble accessing it through the library catalog. Clear instructions about Bibles and biblical commentary are absent from the library's theology research guide (Providence College, 2016). The page dedicated to presenting this content could serve as a useful starting point for students in a variety of courses. As mentioned previously, one of the great benefits of Scalar is that each page or item has a unique URL. In this case (as is the case of some of the other topic pages), in addition to accessing the content from the kiosk in the library, faculty could provide direct links to this content in their syllabus or learning management system and students would have a significantly easier time accessing the resources.

The path dedicated to Bibles and biblical commentary contains four pages (Posey, 2016, p. 13). The first presents information on finding Bibles. It links to a digital edition of the King James version of the Bible from Oxford University Press and outlines where print Bibles are located in the theology collection directly behind the kiosk. The second page provides students with an explanation of three important research tools related to the Bible: biblical commentaries, biblical dictionaries, and biblical concordances (Posey, 2016, p. 14). Each kind of tool is defined, and links to electronic versions of the tools are provided in addition to call numbers for print resources. Users also have the option to browse biblical studies journals using BrowZine Web (see footnote). The Bibles path concludes with links to the Old and New Testament Abstracts databases.

### ***Get Help and Provide Feedback***

The final two paths accessible from the Welcome page of the Theology Collections Portal provide users with the tools to get further help and provide feedback. The help page presents a stand-alone graphic reiterating that the library is glad to help with any research questions and provides contact options including text, e-mail, telephone,

and face-to-face (Posey, 2016, p. 15). Making use of Scalar's functionality allowing content to be reused and multiple relationships to be built allows the graphic to be interspersed throughout the kiosk's content in an attempt to provide help at the point of need for a user browsing the Theology Collections Portal. The final page is a simple assessment tool. This page presents an embedded Google Form seeking feedback from users of the portal (Posey, 2016, p. 16). It seeks the following information: user status (undergraduate, graduate, faculty, etc.), affiliation with Providence College, whether the user found the kiosk useful, primary reason for using the kiosk, whether the user found it easy to navigate, and a couple of open-ended questions related to what users like about the kiosk and what they would like to see improved.

In addition to the collection of data from users of the kiosk (and recognizing that many users will not voluntarily complete the feedback survey), Google Analytics has also been installed on the Scalar site containing the Theology Collections Portal content. Google Analytics data has not yet provided much insight into kiosk use as the kiosk pilot launch occurred recently, but this data will be extremely valuable as future planning is undertaken.

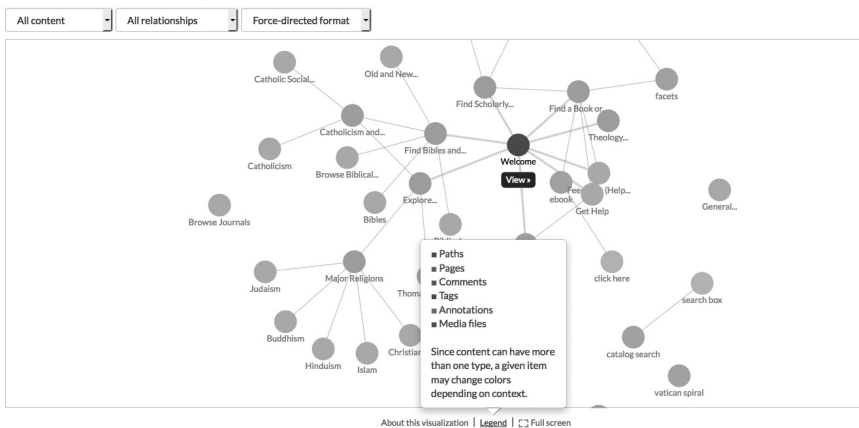
## Visualizations and Search

One of the most interesting tools built into Scalar is the ability to visualize relationships within a Scalar book. Users can select the visualizations menu and choose from a variety of visualization options. For example, the Connections visualization creates an interaction map of all the content in the Scalar book in force-directed format (figure 10.3).

**FIGURE 10.3**

Visualization of all content and relationships in the Theology Collections Portal in force-directed format.

### Visualization



Not only does the visualization provide insight into the organizational structure and relationships built into the content, it also serves as an alternative navigation tool for those users who may not be more interested in exploring the Theology Collections Portal in a nonlinear fashion. An interesting exercise would involve replicating the traditional research guide in a Scalar book in order to visualize its structure and contrasting that with the structure and relationships built in the Theology Collections Portal.

Scalar also enables users to search for content (Posey, 2016, p. 18). A student could come to the kiosk looking for a certain kind of information and enter that term to connect with any page or other media type in which it is contained.

### ***Kiosk Pro App***

While the content presented on the Theology Collections Portal is created in Scalar, the kiosk itself is managed using Kiosk Pro Plus App, version 7.2 (Kiosk Pro, 2016). The Kiosk Pro App provides a simple but robust management tool for various kinds of information kiosks. The iPad is set to keep the Kiosk Pro App open at all times. Kiosk Pro presents web content while preventing user access to the iPad home screen and settings, essentially locking down the iPad to the specified web homepage and permitted web domains. In order to program the Theology Collections Portal, the following settings were enabled:

- Homepage set to <http://scalar.usc.edu/works/theology-collections/index>.
- Allowed domains: Set the kiosk to allow domains pointed to by Scalar, for example, [scalar.usc.edu](http://scalar.usc.edu), [library.uri.edu](http://library.uri.edu), [\\*.helin.uri.edu](http://*.helin.uri.edu), [\\*.eblib.com](http://*.eblib.com), [encore.uri.edu](http://encore.uri.edu), [ebsco.com](http://ebsco.com), [browzine.com](http://browzine.com), and [docs.google.com](http://docs.google.com).
- Restricted domains: Denied access to certain internal institutional domains that might pose a security risk were a guest to access the kiosk (e.g., the internal website).
- Idle time limit set to ninety seconds. Browsing time limit set to sixty minutes. If either of these thresholds is reached, the kiosk homepage is reloaded.

Kiosk Pro App has a variety of more advanced functionality, including the ability to use custom JavaScript to manage kiosk behaviors. Users can use the in-app editing tools or manage the kiosk from an external XML file living on a server. Given that the Theology Collections Portal content has been wrapped in a Scalar book, management of the kiosk has proven fairly simple.

### ***Faculty Feedback***

After completing the initial Theology Collections Portal prototype in Scalar and

testing it on the iPad kiosk, the author met with a member of the theology department in early April 2016 to share the work and discuss future directions. The theology faculty member was enthusiastic about the possibilities created by the kiosk. He mentioned the possibility of doing a demo to specific classes. He also offered to share basic information about the kiosk with theology faculty colleagues at an upcoming department meeting (May 2016) and welcomed the author to attend a meeting and present the kiosk in more detail the following semester. Partnering further with theology faculty to both promote and refine the kiosk will be crucial to its success. Through collaborations with faculty, the kiosk will make a broader impact on students. Students in theology courses who make use of the kiosk will also be able to provide feedback on its usability.

## Strengths, Shortcomings, and Future Directions for the Theology Collections Portal

The Theology Collections Portal guides users, specifically undergraduate students, through the library's digital collections in an engaging and informative way that encourages their active participation in the research process while simultaneously simplifying the research process to meet their specific needs. Visualization tools built into Scalar demonstrate a web of relationships and allow for the navigation of resources in new and interesting ways. Scalar is also highly customizable, and content creation is easy. This will facilitate further development of kiosk content designed to serve specific student needs based on course-related research needs.

An important consideration to which further attention must be paid is the accessibility of kiosk content for individuals with disabilities. Text on the kiosk is small and will not be suitable for anyone with a visual impairment. The text size is a result of Scalar's default styling. Custom styling could allow for increased text size, but that would obviously affect the amount of content on each page. While Kiosk Pro App does provide for the option to allow pinch and zoom functionality, Scalar does not. Other shortcomings of the kiosk as it currently exists relate to content and usability. These are areas that will be improved upon over time as more users interact with the tool and more data can be captured about usage.

The Theology Collections Portal kiosk project is in its infancy. If it is adopted as a major initiative of the Phillips Memorial Library, there are several directions the project could take and several areas that will require further study and refinement. These future directions include the following:

- Further outreach and collaboration with the theology faculty to maximize kiosk usability and refine content options, especially the creation of course-based topic pages.

- Partnering with existing library groups to collaboratively work on marketing and promotion of the kiosk.
- Collaboration with the library's Research and Education Department to determine how the kiosk can serve as a complement to our Lib-Guides or how the two tools might reference one another.
- Library-wide discussions around scaling and sustaining this project to include additional disciplines. This will necessitate good project management skills, especially in the area of assigning responsibility for kiosk content creation and maintenance.
- Determination of whether and how the creation of additional kiosks fits into the library's larger plan for marketing electronic resources.
- Further thought around the strengths and limitations of Scalar as a content management system for kiosk content.
- Performance of student-centered usability testing and focus groups to ascertain the most and least effective elements of the kiosk navigation, content, and design.
- Refinement of kiosk assessment tools and ongoing review of patron feedback around the kiosk to fuel continued improvement of the tool.
- Consideration of whether the addition of multimedia content, specifically video tutorials, could enhance usability of the kiosk.

Exploring digital research materials presented through a kiosk is more engaging for users than browsing a traditional research guide. Users must actively engage with the content in order to make their way through the kiosk content. Touch-based interaction may enhance the user's feeling of ownership over the research process, and the tactile experience of interacting with the kiosk may prove memorable and enhance the user's recall of certain elements. There is an intimacy and familiarity that comes from interacting with a mobile device that many patrons may find familiar and favorable when it comes to conducting library research.

The Theology Collections Portal is one example of how mobile technologies can aid in the library's goal of connecting patrons to digital resources. More broadly, the creation and presentation of the kiosk raise important issues around meeting our patrons at the point of need and facilitating coursework based on student mental models of the research process. The kiosk portal is an example of a library-created tool that engages mobile, responsive, user-oriented, design-driven thinking to better connect patrons with electronic resources while facilitating the research process. It presents one possible step toward a model of user-centered tool creation by librarians that is geared toward continued enhancement and refinement of the tool based on assessment and usability studies. Mobile technologies provide fertile ground for these kinds of innovative tools because of their ubiquity and the level of comfort most undergraduate students have with such



technologies. It is critical that we put our users first and create tools that help them navigate the increasingly complex digital information ecosystem that our collections represent.

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