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"Contextualized Digital Library Evaluation: The Perseus Digital Library within Theological Research"

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Cover Page Footnote

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Contextualized Digital Library Evaluation: The Perseus Digital Library within Theological Research



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ABSTRACT

As the development of digital libraries increases, the growth has been accompanied by a refinement of evaluation criteria and methods. Evaluators are increasingly aware that the context of digital library usage (the social, cultural, academic, and institutional environments of the users) is an essential consideration of effective assessment. This article evaluates the Perseus Digital Library through the needs and objectives of a specific learning community – those engaged in theological research. After a review of relevant literature, a rationale is given for ranking ten key facets of digital library evaluation by order of importance. These criteria are then applied to the Perseus Digital Library, contextualized through the particular prism of theological research.

Introduction

According to the oft-cited definition of the Digital Library Foundation,

“Digital libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities” (Saracevic, 2000, p. 362; Mathur, 2005, p. 20; Vullo, 2010, p. 169).

In spite of this well-known definition, Xie counsels that digital libraries mean “different things to different people” (2008b, p. 1346). The purpose of this article is to evaluate a specific digital library, the Perseus Digital Library, through the prism of particular researchers – theological students and scholars.

Digital libraries have greatly impacted various fields of research (Hughes, 2012). In general, digital libraries offer “new levels of access to broader audiences of users and new opportunities for the information science field to advance both theory and practice” (Marchionini, Plaisant, & Komlodi, 2003, p. 123; cf. Parandjuk, 2010). Digital

libraries thereby provide numerous benefits over “traditional” libraries (as enumerated in Rydberg-Cox, Chavez, Smith, & Mahoney, 2000; Mathur, 2005, p. 21).

The Perseus Digital Library (PDL) is considered “a role model in the adoption of technology in the humanities” (Xie & Matusiak, 2016, p. 15). PDL debuted in 1987 as a Hyper-Card-based CD-ROM of multimedia materials focused upon the ancient Greek world. It transitioned to an online format on the World Wide Web in 1995 (Snodgrass, 2015). PDL’s founder was Gregory Crane, then of the Classics Department of Harvard University. At first, his classical studies colleagues downplayed the initiative “because it was not considered serious scholarship” (Arms, 2000, p. 81). Soon, however, the possibilities for hypertext media attracted fellow scholars (Mylonas & Heath, 1990; Marchionini & Crane, 1994; Yang, 1997; compare Preece & Zepeda, 2009, pp. 13–18). Today, PDL is hosted by Tufts University and is also supported by the University of Leipzig.

A Set of Evaluation Criteria

The evaluation of digital libraries is vital and critical to their ultimate success (Tsakonas, Mitrelis, Papachristopoulos, & Papatheodorou, 2013, p. 1914; Xie, Joo, & Matusiak, 2018, p. 854). Yet digital library (DL) evaluation remains “complex and challenging,” both theoretically and pragmatically (Saracevic, 2009, p. 12). In particular, the methods and criteria for DL evaluation are “complex and varied” (Rahimi, Soleymani, Hashemian, Hashemian, & Daei, 2018, p. 181). For this review of PDL, ten evaluation criteria have been chosen, as representative of the breadth and scope of DL evaluation. This list of ten came from a document analysis of relevant literature. Within such literature, it seems many branches of analysis stem from the seminal works of Saracevic and Marchionini. In 2000, Saracevic commented that the evaluation of DLs had not “kept pace” with DL development (p. 351). The scholarly examination of DL evaluation was “conspicuous by its absence (or just minimal presence)” (p. 351). DL evaluation was “still in a formative stage,” because there was no consensus regarding “criteria, measures, and methodologies for digital library evaluation, or even on the ‘big picture,’ the construct and context of evaluation” (p. 360).

Saracevic noted the four evaluation criteria used by Marchionini and Crane (1994): (1) learning, (2) teaching, (3) system (performance, interface, electronic publishing), and (4) content (scope, accuracy). Saracevic himself grouped six classes under two main headings. “User-centered” facets included a social level, an institutional level, and an individual level (Saracevic, 2000, pp. 363–364). “System-centered” facets included engineering, processing, and content. “Interface” mediated between the three classes of “user-centered” criteria and the three classes of “system-centered” criteria. Another short list of evaluation criteria came from Fuhr, Hansen, Mabe, Micsik, and Sølvsberg (2001). They categorized the criteria using a “generic

classification and evaluation scheme,” under the four headings of (1) data/collection, (2) system/technology, (3) users, and (4) usage.

In 2010, Ying Zhang attempted to move beyond the “complementary frameworks” of the “stratified” and “multifaceted” approaches of Saracevic and Marchionini respectively, toward a “holistic model” using both qualitative and quantitative methods (2010, p.90). Important criteria came from heterogeneous stakeholder groups, through the incremental phases of exploration, confirmation, and verification (2010, pp. 88, 107). Building upon a 2004 iteration of Saracevic’s “stratified” model, Zhang grouped important criteria under six facets: (1) content, (2) technology, (3) interface, (4) service, (5) user, and (6) context (p. 88; cf. Saracevic, 2004). Two years later, Gonçalves, Moreira, Fox, and Watson (2006) proposed a complex, multi-dimensioned “quality model” that focused upon the digital object (accessibility, pertinence, preservability, relevance, similarity, significance, timeliness), the metadata specification (accuracy, completeness, conformance), the collection (completeness), the catalog (completeness, consistency), the repository (completeness, consistency), and the services (composability, efficiency, effectiveness, extensibility, reusability, reliability).

In her 2006 and 2008 works, Xie proposed five criteria: (1) usability, (2) collection quality, (3) service quality, (4) system performance efficiency, and (5) user feedback solicitation (Xie, 2006, pp. 440, 447; Xie, 2008, p. 137). Several years later, Joo and Xie analyzed eighty-five relevant documents and five DL evaluation websites. Through this broad analysis, they developed “ten constructs” with associated criteria, enumerated as: (1) collection, (2) information organization, (3) interface design, (4) system performance, (5) effects on users, (6) user engagement, (7) services, (8) preservation, (9) sustainability/administration, and (10) context of use (Joo and Xie, 2013, p. 129). Xie and Matusiak then adopted these “ten constructs” as “ten dimensions” within their jointly authored *Discover Digital Libraries* (2016). These ten “evaluation dimensions” (covering ninety-four criteria) were again employed in a 2018 article authored by Xie, Joo, and Matusiak. Because of the comprehensive nature of this ten-fold construct and because of its sound basis in a broad analysis of relevant literature, I have adopted (and adapted) the scheme in this review of PDL.¹

These ten criteria can be succinctly defined as follows (my distinctive rearrangement of the items is explained in the next section of this article):²

1 For example, Jeng’s four-fold evaluation model of (1) effectiveness, (2) efficiency, (3) satisfaction (ease of use, organization of information, labeling, visual appearance, contents, error correction), and (4) learnability focused only upon matters of usability (Jeng, 2005). Hariri and Norouzi (2011) centered upon interface issues, concluding with a comprehensive listing of twenty-two criteria related to interface (p. 716; compare Li & Liu, 2019).

2 These succinct definitions come from my own summarizing of the materials found in Xie & Matusiak, 2016, pp. 294-301. They appear in a different order here, due to my manner of ranking priorities, as explained in the ensuing discussion.

- (1) **“Collections”** refers to the quality and scope (including comprehensiveness and size) of the DL contents.
- (2) **“Information Organization”** refers to the consistency, accuracy, and depth of the organizational structure, controlled vocabulary, and metadata.
- (3) **“Interface Design”** covers search and browsing functions, navigation, and intuitive and visual appeal.
- (4) **“System and Technology”** involves the effectiveness, reliability, and efficiency of the technological aspects of the DL.
- (5) **“Services”** covers the comprehensiveness, efficiency, and reliability of the help aids for users.
- (6) **“Effects on Users”** references the influence upon research outputs, learning outcomes, and users’ knowledge and perceptions.
- (7) **“User Engagement”** describes resource use, user feedback, user contribution, and wider integration issues.
- (8) **“Preservation”** describes the DLs archiving methods, migration and sustainability, and reliability in preserving the collection materials.
- (9) **“Administration”** covers budgeting, staffing, marketing, and management issues.
- (10) **“Context”** references the legal, social, institutional, and learning-community environments. The contextual framework, goals, and objectives are all relevant considerations.

My Ranking of Criteria

Zhang insists that “a good evaluation needs to have a convincing justification of criteria” (2010, p. 107). Choosing some scheme of prioritizing the criteria is necessary because “there is as yet a lack of consensus on this issue” (Heradio, Fernández-Amorós, Cabrerizo, & Herrera-Viedma, 2012, p. 275). This portion of my review will order the ten criteria in perceived importance, by applying the logic of conceptual contingency. The criterion of “content” is logically foundational, because without any content to the DL collection, there would be nothing to search, browse, or otherwise use. As Franklin, Kyrillidou, and Plum quip, “Content is still the king” (2009, p. 35). Xie reasons, “If the retrieval and usability through interface design is fantastic but the content is poor, all of the time spent creating the digital library has been wasted” (2008b, p. 1359). Moreover, the content predetermines “both the range of potential users and the required technology” (Heradio et al., 2012, p. 272; cf. Fuhr et al., 2007, p. 21).

“Information organization” is ranked second because logically such information organization is the precursor to information retrieval. The subsequently ranked

criteria address interface, system technology, and the functionality of retrieval. “A digital library is worthless if the user cannot retrieve the information it contains” (Xie, 2008b, p. 1360). Xie’s research demonstrates that “interface usability” is among “the most important criteria for evaluating digital libraries” (2008, p. 137; compare Albertson, 2015; Ma, Cao, & Gu, 2016; Li & Liu, 2019). Therefore, “interface design” and “system and technology” follow on the heels of content (“collections”) and “information organization.”

“Services” do not *directly* relate to the core technological facets of “interface,” but they are a logical corollary of “usability” (Ball & Bothma, 2017, pp. 140–141), even though some DL scholars do not include “services” among “usability” topics (Jeng, 2005b, p. 51). In any case, Xie notes that “service” as a criterion “does not get enough attention” (2008b, p. 1350), so this criterion appears next.

The importance of “effects on users” and “user engagement” are equally critical and subsequently, I give them equivalent rankings. “Preservation” and “administration” are similar as well, thus, I have given them equivalent rankings also. Finally, I have positioned “context,” not because it is unimportant but because it forms the particular prism of the entire review – the specific lens being the context of theological studies. PDL was originally designed and developed with classical studies researchers in mind. Only recently has its application to theological studies surfaced in the literature (Darlack, 2016).³

One notes that the “ten constructs” or “ten dimensions” found in Joo and Xie (2013), Xie and Matusiak (2016), and Xie, Joo, and Matusiak (2018) have been rearranged in a slightly different order here. Such divergence is understandable. Xie herself maintains that “users are not the same, nor are their evaluations of digital libraries” (2008b, p. 1368). According to Zhang, research “consistently identifies a divergence among the stakeholder groups regarding what criteria should be used for DL evaluation” (2010, p. 104). In particular, the ranking of technology, context, and content manifest the greatest divergence among stakeholder groups, while service, interface, and user evaluation achieved the greatest consensus (p. 104).

My Evaluation of PDL

Due to the nature and constraints of this essay, my evaluation of PDL is based upon the documentary analysis of other critical reviews and upon personal assessment. As Xie asserts, “The best way to evaluate digital libraries is to actually use them”

³ Mylonas remarked that PDL materials “are broadly useful in fields other than classics and archaeology – for example, law, philosophy, anthropology, political theory, and occasionally medicine,” but overlooked religious and theological studies (1992, p. 192; cf. p. 194). More recently, Preece and Zepeda have mentioned the usefulness of PDL for “Greek and Latin philology and language studies, philosophy, history, material culture, or religious studies” (2009, p. 26).

(2008b, p. 1354). I have not engaged in the accumulation of evidences directly gleaned from metrics or from empirical research upon other users, such as observations, interviews, surveys, questionnaires, and focus groups (compare Fuhr et al., 2007, p. 27; Agosti & Ferro, 2009). As emphasized throughout this paper, this evaluation is filtered through the contextualized prism of a specific learning environment – theological research.

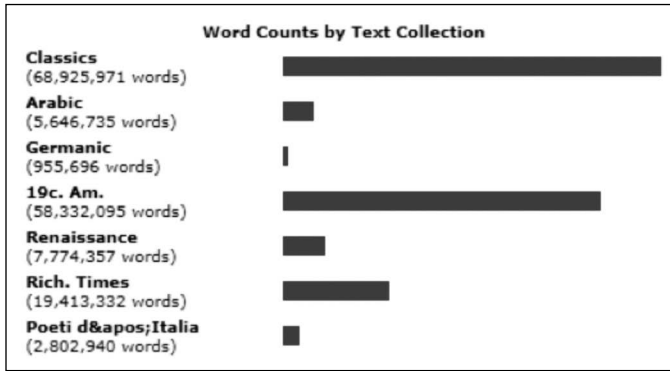
Zhang recognized that DL evaluation at the “context level” remains a “weak area, regardless of its importance as pinpointed by several leading scholars” (2010, p. 89). Unfortunately, “the contextual effects of DL have not been adequately investigated” (p. 105). Nevertheless, as Fuhr and his colleagues explained, “Context is possibly the richest of all dimensions as it accounts for everything that qualifies as motivation and framework for each evaluation study and as such covers scenarios, actors, objectives and goals, approaches and perspectives in the study” (2007, p. 33). As Marchionini et al. insist, “All efforts to design, implement, and evaluate digital libraries must be rooted in the information needs, characteristics, and contexts of the people who will or may use those libraries” (2003, p. 119). For example, an article published last year evaluated DLs through the specific lens of health information researchers (Rahimi et al., 2018).

DLs are both a collection of resources and a locus of service (Franklin et al., 2009, p. 17). Accordingly, DLs are both “deeply technical in nature” and also “social, even personal in nature – they are here for social and people purposes” (Saracevic, 2009, p. 1). As Marchionini, Plaisant, and Komlodi insist, “Digital libraries serve communities of people and are created and maintained by and for people” (2003, p. 119). DL users are individuals who “are embedded in many different communities, and communities are embedded in larger social and cultural contexts” (p. 120).

“What is a *good* digital library?” depends upon whom you are asking (Fuhr et al., 2001, p. 187). DL users (who) search for particular topics (what) using specific info-seeking tactics (how) for personal purposes (why) (p. 193). Therefore, the use, evaluation, and revision of digital libraries perform a dialectic dance, as users engage DLs, users assess DLs, and designers respond with suitable revisions. “Digital library use and digital library evaluation are interrelated to each other” (Xie, 2008b, p. 1368).

“Collections.” PDL is a large and growing collection. Yet recent growth has led to some apparent tension in the objective and nature of the collection. As PDL has reached out beyond its wheelhouse of classical (ancient Greek and Roman) materials, an inevitable fuzziness has gathered around its mission and its targeted acquisitions. In particular, nineteenth-century American materials are catching up

with the classical materials. For instance, issues of the *Richmond Times Dispatch* now take up nearly 12% of PDL, calculated by word count. PDL has also become strong in the history of science and early modern English/Renaissance literature (<http://www.perseus.tufts.edu/hopper/research/background>).⁴



Nevertheless, from the specific perspective of theological research, some of the recent PDL additions are highly beneficial. When James Marion Darlack reviewed PDL for *Theological Librarianship* just a few years ago (2016), he did not discuss the inclusion of such additions as *Patrologiae Cursus Completus Graecae* (PG), *Patrologiae Cursus Completus Latinae* (PL), and *Corpus Scriptorum Ecclesiasticorum Latinorum* (CSEL), all of which greatly assist patristic scholars (those who study early Christianity). For theological students, PDL may come to mind when they think of philosophers (such as Aristotle and Plato), Greco-Roman historians (such as Herodotus and Thucydides), and poets (such as Homer and Vergil). Such PDL researchers may be surprised to find theologians like Athanasius and Augustine, apologists like Tertullian and Lactantius, church historians like Eusebius and the Venerable Bede, and preachers like John Chrysostom and Ambrose.

The PDL collection also provides a backdrop to New Testament studies (Dubis, 2003, p. 4). Tools like the Liddell-Scott-Jones *Greek-English Lexicon* (LSJ) are invaluable for theologians as well as classicists. The PDL English translation holdings, however, are not nearly as extensive as the Christian Classics Ethereal Library (CCEL). Nevertheless, PDL (unlike CCEL) provides original-language texts of Greek and Latin works and multimedia tools like maps and site plans, as well as digitized artifacts of material culture (Mylonas, 1992, p. 194). As a final “Collections” issue, many PDL resources seem dated, because the library “draws heavily on public domain texts” (Darlack, 2016, p. 14; cf. Mylonas, 1992, p. 195), a testimony to attention to copyright.

4 This chart comes from <http://www.perseus.tufts.edu/hopper/collections>.

“Information Organization.” As PDL developed and grew, “the importance of unrepeatd identifiers to ultimately (and ideally) support the aggregation and discovery of all uniquely cataloged works became increasingly clear” (https://sites.tufts.edu/perseuscatalog/?page_id=342). Yet the Perseus webpage acknowledges continuing limitations. For instance, metadata issues arise “when a single group identifier is used to identify works that are often individually referenced in published editions,” and “when a single, top level work identifier is used for a work attributed to multiple traditional (often dubious) authors, all of whom have authority records” (https://sites.tufts.edu/perseuscatalog/?page_id=342). But this latter problem is more common among classical texts like the *Scriptores Historiae Augustae* than among the ecclesiastical texts of primary interest to theologians.

“Interface Design.” PDL provides a search box that accepts English, German, Greek, and Latin (as well as Old Norse and Old English, which are of less interest to theologians). Unfortunately, the search mechanisms do not accept Greek Unicode, so researchers must employ cumbersome Greek transliteration (Darlack, 2016, p. 12).⁵

How to enter text in Greek:	
Greek	α β γ δ ε ζ η θ ι κ λ μ ν ξ ο π ρ σ τ υ φ χ ψ ω
Beta Code	a b g d e z h q i k l m n c o p r s t u f x y w
ᾱ ᾰ ᾱ ᾰ ᾱ ᾰ ᾱ ᾰ ᾱ ᾰ ᾱ ᾰ ᾱ ᾰ ᾱ ᾰ	use * for capital letter
a/ a\ a= a) a(/ a/) a(\ a)= a(= a a/ a=	
Hom. II. 1.1 μῆνιν ἄειδε θεὰ Πηληϊάδεω Ἀχιλῆος	
mh=nin a)/eide qea \ *phlhi+a/ dew *)axilh=os	

As a positive factor, users can perform searches of Greek and Latin lexical forms and lemmas (Rydberg-Cox et al., 2000). Furthermore, searches can be filtered through “All Fields,” “Title,” “Author,” “Editor/Translator,” and “URN.” Unfortunately, there is no “Advanced Search” that allows one to merge fields into a combined search (<http://www.perseus.tufts.edu/hopper/help/ searching>). PDL does enable Boolean-like searches:

Search the collections

hide

Search all text in the Perseus Digital Library using a specific language. This search will also return links to entries in language dictionaries (Lewis & Short, LSJ, Buckwalter, etc.)

Search in English

containing all of the words

Search for all possible forms

containing the exact phrase

Search for all possible forms

containing at least one of the words

Search for all possible forms

without the words

Search for all possible forms

Search

Clear this search

Limit Search to:

☒ Greek and Roman Materials

☒ Arabic Materials

☒ Germanic Materials

☒ 19th-Century American

☒ Renaissance Materials

☒ Richmond Times Dispatch

☒ Humanist and Renaissance Italian Poetry in Latin

⁵ This chart and the chart below come from <http://www.perseus.tufts.edu/hopper/search>.

Users can also browse by author, title, work title, work original language, edition or translation year published, edition or translation language, series, and subjects. “Exploratory hypertext” greatly enhances PDL navigation (Yang, 2001, p. 1211), even revealing “unexpected links” among texts (Rydberg-Cox et al., 2000). Important subject-term links appear automatically when a document is displayed. Overall, the PDL interface is flexible and easily manipulated (Mylonas, 1992, p. 194).

“System and Technology.” A PDL prototype employed the eXtensible catalog (XC) open source software, “utilizing in particular its modular structure, FRBR Based data model, and Metadata Services toolkit” (<http://sites.tufts.edu/perseuscatalog/documentation/release-notes/softwarehardware-info/>). According to the same Perseus website, “The current catalog implementation is making use of Blacklight, an open source project that utilizes Ruby on Rails and provides discovery interfaces for Solr indexes.” While some users complained about the various facets of the older XC version, the new Blacklight version has been generally well-received. In particular, XC did not support Transformation Services for the CTS, MODS, and MADS metadata. The changes in system support are supposedly discussed on the Perseus blog-page, but the link regrettably leads to a “not found” notice (<http://sites.tufts.edu/perseusupdates/beta-features/catalog-of-ancient-greek-and-latin-primary-sources>).

“Services.” PDL is “intended for an audience of widely varying expertise” (Mylonas, 1992, p. 201). Users can utilize the “Contact” link to reach a support email account: perseus_catalog@tufts.edu. A “Help” button in the upper right of the Perseus homepage leads to a “Frequently Asked Questions” (FAQ) page (http://sites.tufts.edu/perseuscatalog/?page_id=190). The Perseus website provides a “User Guide” that introduces browsing and searching capabilities, as well as a helpful glossary of terms (http://sites.tufts.edu/perseuscatalog/?page_id=13). Perseus “Catalog Wikis” inform users regarding the bibliographic and authority data in the Perseus Catalog, how they are created, and how they are updated (<http://sites.tufts.edu/perseuscatalog>). Finally, a bibliography of associated resources is available at <http://www.perseus.tufts.edu/hopper/about/publications>.

“Effects on Users.” By the mid-to-late 1990s, it became clear that PDL was exerting “systemic effects on the field of classical studies” (Marchionini et al., 2003, p. 126; cf. Mylonas, Crane, Morrell, & Smith, 1993). While some of Crane’s colleagues were initially naysayers, they came to realize that PDL was a game-changer. The surfacing of the Stoa.org web-blog, which is closely linked to PDL, further demonstrates the influence of PDL (<http://www.stoa.org/about>). Many classical studies and affiliated programs now integrate PDL into the curriculum (Yang, 2000; Yang, 2001, p. 1220). PDL has definitely led to increased productivity in classical studies, and the prospects for theological studies are just now being realized. Nevertheless, the only academic

resource (as indexed by LIS databases) that focuses upon PDL through the lens of theological research has been a short review in *Theological Librarianship*, published a few years ago (Darlack, 2016).

“User Engagement.” PDL was a trailblazer among DLs, and its longevity has provided researchers with distinctive opportunities (Crane, 2006). They have investigated PDL “user engagement” through iterative, longitudinal, and multifaceted approaches (Marchionini et al., 2003, pp. 122-129; cf. Fuhr et al., 2007, p. 26). PDL remains “an open-source project providing a suite of services for interacting with textual collections” (<http://www.perseus.tufts.edu/hopper/opensource>). PDL’s individual services are free (unlike the subscription-based yet powerful TLG, *Thesaurus Linguae Graecae*) and are designed to be modular. PDL includes some customizable features (Mylonas, 1992, p. 200; Rydberg-Cox et al., 2000). Its “constructive hypertext” (not merely “exploratory hypertext”) allows users to annotate and reorganize information (Yang, 2001, p. 1211). In fact, PDL’s intensive linkage functions can even lead to “information overload and disorientation” (Yang, 2001, p. 1214). The affiliated Stoa.org web-blog adds another level of user interaction, though geared toward “digital classicists.”

“Preservation.” When Perseus debuted, it set the goal of providing cataloged access “to at least one version of every surviving major Greek and Latin author from antiquity” (<http://sites.tufts.edu/perseuscatalog/documentation/history-and-purpose/evolution-growth-of-the-catalog/>). While such breadth of coverage focused upon classical Greek and Latin authors, PDL has not yet preserved all of the Greek and Latin ecclesiastical authors through its cataloged access. PDL shines, however, in sustainability. In spite of various migrations and iterations, it continues to provide reliable information access.

“Administration.” PDL has also exhibited reliability through administrative and funding transitions. When Crane moved from Harvard University to Tufts University, PDL migrated along with him (Darlack, 2016, p. 11). Historically, funding has come from the Annenberg/CPB Project, the Andrew W. Mellon Foundation, the National Endowment for the Humanities, The Johns Hopkins University, Tufts University, and others (<http://sites.tufts.edu/perseuscatalog/documentation/history-and-purpose/acknowledgements/>). More recently, PDL has been funded by the Alexander von Humboldt Foundation and the European Social Fund, among others (Crane, 2018).

“Context.” As described in the previous sections, “Context” has served as an integrating facet throughout this evaluation. The other criteria have been viewed through the specific lens of a particular learning environment – theological research. The chart in Appendix A serves as a summary of this “Context” integration.

Conclusion

Gregory Crane, who founded PDL and continues to work with the project, has recently declared, “I expect that we may produce very different scholarship as we more fully adapt to the digital age, and it is possible that this scholarship will be at once more ambitious and better grounded in evidence. We may experience a golden age of philology” (Crane, 2018). The philological wealth of PDL may seem like the riches of Croesus to classical scholars. Yet theological researchers should take note of PDL as well. Their scholarship can also be enriched, as they mine the treasures of this valuable digital library. †

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APPENDIX A

	Importance Level	Poor	Fair	Good	Very Good	Excellent	Notes
Collections	Highest			X			PDL is “excellent” for classical researchers, but “good” for theological researchers.
Information Organization	Highest				X		PDL acknowledges some metadata weaknesses, but these primarily affect classical texts and not theological ones.
Interface Design	High			X			In spite of revisions, the PDL interface remains hobbled by a lack of an “Advanced Search” and Greek Unicode functions.
System Technology	High				X		The change from eXtensible Catalog (XC) to Blacklight has been generally positive.
Services	Medium		X				PDL could add more service options, and some links are broken.
Effects on Users	Medium					X	The development and “open source” nature of PDL have revolutionized classical studies and possess great potential in theological studies.
User Engagement	Medium				X		The “constructive hypertext” functions of PDL enable user interaction. Some customizable features are available. The affiliated Stoa web-blog targets “digital classicists.”
Preservation	Low				X		The preservation of classical texts is comprehensive, although theological researchers will note a lack of breadth of ecclesiastical Greek and Latin translations.
Administration	Low					X	PDL has thrived through institutional and funding transitions.
Context	Integrated						Contextualization within the specific learning environment of theological research is integrated throughout (above), rather than receiving a separate scoring.

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