Creating and Using Personas to Optimize Institutional Repositories: A Bibliometric Empirical Study

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Abstract

This study analyzes doctoral and master' s theses from the Department of Economics and Finance at City University of Hong Kong, noting that authors possess distinct characteristics and habits, thereby necessitating varying degrees of advisory and information services. It concludes that employing bibliometric methods to analyze institutional repositories constitutes one of the new orientations for expanding knowledge services through the creation and utilization of personas (multiple user models), which contributes to enhancing the usage rates of institutional repositories.

Full Text

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Abstract

This study analyzes master' s and doctoral theses from the Department of Economics and Finance at City University of Hong Kong, revealing that authors exhibit different characteristics and habits, thus requiring varying levels of advisory and information services. The conclusion is that employing bibliometric methods to analyze institutional repositories represents a new approach for creating and using personas (multiple user models) to expand knowledge services, which may help increase repository usage rates.

Keywords: Institutional Repository; Bibliometrics; Knowledge Service; User Behavior; User Model

1. Research Background and Purpose

A user behavior observational study conducted at University College London [1] offers significant inspiration for libraries developing a new round of knowledge services. By calculating the concentration of subject categories and organizing the impact of core journals, the study piloted literature and knowledge recommendation services for graduate students in economics and business. If successful, this approach could be extended to different disciplines and user groups at various levels. Beyond optimistic anticipation of this development, this paper also explores the issue from the perspective of institutional repositories, employing bibliometric methods and persona model theory to expand research scope and depth.

Institutional repositories (IRs) currently face many common challenges, including limited content, poor effectiveness, questioned mandates, outdated technology, and lack of meaningful institutional participation. Among the many causes of these problems is the fact that "most faculty and staff still do not understand why they should use institutional repositories: they neither facilitate dissemination of research output nor help secure funding, nor do they contribute to qualifications and promotion" [2][3]. In other words, increasing user engagement or leveraging knowledge services to make users feel that institutional repositories can assist their scientific research constitutes a new type of library service yet to be developed.

Maness et al. conducted early research on this new type of service [4], using persona studies to improve user experience in IRs through better interaction design. Because libraries initially implementing IRs faced many unknown variables —particularly when Open Access and the positioning of IRs had not yet reached consensus—research focused primarily on database construction and regulatory aspects of deposit systems. To break through existing limitations in collection and services, new services must be developed, and personas, with their empirical research characteristics, represent a model that can expand IR services. However, Maness et al. did not fully utilize the power of IRs, and their use of personas did not break away from classic textbook techniques and scope [5], representing a missed opportunity to pioneer a new direction.

In summary, to expand the capacity for information recommendation, improve institutional repository quality, and innovate library services through personas, this paper develops an empirical research design that integrates these three elements.

2. Research Design

The objective is to combine IRs, personas, and user behavior, using bibliometrics as the method, with the empirical subjects being master' s and doctoral theses in economics and finance from City University of Hong Kong.

2.1 Theoretical Basis and Research Framework

The theoretical basis adopts the term *Personas*, derived from Latin. This paper translates it as "型人" (xíng rén). Among modern languages, Spanish still uses *Persona*, equivalent to English "Person," while *Personas* is the plural form. Alan Cooper, developer of Visual Basic, stated: "Personas are not real people" [6], indicating that in his usage, the term does not represent actual individuals but carries scientific and engineering meaning. Therefore, the Chinese translation of *Personas* should not merely follow English usage without reference to the original Latin and Spanish meanings.

Common Chinese translations in domestic literature fall into two categories: literary theory translates it as "人物"(character), while computer science uses "人物角色"(user role), with slightly different definitions. Literary *Personas* refers to the application of fictional characters in works and their impact on readers, whereas in computer science, *Personas* has two meanings: one related to "interface," such as mobile operating system patterns, and the other related to "software design," referring to how programmers think about user behavior. When applied in library and information science, the term encompasses all these meanings.

Therefore, combining the Chinese characters for "典型"(typical), "类型"(type), and "模型" (model) with the concept of "人" (person) from Chinese Confucian culture's "Heaven (unknowable), Earth (knowable), Human (actionable)" framework, this translation of *Personas* as "型人" is more concise and closer to the extended and original meanings in English, Spanish, and Latin than either "人物" or "人物角色."

The research framework derived from this theory focuses on "creating" and "using"personas: creating personas emphasizes developing research techniques or adapting methodologies based on empirical studies and actual conditions, while using personas emphasizes practical application after creation and subsequent improvements to underlying techniques. Thus, the two aspects represent theory and practice.

2.2 Research Hypotheses

Based on major perspectives and assumptions from behaviorism and cognitive psychology, this study establishes three hypotheses: (1) The utilization rate of literature in IRs is necessarily related to user characteristics and behaviors; (2) Different user behaviors require different information services; and (3) Appropriate information services will strengthen the correlation posited in hypothesis (1).

2.3 Research Questions

Based on the theoretical framework and research hypotheses, the study addresses three main questions: (1) What are the characteristics and behaviors of users? (2) What different types of users can be identified from these charac-

teristics and behaviors? and (3) What information should be recommended for different users?

2.4 Research Positioning

This study employs bibliometric methods but is positioned as a case study (City University of Hong Kong–Department of Economics and Finance–master' s and doctoral theses deposited in the IR), with the unit of analysis being individual papers rather than individuals or institutions. The data source (http://dspace.cityu.edu.hk/handle/2031/709/browse/title) is an Open Access IR website, last accessed on October 10, 2009, enabling subsequent researchers to replicate and verify the study.

3. Results

3.1 User Characteristics and Behaviors

Analysis reveals that while the 30 sample theses show different reference patterns, they collectively demonstrate a high proportion of journal articles, followed by working papers, conference papers, corporate reports, and other grey literature with research value (archival analysis method). Most include a small number of monographs from Cambridge or Harvard publishers as theoretical frameworks or experimental technique references, while individual authors (such as Chong, B.P.S. and Law, K.C.) show preferences for extensive use of books and journals. Generally, web-based literature is not used, with only some authors (such as Lo, W.L. and Chong, B.P.S.) referencing it as needed. See Table 1 .

Given that the research samples come from City University of Hong Kong, a preference for Hong Kong is not surprising, but there is a growing tendency to focus on economic issues in mainland China. Additionally, research on other regional economies led by Japan (in economics, this is not called "case study," nor is it library classification' s "comparative economics," but rather referred to as enterprise research or institutional research, though not visible in keywords or titles) represents another characteristic. Meanwhile, theoretical research (referring to the collection of hypotheses that "establish models with mathematical formulas and test them with data in a non-falsifiable manner") is gradually decreasing, but mathematical models occupy an increasing proportion (in terms of space and word count) in "non-theoretical" research.

IR Information Types

Based on existing information within IRs, we can identify information from different disciplines and categories. Simultaneously, the Open Access information organization mechanism enables most IRs to share metadata content, and under common Open Access standards, various types of information can be classified, collected, and recommended. See Table 3 .

Further analysis reveals that most cited journals are: *Journal of Political Economy*, *American Economic Review*, *Journal of Financial Economics*, *Journal of Finance*, *Econometrica*, *Harvard Business Review*, and *Financial Analysts Journal*.

3.2 User Types

Based on librarians' intuitive sense of "classification," we can observe that although authors belong to the same economics and finance discipline, they focus on different regional economic issues. See Table 2 .

For example, if a graduate student from City University of Hong Kong' s finance department were writing a thesis on the clustering effects of science parks, the library could, in addition to recommending Paul Robin Krugman' s monographs or e-books published by MIT Press through the catalog system, also recommend journal articles by Wu Sihua from Taiwan' s National Chengchi University via the IR.

4. Discussion

Taking Chong, B.P.S.' s research on e-commerce as an example (note: such as how to bid and trade on Taobao or Alibaba), this study requires references to microeconomics, business management cases, communication journal literature, and conference papers on latest developments. Therefore, her references show an "Average" distribution through calculation, unlike Li, Y., whose research references not only economics and finance journals but also extensively cites engineering category journals such as Internet Engineering Task Force, with "non-major" information accounting for half of total references. Wu, L.L.' s references, however, concentrate almost entirely on economics and finance journals, with a clear focus on *Journal of Financial Economics*. See Table 1.

In other words, the key question is: Can libraries deepen knowledge services? Further analyzing this key question leads to: Can libraries provide different levels of knowledge services to different users? Going further: Do libraries have the conditions to do so? And if IRs are the only supplementary condition, then how should it be done? Where are the cases? What is the success rate?

Summarizing the key and sub-questions in one sentence: How can libraries use IRs to increase the depth of their knowledge services?

Assuming the authors of the 30 samples continue their related research and require library knowledge services, libraries could recommend information matching their research behaviors and characteristics based on analysis of their deposited papers. This "persona-based knowledge service mechanism" would integrate Tables 1 and 2, as shown in Figure 1 [Figure 1: see original paper].

According to Figure 1, the knowledge service mechanism is described as follows: (1) For Group 1, recommend journals while distinguishing between full-text and

abstract access, and provide intelligence analysis reports using keyword ontologies and journal network development; (2) For Group 2, recommend "informal" academic exchange information such as web resources, conference information, and working papers, but organized through web navigation or content aggregation; (3) For Group 3, recommend grey literature such as experimental data, working reports, corporate reports, and "non-major" journal literature; and (4) For Group 4, provide various functional options while selecting classic books, famous authors (e.g., Nobel laureates), renowned publishers (e.g., the century-old Springer), or globally recognized professional publishing houses (e.g., China Higher Education Press) to meet both psychological and practical work needs.

Librarians discussing how to serve these users may create and use personas through interviews, photographs (if subjects agree), and consultations based on bibliometric analysis, thereby achieving mutual exchange and accumulating experience to enhance institutional repositories.

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Note: Figure translations are in progress. See original paper for figures.