

# Archetype Research on Discipline-Oriented Knowledge Services –A Case Study of Disciplinary Competitiveness Analysis in Regional Economics

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## Abstract

To expand the application of scientometrics, embed librarians' work into research teams within institutes, and innovate library services, this study analyzed economics papers on Hong Kong, Mainland China, and the Asia-Pacific region in SSCI from 1999-2009. The results revealed: (1) different characteristics of various research institutions; (2) different characteristics of individual researchers within the same institution; (3) they require varying degrees of advisory and information services. The study proposes: (1) utilizing average publication output and average citation count to construct a coordinate system; (2) creating personas on this coordinate system; (3) librarians using personas to communicate with research teams to obtain recommendations for library services. The study demonstrates that creating and using personas (group behavior) enables the delivery of subject-specific knowledge services, without requiring expensive databases, complex mathematical formulas, or substantial manpower and funding.

## Full Text

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#### Personas Study for Subject Knowledge Services: A Case of Subject Competitiveness Analysis on Regional Economics

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**Abstract:** To expand the application of scientometrics, embed librarians' work into research teams, and innovate library services, this study analyzes SSCI-indexed economics papers on Hong Kong, mainland China, and the Asia-Pacific region from 1999 to 2009. The findings reveal: (1) distinct characteristics across different research institutions; (2) distinct characteristics among researchers within these institutions; and (3) varying levels of advisory and information service needs. The study proposes: (1) using average publication output and average citation counts to construct a coordinate system; (2) creating personas within this coordinate framework; and (3) employing these personas as communication tools between librarians and research teams to improve library services. The research demonstrates that creating and utilizing personas (based on group behavior) enables subject knowledge services without requiring expensive databases, complex mathematical formulas, or substantial manpower and funding.

**Keywords:** subject consultation; information service; bibliometrics; regional economics; competitive analysis

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Competitive analysis evaluates the conditions, strategies, and likelihood of success for proposed, new, renovated, or expanded projects in market competition. Analysts enhance administrative operational capacity and decision-making confidence by reducing information volume while ensuring product quality [1]. Subject competitiveness analysis examines the scientific and technological outputs of research universities, institutions, teams, and individual researchers within a specific discipline to assess the feasibility of supporting innovative research in that field. If librarians master subject competitiveness analysis skills, they can provide in-depth information services to the research communities they serve.

Current subject competitiveness analysis faces several challenges: (1) expensive databases limit its application to a few library and information institutions; (2) complex mathematical formulas deter most frontline librarians; (3) these factors require significant investment in funding and high-end talent; (4) such substantial investment does not always yield directly visible effects on scientific development; and (5) related statistical methods, such as scientometric indicators, are primarily used for ranking and evaluation rather than deepening library services.

Scientometrics is a new discipline derived from domain visualization research based on citation analysis, employing bibliometric methods to quantitatively study scientific literature and scientific communication [2]. Through specialized methods, scientometrics has been widely applied to measure scientific progress and researcher behavior [3]. However, can this approach be simplified for application in library knowledge services?

This paper proposes a streamlined solution through empirical research: (1) using average publication output and average citation counts to construct a coordinate system; (2) creating personas within this coordinate framework; and

(3) employing these personas as communication tools between librarians and research teams to improve library services.

## 1 Research Objectives and Questions

Drawing from Dong et al.'s analysis of agricultural science research impact [4], the Essential Science Indicators (ESI) database can be used to analyze countries/regions, institutions, scientists, highly-cited papers, and hot papers. Similarly, ESI data for economics and business papers (Hong Kong eight universities) is presented in Table 1.

As shown in , in ESI economics and business research outputs (Hong Kong five universities), City University of Hong Kong ranks after Chinese University and University of Science and Technology in total papers, after University of Science and Technology and Chinese University in total citations and average citations, but ahead of University of Hong Kong and Hong Kong Polytechnic University. Its economics and business research in ESI occupies a middle position in Hong Kong. However, this study's purpose is not to examine national/regional rankings but to develop a simple measurement method to facilitate communication between librarians and research groups for subject knowledge service purposes.

From the perspective of serving business schools, librarians must assist in clarifying competitive domains, competitors, competitive advantages/disadvantages, and competitive strategies. Therefore, the following research questions emerge:

1. What institutional characteristics can be observed in SSCI regarding economic research on Hong Kong, mainland China, and the Asia-Pacific region?
2. As a research institution, what competitive characteristics does City University of Hong Kong exhibit in regional economic research on Hong Kong, mainland China, and the Asia-Pacific, and how do these differ from its competitors?
3. Based on question 2's analysis, what are the differences between City University of Hong Kong and its competitors?

## 2 Research Design

### 2.1 Research Framework

Based on SSCI data providing each author and institution's publication output and per-article citation counts, this study abandons complex scientometric formulas and adopts two research hypotheses to design a coordinate system for creating persona models, as shown in [Figure 1: see original paper].

The framework defines four personas based on their position relative to average publication and citation counts: (1) *Normal*—below average on both metrics; (2) *Diligent*—above average in publications but below in citations; (3) *Genius*—

below average in publications but above in citations; and (4) *Superman*—above average on both metrics.

## 2.2 Research Methodology

This study employs bibliometrics, a distinctive research method in library science that quantitatively analyzes all knowledge carriers, focusing on quantifying literature (primarily journal articles and citations), authors (individuals or groups), and terminology (various document identifiers, particularly descriptors).

## 2.3 Research Process

The operational procedure involves: (1) selecting the topic and analyzing keywords—the City University of Hong Kong Economics and Finance Department’s mission statement mentions “using economics and finance for business and public sector decision making in Hong Kong, the Chinese mainland and other Asia-Pacific economies” [5], thus selecting “Hong Kong,” “mainland China,” and “Asia-Pacific” as keywords; (2) constructing search queries and selecting the domain: SSCI (data source), 1999-2009 (timeframe), Economics (field); (3) preliminary and detailed analysis of results; (4) copying results to Word; (5) data cleaning; (6) converting cleaned data to Excel format; and (7) creating charts using Excel.

**Hypothesis 1:** Publication volume represents the quantity of scientific output for authors or institutions (horizontal axis).

**Hypothesis 2:** Citation count represents the quality of scientific output for authors or institutions (vertical axis).

## 3 Results

### 3.1 Institutional Competitiveness in Regional Economic Research

Analysis of SSCI data for economic research on Hong Kong, mainland China, and the Asia-Pacific region from 1999-2009 reveals the top 10 institutions by total papers and total citations, as shown in .

As shown in , among the top 10 institutions, City University of Hong Kong ranks 5th in total papers, 4th in total citations, and 5th in average citations. This middle position aligns intuitively with . However, University of Hong Kong shows prominent competitiveness, while Lingnan University and Hong Kong Baptist University—absent from ESI economics and business rankings—occupy 4th and 7th positions in this SSCI regional economics analysis, indicating intense competition in this subfield.

### 3.2 Researcher Competitiveness Within Institutions

**Chinese University of Hong Kong:** As shown in [Figure 2: see original paper], this institution shows all persona types, though normal types dominate, with two diligent types, one genius type, and one superman type.

**University of Hong Kong:** As shown in [Figure 3: see original paper], this institution predominantly features normal types, with two diligent types and one researcher between normal and genius types.

**Hong Kong Polytechnic University:** As shown in [Figure 4: see original paper], this institution predominantly features normal types, with one genius type.

**Lingnan University:** As shown in [Figure 5: see original paper], this institution features only two persona types: normal and diligent.

**City University of Hong Kong:** As shown in [Figure 6: see original paper], this institution predominantly features normal types, but includes three genius types, one superman type, and one researcher between genius and normal types, with no diligent types.

**National University of Singapore:** As shown in [Figure 7: see original paper], this institution predominantly features normal types, with one diligent type and one genius type, but no superman type.

**Hong Kong Baptist University:** As shown in [Figure 8: see original paper], this institution predominantly features normal types, with one researcher between genius and normal types.

**Hong Kong University of Science and Technology:** As shown in [Figure 9: see original paper], this institution predominantly features normal types, with one genius type and one superman type, but no diligent types.

### 3.3 Comparative Analysis Across Eight Institutions

As a research institution studying Hong Kong, mainland China, and Asia-Pacific regional economics, City University of Hong Kong has eight main competitors. From the persona distribution perspective, its competitiveness profile most closely resembles Hong Kong University of Science and Technology—characterized by a few genius and superman types combined with a majority of normal types.

compares the four persona types across the eight universities, revealing distinct competitive patterns.

## 4 Discussion

### 4.1 Development Strategy from the Researcher Perspective

Consolidating [Figure 2: see original paper] through [Figure 9: see original paper] reveals that in regional economics research on Hong Kong, mainland China, and the Asia-Pacific, City University of Hong Kong has relatively few superman and diligent types compared to the combined profile of the other seven institutions, as shown in [Figure 10: see original paper].

The personnel development strategy should focus on: transforming normal types into diligent types, then leveraging collaboration with genius types to convert diligent types into superman types.

### 4.2 Development Strategy from the Institutional Perspective

Based on total publication and citation volumes, City University of Hong Kong's regional economics research team should strategically examine the research content of similar studies conducted by University of Hong Kong and Chinese University of Hong Kong.

### 4.3 Development Strategy from the Research Paper Perspective

Eight highly-cited papers, listed in , can serve as references for researchers and institutions. These papers cover topics including corruption and economic growth, exchange rate dynamics, economic returns to schooling, market segmentation effects, connected party transactions, herding behavior in equity markets, and rational bubbles in housing markets.

### 4.4 Competitive Objects and Strategies

Competitive objects include: Chinese University of Hong Kong, University of Hong Kong, Hong Kong Polytechnic University, Lingnan University, National University of Singapore, Hong Kong Baptist University, and Hong Kong University of Science and Technology. Based on dissection of these competitors, feasible strategies are: (1) monitor relevant research from Chinese University of Hong Kong and University of Hong Kong; (2) increase diligent and superman talent; (3) reference the eight highly-cited papers identified in this study.

## 5 Conclusion

This study establishes a concise subject knowledge service model that: (1) enables librarians to help research or teaching teams reduce information anxiety from massive data, accurately identify suitable competitive domains, analyze corresponding competitors, assess competitive advantages/disadvantages, and formulate competitive strategies; (2) allows librarians to conduct subject knowledge services without expensive databases, software, complex mathematical formulas, or elaborate procedures (while ESI and SSCI are costly, smaller libraries

can obtain one-time data at larger libraries with well-designed search strategies); (3) strategically, valuably, and organically embeds library and information work into research or learning teams through the integration of persona theory and simplified scientometrics.

Library science methodology should support both empirical research (observable, reproducible, verifiable) and practical application across all library types. This study's process is repeatable and follows the principle: "select topic and keywords, search within boundaries, transfer data, dig for patterns" [Figure 0: see original paper] (note: follow logical meaning, not rigidly). The mathematical requirement is only middle school level, but demands the meticulousness of a ten-year veteran librarian.

Two limitations should be noted when generalizing these conclusions: (1) this study uses only ESI and SSCI as data sources, limiting the sample; (2) the analysis reflects only current regional economics research status on Hong Kong, mainland China, and the Asia-Pacific, not overall economic research capacity.

Future research should: (1) cross-validate results across ESI, SSCI, and other databases for more comprehensive analysis; (2) incorporate additional scientometric indicators such as media role [6] when necessary; (3) interview relevant researchers with humility to better understand their behavioral patterns and research processes.

Librarians have traditionally emphasized resource construction, utilization, and promotion, but rarely used these databases to derive conclusions for user consultation and partnership building. This service transformation can be facilitated by persona theory to reduce transition pain [7]. In the data-driven research environment, we must consider the interaction of content, context, and community to design user-centered services [8]. As informal information exchange becomes a primary information-seeking behavior, libraries must serve users through more digital, networked, and personalized approaches. This requires distilling a universally applicable subject knowledge service model from library practice that simplifies complexity and retains essence, then identifying user information behavior patterns through service experience exchange for more humane technological applications. Most importantly: never abandon exploration of and concern for user behavior, and collaboratively solve practical problems with users through scientific methods.

## References

- [1] Craig S, Fleisher C S, Bensoussan B E. Business and Competitive Analysis: Effective Application of New and Classic Methods[M]. Pearson Education, New Jersey, 2008.
- [2] Boerner K, Chen C M, Boyack K W. Visualizing knowledge domains[J]. Annual Review of Information Science & Technology, 2003, 37(5): 179-255.

- [3] Chen Yunwei. Development and layout of scientometrics[J]. Modern Library and Information Technology, 2010, 188(1): 71-76.
- [4] Dong Yu, Zhang Wei, Yuan Jianxia, Zhang Bo. Analysis of agricultural science impact from 1998-2008[J]. Science Focus, 2009, 4(6): 9-16.
- [5] City University of Hong Kong: Department of Economics & Finance[EB/OL]. <http://www.cb.cityu.edu.hk/home/?category=departments&page=ef>, 2010-05-24.
- [6] Wang Dan. Media role in scientific collaboration[D]. Beijing: Graduate University of Chinese Academy of Sciences, 2009.
- [7] Gu Liping. Strategies for promoting Library 2.0 services: An empirical study of focus groups[J]. Library and Information Service, 2010, 54(1): 67-71.
- [8] Zhang Xiaolin. Reconsidering knowledge processes and knowledge services[J]. Library and Information Service, 2009, 53(1): 6-8.

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

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