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## Postprint of Personality Trait Analysis in Foreign University Data Librarian Job Postings Wang Yanni<sup>1</sup>, Liu Guifeng<sup>1</sup>, Liu Qiong<sup>1</sup> 1. Institute of Scientific and Technical Information, Jiangsu University [Purpose/Significance] Data librarians are the core human resources for library data management...

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### Abstract

[ Purpose / Significance ] Personality traits demonstrate correlations with work ability and performance. Foreign job postings for data librarians frequently employ personality trait adjectives to describe position requirements. Identifying the personality traits required for data librarian positions and determining the importance of various personality types in data librarian work is of referential significance for the recruitment of university data librarians in China. [ Method / Process ] This study investigated job postings for university data librarians on IASSIST, adopting web survey methodology and content analysis to analyze applicant personality traits based on the five factors of the ‘Big Five’ personality model. [ Results / Conclusion ] Foreign university data librarian recruitment emphasizes personality traits such as innovation, proactivity, and collaboration. Extraversion and Openness in the ‘Big Five’ personality model are most highly valued. Chinese university libraries should place greater emphasis on the application of personality traits in data librarian recruitment and prioritize the identification of Extraversion and Openness personality traits.

### Full Text

#### Preamble

**ChinaXiv Cooperative Journal: Academic Exploration**  
**Personality Characteristics in Foreign University Data Librarian**

## Recruitment Advertisements

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## Abstract

**[Purpose/Significance]** Personality characteristics are closely related to work ability and performance. Foreign data librarian recruitment advertisements frequently use personality trait adjectives to describe job requirements. Identifying the personality traits required for data librarian positions and determining the relative importance of various personality dimensions holds significant reference value for the recruitment of university data librarians in China. **[Method/Process]** This study investigates data librarian recruitment postings from IASSIST (International Association for Social Science Information Services & Technology), employing web-based survey and content analysis methods to analyze applicant personality characteristics across the five factors of the “Big Five” personality framework. **[Result/Conclusion]** Foreign university data librarian recruitment emphasizes personality traits such as innovation, proactivity, and collaboration. Among the “Big Five” personality dimensions, extraversion and openness to experience are the most sought-after traits. Chinese university libraries should attach greater importance to the application of personality characteristics in recruitment, with particular attention to identifying extraversion and openness traits.

**Keywords:** data librarian, personality characteristics, Big Five personality, academic library, job competency

**Classification Number:** G251.6

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## 1 Introduction

With the rapid development of E-science and the open access movement, awareness of the value of research data has deepened, and university libraries have increasingly recognized the importance of “data librarians” in data collection, organization, storage, and analysis. In recent years, libraries and related institutions in China and abroad have conducted a series of data librarian training programs. The Chinese Library Society, in collaboration with other organizations, has held multiple sessions of “Data Librarian Training Courses” and “Data Librarian Salons,” training data librarians in the theoretical and practical skills needed to “acquire, analyze, and apply data” [1]. The National Science and Technology Library (NSTL) also regularly holds seminars, inviting domestic and international experts in data management to train “data librarians.” Inter-

nationally, organizations such as the International Association for Social Science Information Services and Technology (IASSIST), the Association of Public Data Users (APDU), and the Consortium of European Social Science Data Archives (CESSDA) provide learning and training opportunities for librarians [2]. Conference themes and training content frequently involve data management practices, competency development, and career advancement for data librarians.

While data librarian competencies influence the efficiency of research data management to a certain extent, personality traits also constitute a key factor affecting career development. University libraries have varying skill requirements for data librarians, but generally expect them to possess both practical technical skills essential for data management processes and communication abilities. Personality traits, as a type of competency characteristic, have also been incorporated into recruitment practices for university data librarians. Some foreign university libraries, based on actual job development needs, include descriptions of personality traits in their data librarian recruitment advertisements to attract suitable candidates. For data librarians, non-technical abilities are equally important [6]. Data librarians' responsibilities involve providing comprehensive research data services, requiring them to be embedded throughout the entire lifecycle of research data management, assisting stakeholders in completing relevant tasks [7]. Their services encompass not only standards development, management of data platforms and tools, and data management and maintenance, but also communication and exchange with researchers [8], as well as establishing partnerships with other academic organizations to assist researchers in securing funding and publishing results [9]. R. Robin et al. [10], drawing on years of experience as data librarians, specify in *The Data Librarian's Handbook* that data librarians need not possess extremely strong technical skills but must demonstrate interest in computers, databases, information retrieval tools, and programming languages, emphasizing that non-technical competencies are equally crucial [11].

To understand the personality traits suitable for data librarian positions, this study analyzes foreign university data librarian recruitment information based on the “Big Five” personality theory from psychology, extracting personality trait adjectives from recruitment texts and examining the distribution characteristics of the “Big Five” personality dimensions among data librarians, with the aim of providing reference for data librarian recruitment in China.

## 2.1 Research Status on Data Librarian Competencies

Foreign scholars typically use the term “data librarian(s)” to refer to librarians who provide research data management services. A report by the UK's Joint Information Systems Committee (JISC) identified four data-related roles: data creator, data scientist, data manager, and data librarian. A. Swan and S. Brown consider data librarians to include all individuals with research data management capabilities across disciplinary fields [3].

Currently, there is no unified, explicit standard for data librarian competency requirements. Domestic and foreign scholars' research on these requirements has primarily been based on analyses of university library websites and relevant recruitment platforms. For instance, by examining recruitment information from foreign iSchool alliance members and university libraries, researchers have found that data librarians must possess not only professional knowledge and skills but also comprehensive abilities such as teamwork and communication, along with critical thinking skills [4-5]. Comparative studies of Chinese and foreign data librarian responsibilities and competencies from perspectives including knowledge background, comprehensive qualities, job responsibilities, and skill requirements have concluded that both “technical competencies” and “humanistic-social competencies” are essential [6].

Existing research has predominantly obtained competency requirements for data librarians through website surveys, emphasizing technical skill demands. Although some studies mention the importance of non-technical competencies, they have not deeply explored the application of these competencies in specific management processes. Personality traits represent an important aspect of non-technical competencies that influence the practice and development of individual abilities. Traits such as innovation, creativity, teamwork, and communication are vital for enhancing data librarians' overall comprehensive abilities and competitiveness.

## 2.2 The “Big Five” Personality Theory and Its Application

Influenced by multiple factors including genetics, upbringing environment, educational background, and socio-cultural context, individuals exhibit diverse personality characteristics and traits, resulting in a wide variety of adjectives used in natural language to describe personality. Building upon lexical research, scholars such as L.R. James and M.D. Mazerolle constructed a five-factor model of personality trait dimensions—the “Big Five” personality model [12]. By analyzing adjectives describing personality traits, they categorized personality characteristics into five dimensions: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience [13]. Among these five factors, extraversion manifests as enthusiasm, friendliness, and vitality, along with confidence and sociability; agreeableness manifests as altruism, friendliness, approachability, and empathy, facilitating mutual understanding and communication and fostering positive interpersonal relationships; conscientiousness manifests as self-discipline and rigor, associated with orderly behavior and self-control in goal pursuit; neuroticism relates to negative emotions such as fear, sadness, anxiety, sensitivity, and impulsivity; while openness indicates not only interpersonal openness but also broad, innovative thinking and proactive exploratory attitudes.

The “Big Five” personality structure is not specific to particular cultural contexts but represents a general personality structure common to most humans [14], making it a widely accepted model among researchers. Numerous stud-

ies have demonstrated correlations between personality traits and job performance. M.K. Mount and M.R. Barrick [15] conducted empirical research analyzing the relationship between the “Big Five” personality dimensions and job performance indicators, finding that the Big Five model has predictive power for performance, with conscientiousness being a stable and effective predictor of individual performance. Domestic scholars have examined the correlation between the “Big Five” personality and research personnel performance, discovering that emotional stability and openness are significantly related to task performance, with emotional stability and agreeableness showing notable effects on contextual performance [16]. Due to individual differences in personality traits among employees and their varying impacts on job performance, recruiting organizations must consider the importance of each personality dimension when making hiring decisions [17]. Analysis of personality trait adjectives in recruitment advertisements has revealed connections between the “Big Five” personality and employee creativity [18], with personality traits interacting with external factors to promote innovative behavior [19]. R.E. Tokarz’s analysis of recruitment information found that among librarians’ “Big Five” personality dimensions, agreeableness and openness were most valued [20].

Based on this research, this study collects and analyzes recruitment information from foreign university libraries, employing the “Big Five” personality theory to analyze librarian personality characteristics. The study constructs a “Big Five” personality model (see Figure 1 [Figure 1: see original paper]). Since personality trait descriptions in recruitment information rarely involve negative emotions, the original “Big Five” factor of “neuroticism” has been positively reframed as the constructive trait “emotionally stable.”

#### **4 Analysis of Foreign University Data Librarian Recruitment Information**

The International Association for Social Science Information Services & Technology (IASSIST) is a professional international organization supporting social science research and teaching. Its “Jobs Repository” section has posted positions related to research data support and services since 2005, including numerous data librarian recruitment advertisements [21]. This study selected recruitment postings from this website as the data source, using web scraping technology to obtain postings published between January 1, 2015, and November 13, 2019. Content analysis was employed to comprehensively interpret and identify position titles, job requirements, and personality characteristics from each recruitment posting. Regarding position titles, besides “data librarian,” foreign university data librarian recruitment advertisements also included titles such as “research data management librarian,” “data services specialist,” “data services librarian,” and “social science data librarian,” primarily falling into three categories: data librarians, data analysis librarians, and subject-specific data librarians. For personality characteristics, the study selected only adjectives describing candidates’ personality traits, such as “creative” and “innovation,”

excluding vocabulary describing technical or hard skill requirements.

Using the “Big Five” personality factor model, the identified personality traits were coded to determine which characteristics received attention in data librarian recruitment.

A total of 286 data librarian recruitment postings were obtained from the IAS-SIST website. After preliminary screening to remove 11 duplicate records, the remaining 275 postings were entered into an Excel spreadsheet for detailed reading and filtering. Postings from banks, archives, international organizations, research institutions, and other non-university library organizations were manually excluded, retaining only university library data librarian recruitment information, resulting in a final dataset of 218 valid postings.

#### 4.1.1 Frequency of Personality Trait Vocabulary Usage

Among the 218 recruitment postings, 50.46% (n=110) contained personality trait adjectives, while 49.54% (n=108) made no explicit requirements regarding personality traits. This indicates that nearly half of employers expect data librarians to possess not only relevant knowledge backgrounds and work capabilities but also personality traits suited to the position, highlighting the importance attached to personality characteristics in data librarian recruitment.

Within the 110 postings that used personality trait adjectives, 33 distinct adjectives appeared a total of 302 times, averaging 2.72 adjectives per posting. Across all 218 data librarian recruitment postings, the average was 1.39 personality trait adjectives per posting.

The posting for a data librarian position at Indiana University’s Ruth Lilly Medical Library contained the most personality trait adjectives (5): “The Ruth Lilly Medical Library seeks an enthusiastic, flexible, proactive, service-oriented, and innovative individual for the position” [22]. This posting described the data librarian’s role as providing research support and services, assisting scholars and research teams in medical clinical and nursing research, and delivering data services to students and faculty. The personality trait adjectives in data librarian recruitment postings are closely related to job content and position characteristics, enabling university libraries to efficiently screen candidates and identify suitable data librarians based on these traits. Research has shown that personality characteristics affect job performance and satisfaction among information science professionals [23], and data librarians possessing the personality traits emphasized in recruitment postings will demonstrate greater initiative in their work, creating more value for libraries and achieving a win-win outcome.

#### 4.1.2 Preferred Personality Traits in Data Librarian Recruitment

The most frequently used personality trait adjectives in data librarian recruitment postings were “innovative” (n=61), “dynamic” (n=31), “collaborative” (n=31), “service-oriented” (n=22), “engaged” (n=20), and “creative” (n=20),

each appearing more than 20 times. A total of 10 personality trait adjectives appeared more than 10 times (see Figure 2 [Figure 2: see original paper]), collectively accounting for 246 occurrences, or 81.46% of all personality trait adjective usage.

The adjectives “innovative,” “dynamic,” and “collaborative” were the most frequently used (>30 times). By interpreting the postings containing these three adjectives, the study summarized the primary functions of university data librarian positions, as shown in Table 1 .

The adjective “innovative” appeared 61 times in data librarian recruitment postings, used to describe position functions including: personalized services (n=19), subject liaison (n=18), subject technology expert (n=17), creative activities (n=10), emerging research (n=13), data projects (n=13), resource promotion (n=7), emerging technologies (n=6), academic achievements (n=3), and metadata (n=1). This demonstrates that data librarians must provide personalized services based on user needs in their daily work, collaborate with technical personnel and subject specialists, and that innovation capability is essential throughout these processes.

The adjective “dynamic” appeared 31 times, used to describe functions including: subject liaison (n=8), data services (n=7), metadata (n=6), scholarly communication (n=3), emerging research (n=3), access services/circulation (n=2), emerging technologies (n=1), academic achievements (n=1), and collection development (n=1). This indicates that data librarians must liaise with other scholars and experts during research data management processes, requiring the “dynamic” personality trait that enables them to proactively participate in data services and actively learn metadata knowledge related to data preservation and management.

The adjective “collaborative” appeared 31 times, used to describe functions including: subject liaison (n=7), data services (n=7), scholarly communication (n=5), information technology (n=2), access services/circulation (n=2), emerging research (n=2), collection development (n=2), and metadata (n=1). This reveals that data librarian work is inherently collaborative, requiring the “collaborative” personality trait for cooperation with researchers, experts, other librarians, and research institutions throughout the research data management lifecycle.

#### 4.2 “Big Five” Personality Analysis of Data Librarians

Based on the “Big Five” personality descriptions and after positively reframing the negative factor “neuroticism” as the constructive trait “emotionally stable,” the 302 adjectives were categorized into five dimensions (see Figure 3 [Figure 3: see original paper]): 36.42% extraversion (n=110), 32.12% openness (n=97), 21.85% conscientiousness (n=66), 8.94% agreeableness (n=27), and 0.67% emotional stability (n=2). Foreign university libraries prioritize extraversion and openness in data librarian recruitment, followed by conscientious-

ness, with agreeableness receiving less attention and emotional stability being almost entirely overlooked.

The 33 distinct personality trait adjectives were organized and classified according to the “Big Five” personality framework, with results presented in Table 2

#### **4.2.1 Extraversion: The Most Preferred Personality Trait in Data Librarian Recruitment**

In terms of personality characteristics, data librarians with extraverted traits are dynamic/active, engaged, enthusiastic/excited/passionate, energetic, social, and outgoing. Behaviorally, extraverted data librarians demonstrate strong initiative, actively participate in all aspects of research data management, possess strong communication skills, embrace challenges, and exhibit strong adaptability.

#### **4.2.2 Openness: A Crucial Personality Trait for Data Librarians**

Data librarians with openness traits are innovative/creative/inventive, forward-thinking, analytical, talented, artistic, intelligent, responsive, and distinguished. Behaviorally, they demonstrate strong innovation capabilities, active thinking, and robust dialectical thinking skills, aligning with the characteristics required for innovative library data services. Foreign university libraries emphasize candidates’ analytical and aesthetic abilities in data analysis librarian recruitment, which corresponds to the data analysis and visualization components of job descriptions.

#### **4.2.3 Conscientiousness**

Data librarians with conscientiousness traits are collaborative/cooperative/team-oriented, service-oriented/user-focused, flexible, and coordinated. Behaviorally, conscientious data librarians exhibit strong responsibility and self-discipline, performing well in team collaboration.

#### **4.2.4 Agreeableness: Less Emphasized in Data Librarian Recruitment**

Data librarians with agreeableness traits are motivated, proactive, efficient, organized, widely-recognized, and accomplished. Behaviorally, agreeable data librarians excel at perspective-taking and tolerance, enabling them to quickly and accurately understand user needs.

#### **4.2.5 Emotional Stability: Not an Essential Trait for Data Librarians**

Data librarian positions are unsuitable for individuals with neurotic traits. To succeed as data librarians, individuals must be emotionally stable and optimistic. However, emotionally stable data librarians tend to adopt methodical, go-with-the-flow work styles that lack initiative and creativity. Therefore, emotional stability is not a required personality trait for data librarians.

## 5 Implications for Data Librarian Recruitment in Chinese Universities

The development of data librarian positions in Chinese universities began relatively late, and a formal position system has yet to be established. As China's research data sharing practices deepen, requirements for research data management talent in university libraries have become more stringent, and the construction of library talent teams will directly affect the quality and efficiency of research data open sharing. Data librarians are comprehensive talents with research data management capabilities in this new context, bearing the important responsibility of functional transformation in university libraries. This study offers insights for data librarian recruitment in Chinese universities.

University libraries should not only establish technical requirements for data acquisition, processing, and application but also emphasize whether candidates' personality characteristics align with job development needs. Libraries must improve the personality-related components of data librarian recruitment information, specifying and customizing the personality traits required for different data librarian positions to establish optimal personality competency requirements for particular roles and refine the data librarian recruitment system.

Incorporating personality characteristics into the data librarian recruitment process serves two purposes: first, adding personality trait adjectives to recruitment information enables initial screening of candidates possessing required traits; second, conducting personality assessments during the interview stage according to job requirements allows for secondary screening. This approach helps university libraries quickly identify data librarians who meet job development needs while enabling applicants to evaluate their own personality fit for the position, improving efficiency for both parties.

Extraversion and openness are the most valued personality characteristics in foreign university data librarian recruitment, followed by conscientiousness, with agreeableness also having some relevance. Extraversion and openness are suitable for positions involving interaction with others. In actual research data management services, data librarians require not only practical skills for data preservation and application but also communication and collaboration with researchers, colleagues, and external institutions for project cooperation and data sharing negotiations, sometimes even involving international partnerships. This necessitates certain extraversion and openness traits.

Individuals with extraversion and openness also tend to be innovative and proactive, aligning with university library development directions. Libraries are growing organisms, and innovation is essential for development amid environmental changes. As user demands for data services escalate in the big data environment, libraries must participate in new divisions of labor in the data domain. Data librarians with innovative capabilities adapt more quickly to new challenges, facilitating library transformation, while proactivity enables data librarians to maintain interest in information services and user research directions, driving

their rapid learning of new tools and technologies.

Therefore, Chinese university libraries should particularly focus on identifying candidates with extraversion and openness traits during data librarian recruitment to find the best fit for position requirements. Personality characteristic analysis can help both applicants identify suitable positions and organizations recruit appropriate candidates. Chinese university libraries should emphasize the application of personality characteristics in data librarian recruitment, adding personality testing components and focusing on effective identification of extraversion and openness traits. Since data librarian development in China remains in its early stages, competency requirements should be tailored to the specific development status of each university library.

This study has several limitations. For instance, it only analyzed data librarian recruitment postings from IASSIST over the past five years, and sample diversity needs expansion. Additionally, while this study analyzed the “Big Five” personality characteristics used in foreign university data librarian recruitment advertisements, whether personality competency requirements for data librarians differ across organizational types remains to be explored. Furthermore, the impact of “Big Five” personality dimensions on actual job performance among data librarians requires further empirical research and analysis.

## 6 Conclusion

This study found that foreign university data librarian recruitment emphasizes personality characteristics including innovation, proactivity, and collaboration. The “innovative” trait aligns with university library development directions—libraries are growing organisms, and innovation is essential amid environmental changes. The traits of “proactivity” and “collaboration” match data librarian competency requirements, as the work demands user-centered service alongside project cooperation and data sharing negotiations. Among the “Big Five” personality dimensions, openness and extraversion are most valued, followed by conscientiousness, with agreeableness also having some relevance, while emotional stability is not considered an essential trait.

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**Author Contributions:**

Zhang Liqing: Conceptualized the research, collected and analyzed data;

Wang Ying: Organized and analyzed data, drafted the manuscript;

Yuan Pu: Collected and organized literature, wrote and revised the manuscript;

Wei Jingjing: Collected and organized literature, wrote and revised the manuscript.

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

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