DOI: 10.5961/highereducsci.1703550

E-Resource Librarianship in Turkish University Libraries: A Study on Perceived Competencies*

Türk Üniversite Kütüphanelerinde Elektronik Kaynak Kütüphaneciliği: Algılanan Yetkinlikler Üzerine Bir Çalışma

Alper ODABAŞOĞLU

ABSTRACT

The rapid advancement of information technologies has reshaped academic library services and redefined the roles of librarians. The growing importance of electronic resources has led to the emergence of specialized areas within librarianship, particularly in electronic resource management, an area that requires technical, managerial, and communication skills. This study examines the self-perceived competency levels of e-resource librarians in Turkish university libraries, using the American Library Association's (ALA) "Core Competencies of Librarianship" and NASIG's (formerly the North American Serials Interest Group, Inc.) "Core Competencies for Electronic Resources Librarians" as assessment frameworks. The concept of perceived competencies refers to individuals' subjective evaluations of their own knowledge, skills, and abilities in a particular professional domain. Unlike objectively measured competencies, perceived competencies are shaped by self-assessment processes, personal experiences, and contextual factors such as professional feedback and organizational culture (Zimmerman, 2000). In the absence of a nationally standardized model in Türkiye, assessing and improving professional performance remains a challenge. The data were collected between April and July 2023 through purposive sampling from a total of 208 higher education institutions, comprising 129 public universities, 75 foundation (private) universities, and 4 vocational schools. The study population consists of e-resource librarians working in university libraries. In total, the survey was conducted with 143 individuals. The findings reveal statistically significant differences in perceived competencies based on the NASIG criteria ($p < 0.05$), along with positive correlations across several competency subdomains.

Keywords: Competency perceptions, E-Resources librarians, Lifecycle of e-resources, NASIG, Türkiye

ÖZ

Bilgi teknolojilerinin hızla gelişmesi, akademik kütüphane hizmetlerini yeniden şekillendirmiş ve kütüphanecilerin rollerini yeniden tanımlamıştır. Elektronik kaynakların artan önemi, özellikle teknik, yönetsel ve iletişim becerileri gerektiren elektronik kaynak yönetimi alanında kütüphanecilik mesleğinde uzmanlaşmış alanların ortaya çıkmasına neden olmuştur. Bu çalışma, Türk üniversite kütüphanelerinde görev yapan e-kaynak kütüphanecilerinin öz-yetkinlik algılarını, değerlendirme çerçevesi olarak Amerikan Kütüphane Derneği'nin (ALA) "Kütüphanecilik Temel Yeterlilikleri" ile NASIG'in "Elektronik Kaynak Kütüphanecileri için Temel Yetkinlikleri"

Odabaşoğlu A. (2026). E-Resource Librarianship in Turkish University Libraries: A Study on Perceived Competencies. *Journal of Higher Education and Science/Yükseköğretim ve Bilim Dergisi, 16*(1), 42-56. https://doi.org/10.5961/highereducsci.1703550

*This study is derived from the doctoral thesis titled "Competency Perceptions of E-Resource Librarians in University Libraries," prepared at Çankırı Karatekin University, Çankırı, Turkey, in 2024.

**Bu çalışma, 2024 yılında Çankırı Karatekin Üniversitesi'nde hazırlanan "Üniversite Kütüphanelerinde Elektronik Kaynak Kütüphanecilerinin Yetkinlik Algıları" başlıklı doktora tezinden türetilmiştir.*

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Received/*Geliş Tarihi* : 21.05.2025
Accepted/*Kabul Tarihi* : 25.02.2026

kullanarak incelemektedir. Algılanan yetkinlikler kavramı, bireylerin belirli bir mesleki alandaki bilgi, beceri ve yeterliliklerine ilişkin öznel değerlendirmelerini ifade eder. Nesnel olarak ölçülen yetkinliklerden farklı olarak algılanan yetkinlikler; öz-değerlendirme süreçleri, kişisel deneyimler ve mesleki geri bildirim ile örgütsel kültür gibi bağlamsal faktörler tarafından şekillendirilmektedir (Zimmerman, 2000). Türkiye'de ulusal düzeyde standart bir modelin bulunmaması, mesleki performansın değerlendirilmesi ve geliştirilmesini zorlaştırmaktadır. Veriler, 2023 yılı Nisan–Temmuz ayları arasında amaçlı örnekleme yöntemiyle seçilen 129 devlet üniversitesi, 75 vakıf üniversitesi ve 4 meslek yüksekokulunu kapsayan toplam 208 yükseköğretim kurumundan elde edilmiştir. Çalışmanın hedef kitlesini üniversite kütüphanelerinde görev yapan e-kaynak kütüphanecileri oluşturmuş ve toplam 143 katılımcı anketi yanıtlamıştır. Bulgular, NASIG kriterlerine göre katılımcıların algılanan yetkinlik düzeyleri arasında istatistiksel olarak anlamlı farklar olduğunu ($p<0.05$) ve çeşitli yeterlilik alt boyutları arasında pozitif yönde anlamlı ilişkiler bulunduğunu ortaya koymaktadır.

Anahtar Sözcükler: Yetkinlik algısı, E-Kaynak kütüphanecileri, E-Kaynakların yaşam döngüsü, NASIG, Türkiye

INTRODUCTION

Advancements in information and communication technologies have profoundly transformed library operations and resource management practices. This paradigm shift signifies a transition from traditional, print-based systems to digital, user-centered models. Consequently, academic librarians are now required to regularly update their professional skills and acquire new areas of expertise (Sutton, 2011). In particular, the increasing complexity of managing digital content has elevated the importance of e-resource librarianship as a specialized area within academic libraries. This shift has sparked ongoing discourse around the competencies required for professionals in this evolving role (American Library Association [ALA], 2021; NASIG, 2021).

The lifecycle of e-resources from selection to cancellation is a multifaceted process involving tasks such as needs assessment, licensing negotiations, acquisition, access management, subscription tracking, and user support (Moore, 2011). The lifecycle framework introduced by Pesch (2009) and extended by NASIG (2013) categorises this process into five key stages: acquisition, access, management, support, and evaluation. These stages continue to evolve and improve the sustainability and responsiveness of library services (Hosburgh, 2014; Pesch, 2009).

As digital collections continue to expand, librarians must now develop competencies that extend beyond traditional collection development, including metadata management, vendor relations, and technical troubleshooting. The Techniques for Electronic Resource Management (TERMs), developed by Jill Emery, Graham Stone Peter McCraken (2019), further enriched the e-resource lifecycle by focusing on day-to-day operational workflows. A comprehensive review of the extant literature reveals that there are six core processes that support effective resource management while fostering skills in evaluation, decision-making, and communication. These six processes are investigation, acquisition, implementation, evaluation, review, and cancellation (Verminsky & Blanchat, 2017; Emery et al., 2019).

In response to these changes, the American Library Association (ALA) initiated a comprehensive competency framework in 1999, which was updated in 2008 and 2021, to guide professional development in the digital age. The most recent framework underscores interdisciplinary competencies, including technological literacy, data-informed decision-making, and inclusive service design. It is characterized by its promotion of values such as equity, lifelong learning, and ethical information access (ALA, 2021).

NASIG, an organization dedicated to scholarly communication and serials management, has played a pivotal role in delineating specialized competencies for e-resource librarians. This contribution is in alignment with the principles outlined in the ALA's model. The 2021 update outlines essential skills in ERM systems, licensing, data standards, and collaborative technologies. These guidelines underscore the importance of interdisciplinary expertise, user-centered access solutions, and ethical content management (NASIG, 2021; Emery, 2018).

While studies on the standards of e-resource librarianship continue worldwide, there are currently no established standards in Türkiye regarding the qualifications required for librarians working in the e-resources units of university libraries. This lack of standards hinders the efficient use of university library resources, leads to the unnecessary expenditure of public funds, and results in the misallocation of personnel capacity. Awareness of this issue, coupled with the need to identify the knowledge and skills required for the effective management of e-resources in the digital age, has been a driving factor in conducting this study.

Literature Review

In recent years, with the rapid advancement of digitalization, libraries have increasingly offered more e-resources, which has significantly elevated the role of e-resource librarians. An examination of the contents of the publications reveals that some are case or subject-specific studies that address the concept of librarianship, subject specializations, and the core competencies of librarians (ALA, 2009, 2021; Stachokas, 2014). Other publications focus on the development, management,

and lifecycle of e-resource collections in libraries (Elguindi & Schmidt, 2012; Emery, Stone, & McCracken, 2020; Johnson, Evensen, Gelfand, Lammers, Sipe, & Zilper, 2012; Pesch, 2009; Stachokas, 2018; Talbott & Zmau, 2018; Verminsky & Blanchat, 2017; Yu & Breivold, 2008). Additionally, some studies specifically examine e-resource librarians and the field of e-resource librarianship (ALA, 2021; Hartnett, 2014; NASIG, 2016; NASIG, 2021; Stachokas, 2014; Stachokas, 2020; Sutton, 2011; Sutton & Collinge, 2018). These studies collectively indicate that, in various countries, professional organizations and associations have engaged in defining and developing the core competencies of e-resource librarians.

Accordingly, there has been a growing body of research focusing on the management of e-resources and the competencies required for librarians working in this area. In parallel with these developments, studies investigating the skills and knowledge necessary for managing e-resources have gained momentum. ALA's (2009; 2021) "Core Competences of Librarianship" framework outlines the essential roles of the profession while also highlighting the need for additional competencies in emerging areas such as digital literacy, data management, and community-based services in today's information environment.

Sutton (2011) conducted a comprehensive analysis of the knowledge and skills sought by employers in e-resource librarians. The study emphasized the need to develop competencies in areas such as digital content management, access provision, data analysis, and user support. In this context, the competency framework presented by NASIG (2013) is particularly noteworthy. NASIG categorizes the core competencies for e-resource librarians under seven main areas: lifecycle management of e-resources, technologies used in university libraries, research and assessment, effective communication, supervision and management, trends and professional development, and personal qualities. These categories encompass a broad range of skills, combining technical expertise with competencies in communication, leadership, and continuous learning.

Coghill and Russel (2017) emphasized that modern librarians should not only possess technical skills but also demonstrate flexibility, creativity, and the ability to work across multiple domains. Talbott and Zmau (2018) provided a practical guide addressing the key challenges in e-resource management and offering strategies to overcome them. Stachokas (2020) highlighted the crucial role of e-resources librarians in managing, providing access to, and ensuring the sustainability of digital materials, which are essential to library collections. He further noted that e-resource librarians are expected to engage not only in technical processes but also in strategic planning, user education, and content development. Additionally, Polat (2023) extended the discussion of competencies beyond the library context by including archives and museums, proposing a guiding framework for graduates of Library and Information Science programs.

In recent years, there has been a concerted effort to enhance the core competencies of librarians and to ensure that e-resource management meets evolving expectations (Sutton, 2011, p. 5). Although academic studies on e-resources and e-resource management exist in Türkiye, there is no research specifically examining the competencies of e-resource librarians.

PURPOSE, SCOPE AND METHODOLOGY

Purpose

This study aims to evaluate the competency perceptions of e-resource librarians working in university libraries in Türkiye. Based on the competency criteria outlined by NASIG (2021) and ALA (2021), the research seeks to identify areas for professional development and to contribute to policy-making processes in the field of e-resource librarianship. In the context of digital transformation, enhancing skills related to e-resource management and establishing professional standards are critical for the efficiency and sustainability of academic libraries. Additional objectives of the study include raising awareness about core competencies, assessing the current state, and offering suggestions for improvement.

Accordingly, the study addresses the following research question:

How are e-resource librarians' perceptions of professional competency influenced by factors such as gender, age, years of professional experience, education level, academic background in Library and Information Science (LIS), type of university (state/ foundation), professional memberships, participation in professional association activities, and the number of e-resource librarians employed in their libraries?

This question enables a comprehensive examination of the multidimensional factors influencing e-resources librarians' competency perceptions.

Scope

The study includes unit supervisors working as e-resource librarians in a total of 208 higher education institutions in Türkiye, comprising 129 state universities, 75 foundation universities, and 4 foundation vocational schools. The scope of this research is limited to university libraries and their e-resource coordinators and is based on the Higher Education Information Management System of Türkiye (YÖK, 2023).

Research Methodology

A comprehensive literature review was conducted to guide the research, with a focus on evaluating the current competency perceptions and practices of e-resource librarians in Turkish university libraries. The study employed descriptive research design, and data collection was conducted through a structured survey. The sampling method used was purposive (judgmental) sampling, which allows for focusing on individuals with relevant knowledge and qualifications likely to contribute significantly to the research objective (Büyüköztürk et al., 2022).

Data Collection Method, Population and Sample Size

To assess e-resource librarians perceived competencies, a literature-based and expert-informed questionnaire was de-

veloped. Existing studies and measurement tools related to competencies in e-resource management were systematically analyzed to determine variables and sub-objectives. The draft survey form was prepared based on these foundations and was reviewed for content validity by five experts-three e-resource librarians and two academics in the field of LIS.

The study population consists of e-resource librarians working in university libraries. To ensure a homogeneous contribution from all university libraries to the study, one participant from each university was included in the sample. Accordingly, the purposeful (judgmental) sampling method— a non-probability sampling approach—was employed to identify individuals possessing information-rich and qualified criteria that would contribute to the study's objectives (Büyüköztürk, Kılıç Çakmak, Erkan Akgün, Karadeniz, & Demirel, 2022; Güriş & Astar, 2014; Yazıcıoğlu & Erdoğan, 2014). The sample size was determined as 135. However, to account for potential data loss due to possible missing responses, the target sample was set at approximately 150 participants. In total, the survey was conducted with 143 individuals. Participants were asked to rate their competencies in multiple areas of knowledge and skills. Data were obtained through face-to-face interviews, online surveys (using Surveey software), and telephone interviews.

Ethical Dimension of the Research

Ethical approval was obtained from the Social Sciences Ethics Committee Çankırı Karatekin University on April 12, 2023, with decision number 31.

Data Analysis and Evaluation

The data were analysed using IBM SPSS version 25. The reliability of the scales was tested using Cronbach's alpha. The overall Cronbach's Alpha coefficient of the measurement instrument was determined to be 0.925. Continuous variables were summarized using means and standard deviations, while categorical variables were presented as frequencies and percentages. Normality assumptions were evaluated through skewness and kurtosis , as well as graphical methods. For datasets that met parametric assumptions, group comparisons were performed using independent samples t-tests and one-way ANOVA. When ANOVA indicated significant differences, post-hoc analyses were conducted using Tukey HSD or Bonferroni correction depending on homogeneity of variances. Pearson correlation analysis was employed to examine relationships between variables, with a statistical significance level set at $p < .05$. Effect sizes were calculated and interpreted using Cohen's d (for t-tests) and eta-squared (η^2) (for ANOVA) following conventional thresholds for small, medium, and large effects.

Research Findings

This section analyzes the results of the survey administered to assess the perceived knowledge and competency levels of e-resources librarians. Survey items related to the electronic resource life cycle and perceived competencies were aggregated and analyzed using mean scores to identify variations across different competency domains. Questions related to the electronic resource life cycle and perceived competency levels were grouped and compared through mean scores, helping to identify the perceived levels in different competency areas. Additionally, some demographic data were examined to assess statistical differences in perceived competency levels among respondents. The competency areas presented in the table were organized in accordance with the NASIG Core Competencies for Electronic Resources Librarians.

A Gender-Based Comparison of Competency Perceptions

An independent samples t-test was conducted to examine whether perceived competency levels differed by gender among e-resource librarians (Table 1).

The analysis revealed that male librarians reported significantly higher perceived competency levels than female counterparts in the domains of the electronic resource life cycle ($p = 0.002$) and research and assessment ($p = 0.005$). However, no statistically significant gender differences were observed in the remaining competency areas, including organization of information resources, technologies used in university libraries, effective communication, supervision and management, professional development, and personal qualities ($p > 0.05$).

Perceived competency by professional experience

The analysis indicates that perceived competency levels among e-resource librarians vary significantly according to professional experience. Results from the ANOVA and subsequent Tukey HSD post-hoc tests (Table 2) reveal that librarians with 0-5 years of experience report significantly lower perceived competencies compared to their more experienced counterparts ($p < 0.01$), suggesting that professional experience plays a critical role in the development of self-assessed competencies. The application of the Bonferroni correction to control for Type I error strengthens the reliability of these findings (Emerson, 2020). These findings emphasize the critical need for structured training and mentorship programs tailored specifically to early-career librarians, thereby supporting their professional growth and integration into the field.

The findings demonstrate a significant influence of professional experience on perceived competencies in e-resource management. Statistical analyses, including ANOVA and effect size calculations, confirm that librarians with longer professional experience report significantly higher levels of perceived competency. Moderate to substantial effect sizes were observed in several domains: the electronic resource life cycle ($\eta^2 = 0.171$), research and assessment ($\eta^2 = 0.135$), assessment and management ($\eta^2 = 0.096$), and trends and professional development ($\eta^2 = 0.132$), suggesting meaningful associations between length of service and specific competencies. Notably, librarians with 16–20 years of experience reported the highest levels of perceived competency in areas such as research assessment and supervising management. In contrast, those with 0–5 years of experience constituted the group with the lowest competency perceptions. This pattern indicates that gaining professional experience positively shapes perceptions of one's own competencies. However, no significant differences were found across experience groups in the areas of effec-

Table 1: Gender and perceived competency levels

	Gender	n	$\bar{X}$	SS	t	P
1. Life cycle of e-resources	Male	67	2.9055	0.65612	9.995	**0.002**
	Female	76	2.4737	0.88031		
2. Organization of information resources	Male	67	2.2746	0.75264	0.002	0.967
	Female	76	1.9697	0.71982		
3. Technology	Male	67	1.8106	0.61652	0.550	0.460
	Female	76	1.4354	0.66539		
4. Research and assessment	Male	67	3.0588	0.69726	7.987	**0.005**
	Female	76	2.6768	0.99566		
5. Effective communication	Male	67	3.2861	0.56839	0.428	0.514
	Female	76	3.2588	0.60943		
6. Supervising and management	Male	67	3.0255	0.72681	1.981	0.162
	Female	76	2.7407	0.85666		
7. Trends and professional development	Male	67	2.6007	0.82349	0.065	0.800
	Female	76	2.2072	0.824		
8. Personal qualities	Male	67	3.2318	0.47235	1.135	0.289
	Female	76	3.1378	0.58631		
9. Perceived competency level of e-resource librarians	Male	67	2.5208	0.55743	1.858	0.175
	Female	76	2.1842	0.65936		

tive communication and personal attributes. This may imply that such competencies are more strongly influenced by individual traits or external factors rather than directly by professional experience.

Perceived competency by age

To examine the relationship between age and perceived competency, a one-way ANOVA was conducted, followed by a Tukey HSD post hoc test. In cases where statistically significant p-values were observed, a Bonferroni correction (adjusted p = 0.0167) was applied to control for Type I error due to multiple comparisons. Although the analysis initially considered differences across eight competency domains by individual age groups, limited data in some categories necessitated the consolidation of age ranges: participants aged 20–25 and 26–30 were combined into a 20–30 group, while those aged 31–35 and 36–40 were merged into a 30–40 group. This resulted in three age groups used for analysis: 20–30, 30–40, and 41 and over (Table 3).

The research findings indicate statistically significant differences between age groups in relation to specific competencies. In the domain of electronic resource life cycles, participants aged 31-40 reported significantly higher levels of perceived competence than those aged 20-30 ($p = 0.01$, $\eta^2 = 0.055$) reflecting a small to moderate effect size. Similarly, the 31–40 age group demonstrated significantly higher perceived competencies in research and assessment ($\eta^2 = 0.064$; moderate effect) and personal attributes ($\eta^2 = 0.0331$; small effect). In contrast, the highest mean scores in the domain of trends and professional development were observed among participants aged 41 and over, although the associated effect size was small ($\eta^2 = 0.043$). No statistically significant age-related differences were found in the domains of information organization, technologies used in university libraries, effective communication, or assessment and management ($p > 0.05$). While the results emphasize the relative strength of the 31–40 age group in certain competencies, the small-to-moderate effect sizes suggest that age is a limited but consistent factor influencing perceived competencies. In summary, age appears to influence perceived professional competencies in certain domains, although it is not a consistent determinant across all areas.

Perceived competency levels by educational attainment

An independent samples t-test was conducted to assess whether perceived competency levels among e-resource librarians differ based on educational attainment across the seven core competency domains identified by NASIG (2021). Due to the limited number of participants in the "associate degree" (n = 4) and "other" (n = 1) categories, these groups were excluded from the analysis. Instead, participants with a master's degree (n = 53) and a doctoral degree (n = 8) were combined into a "graduate-degree" category, resulting in a total of 61 respondents included in the comparison. Table 4 presents the distribution of perceived competency levels by educational attainment.

As indicated by the findings presented in Table 4, individuals who possessed a graduate degree demonstrated higher levels of perceived competence across the majority of the domains

Table 2: Perceived competency by professional experience

	Professional experience	n	$\bar{X}$	SS	F	P
1. Life cycle of e-resources	0-5 years	31	2.0387	0.86179	7.329	**<0.001**
	6-10 years	36	2.8602	0.68103		
	11-15 years	37	2.8135	0.6314		
	16-20 years	13	2.7923	0.93493		
	More than 21 years	26	2.9269	0.73467		
	Total	143	2.676	0.81003		
2. Organization of information resources	0-5 years	31	1.7742	0.7434	2.397	0.053
	6-10 years	36	2.1417	0.76732		
	11-15 years	37	2.1676	0.5578		
	16-20 years	13	2.3615	0.74782		
	More than 21 years	26	2.2731	0.87843		
	Total	143	2.1126	0.74851		
3. Technology	0-5 years	31	1.256	0.60753	3.643	**0.007**
	6-10 years	36	1.7625	0.75755		
	11-15 years	37	1.5849	0.60104		
	16-20 years	13	1.8777	0.64234		
	More than 21 years	26	1.7293	0.57069		
	Total	143	1.6112	0.66768		
4. Research and assessment	0-5 years	31	2.1008	0.99745	9.261	**<0.001**
	6-10 years	36	3.1354	0.81545		
	11-15 years	37	2.9307	0.66582		
	16-20 years	13	3.1875	0.69421		
	More than 21 years	26	3.0962	0.7251		
	Total	143	2.8558	0.88665		
5. Effective communication	0-5 years	31	3.1344	0.64178	0.95	0.437
	6-10 years	36	3.2731	0.61354		
	11-15 years	37	3.2432	0.59134		
	16-20 years	13	3.3974	0.60682		
	More than 21 years	26	3.4103	0.46244		
	Total	143	3.2716	0.58865		
6. Supervising and management	0-5 years	31	2.3051	0.83752	6.068	**<0.001**
	6-10 years	36	3.0046	0.83386		
	11-15 years	37	2.9257	0.7166		
	16-20 years	13	3.1795	0.67473		
	More than 21 years	26	3.1458	0.61917		
	Total	143	2.8741	0.80838		
7. Trends and professional development	0-5 years*	31	1.75	0.9083	7.669	**<0.001**
	6-10 years	36	2.5833	0.85356		
	11-15 years	37	2.3919	0.51552		
	16-20 years	13	2.7308	1.03311		
	More than 21 years	26	2.7212	0.63768		
	Total	143	2.3916	0.84418		
8. Personal qualities	0-5 years	31	2.9583	0.58651	2.166	0.076
	6-10 years	36	3.1748	0.57917		
	11-15 years	37	3.2289	0.54105		
	16-20 years	13	3.3529	0.3924		
	More than 21 years	26	3.3054	0.39827		
	Total	143	3.1818	0.53618		

*Tukey's HSD test, $p < .01$

Table 3: Perceived competency levels by age

Variables	Age Range (years)	n	$\bar{X}$	SS	F	p
1. Life cycle of e-resources	20-30	29	2.2598	0.92887	5.085	**0.007**
	31-40	63	2.7894	0.67717		
	41 and over	51	2.7725	0.82792		
	Total	143	2.6760	0.81003		
2. Organization of information resources	20-30	29	1.9483	0.72537	0.909	0.405
	31-40	63	2.1381	0.68496		
	41 and over	51	2.1745	0.83327		
	Total	143	2.1126	0.74851		
3. Technologies used in university libraries	20-30	29	1.4151	0.72428	1.584	0.209
	31-40	63	1.6650	0.65135		
	41 and over	51	1.6561	0.64670		
	Total	143	1.6112	0.66768		
4. Research and assessment	20-30	29	2.3675	1.07687	6.193	**0.003**
	31-40	63	3.0332	0.67952		
	41 and over	51	2.9142	0.91061		
	Total	143	2.8558	0.88665		
5. Effective communication	20-30	29	3.1322	0.65371	1.163	0.316
	31-40	63	3.3333	0.56241		
	41 and over	51	3.2745	0.58006		
	Total	143	3.2716	0.58865		
6. Supervising and management	20-30	29	2.5647	0.84893	2.863	0.060
	31-40	63	2.9868	0.72133		
	41 and over	51	2.9109	0.85684		
	Total	143	2.8741	0.80838		
7. Trends and professional development	20-30	29	1.9828	0.98182	4.722	**0.010**
	31-40	63	2.4484	0.77662		
	41 and over	51	2.5539	0.77993		
	Total	143	2.3916	0.84418		
8. Personal qualities	20-30	29	2.9615	0.60995	3.313	**0.039**
	31-40	63	3.2614	0.51777		
	41 and over	51	3.2088	0.48867		
	Total	143	3.1818	0.53618		

examined. In the area of technologies used in academic libraries, the difference between bachelor's degree and graduate degree holders was statistically significant and characterized by a moderate effect size (t = -3.225, p = 0.002, Cohen's d = 0.557). In the domain of research and assessment, the effect size was calculated as Cohen's d = 0.635, indicating a moderate to large effect (t = -4.138, p < 0.001). In terms of effective communication, a small to moderate difference in favor of graduate degree holders was observed (t = -2.040, p = 0.043, Cohen's d= 0.349), whereas in the assessment and management domain, the difference was notably large (t = -4.954, p < 0.001, Cohen's d = 0.853). The difference in trends and professional development was also statistically significant and exhibited a moderate effect size (t = -2.040, p = 0.004, Cohen's= 0.500). For personal attributes, the difference remained moderate (t = -3.447, p < 0.001, Cohen's d = 0.592).

The only domain in which the difference was not statistically significant was the organization of information resources (t =

Table 4: Perceived competency levels by educational attainment

Variables	Education attainment	n	$\bar{X}$	SS	t test		
					t	SD	p
1. Life cycle of e-resources	Bachelor's degree	77	2.4896	0.82225	-3.705	136	**<0.001**
	Graduate degree	61	2.9656	0.64558	-3.809		
2. Organization of information resources	Bachelor's degree	77	2.0623	0.77307	-1.434	136	0.154
	Graduate degree	61	2.2410	0.66342	-1.460		
3. Technologies used in university libraries	Bachelor's degree	77	1.4607	0.63931	-3.225	136	**0.002**
	Graduate degree	61	1.8180	0.65519	-3.216		
4. Research and assessment	Bachelor's degree	77	2.6291	0.88536	-4.138	136	**<0.001**
	Graduate degree	61	3.2121	0.73392	-4.229		
5. Effective communication	Bachelor's degree	77	3.1991	0.59606	-2.040	136	**0.043**
	Graduate degree	61	3.3962	0.51923	-2.073		
6. Supervising and management	Bachelor's degree	77	2.6342	0.81253	-4.954	136	**<0.001**
	Graduate degree	61	3.2459	0.58312	-5.143		
7. Trends and professional development	Bachelor's degree	77	2.2532	0.77639	-2.907	136	**0.004**
	Graduate degree	61	2.6393	0.77261	-2.909		
8. Personal qualities	Bachelor's degree	77	3.0588	0.55148	-3.447	136	**<0.001**
	Graduate degree	61	3.3607	0.45431	-3.525		

-1.434, p = 0.154). Overall, the consistently higher mean competency scores among graduate degree holders suggest a positive association between higher educational attainment and perceived professional competency.

Perceived competency levels by undergraduate academic background

An independent samples t-test was conducted to determine if perceptions of competency differed based on the academic background of the respondents. The results, summarized in Table 5, indicate statistically significant differences in specific competency areas between e-resource librarians with undergraduate degrees in LIS and those from other academic disciplines.

Specifically, in the area of e-resource lifecycles, LIS graduates reported significantly higher levels of perceived competence than their peers from the other programs (t = 2.939, p = 0.04). The associated effect size (Cohen's d = 0.726) indicates a moderate to large impact of disciplinary background on perceived competency in this domain.

Table 5 indicates statistically significant differences across several competency areas between e-resource librarians who graduated from LIS programs and those from other academic backgrounds. In the area of information resource organization, LIS graduates reported significantly higher perceived competency levels (t = 4.129, p < 0.001), with a large effect size (Cohen's d = 1.023).

Similarly, in the domain of research and assessment, LIS graduates reported significantly higher perceived competency than their non-LIS counterparts (t = 3.200, p = 0.002), with a moderate to large effect size (Cohen's d = 0.793). A statistically significant difference was also observed in the domain of effective communication (t = 2.706, p = 0.008), with a comparable effect size (Cohen's d = 0.670).

In the area of assessment and management, a statistically significant difference favoring LIS graduates was observed (t = 3.282, p = 0.001), accompanied by a large effect size (Cohen's d = 0.808). Conversely, no statistically significant difference emerged in the domain of technologies used in academic libraries (t = 4.129, p = 0.125), with a small to moderate effect size (Cohen's d = 0.379). Additionally, no significant differences were identified between LIS and non-LIS graduates in the domains of trends and professional development or personal attributes. Taken together, these findings suggest that LIS graduates perceive themselves as significantly more competent than their non-LIS peers in several key areas of e-resource librarianship, with effect sizes ranging from moderate to large in domains where differences were statistically significant.

Perceived competency levels by type of university

An independent samples t-test was conducted to examine whether the type of university in which participants were employed influenced their perceived competency levels (Table 6). Due to the negligible number of respondents from vocational schools (n = 2), this group was excluded from the analysis.

Table 5: Perceived Competency Levels by Undergraduate Academic Background

Variables	Groups	n	$\bar{X}$	SS	*t test*		
					t	SD	p
1. Life cycle of e-resources	LIS	124	2.7188	0.73589	2.939	141	**0.004**
	Other	19	2.1486	1.07504	2.233		
2. Organization of information resources	LIS	124	2.4784	0.66813	4.129	141	**<0.001**
	Other	19	1.7355	1.06218	2.960		
3. Technologies used in university libraries	LIS	124	1.5353	0.66441	1.543	141	**0.125**
	Other	19	1.2732	0.84124	1.298		
4. Research and assessment	LIS	124	2.9338	0.79512	3.200	141	**0.002**
	Other	19	2.2722	1.09349	2.536		
5. Effective communication	LIS	124	3.3226	0.55856	2.706	141	**0.008**
	Other	19	2.9386	0.68315	2.333		
6. Supervising and management	LIS	124	3.0205	0.67472	3.282	141	**0.001**
	Other	19	2.4463	0.91659	2.624		
7. Trends and professional development	LIS	124	2.4415	0.77964	1.821	141	0.071
	Other	19	2.0658	1.15723	1.369		
8. Personal qualities	LIS	124	3.2068	0.53280	1.430	141	0.155
	Other	19	3.0186	0.54376	1.409		

Table 6: Perceived competency levels by type of university

Variables	University Type	n	$\bar{X}$	SS	*t test*		
					t	SD	p
1. Life cycle of e-resources	State	89	2.6444	0.77188	0.005	139	0.996
	Foundation	52	2.6437	0.88801			
2. Organization of information resources	State	89	2.3478	0.78004	-0.629	139	0.530
	Foundation	52	2.4332	0.77328			
3. Technologies used in university libraries	State	89	1.4375	0.63029	-1.366	139	0.202
	Foundation	52	1.6032	0.79446			
4. Research and assessment	State	89	2.8258	0.89538	-0.615	139	0.527
	Foundation	52	2.9181	0.79480			
5. Effective communication	State	89	3.2191	0.61422	-1.585	139	0.097
	Foundation	52	3.3782	0.50067			
6. Supervising and management	State	89	2.9252	0.77830	-0.670	139	0.479
	Foundation	52	3.0100	0.62346			
7. Trends and professional development	State	89	2.3848	0.77611	-0.292	139	0.782
	Foundation	52	2.4279	0.95144			
8. Personal qualities	State	89	3.1699	0.53085	-0.876	139	0.367
	Foundation	52	3.2477	0.46905			

Table 7: Perceived competency levels by number of e-resource librarians

Variables	Number of e-resource librarians	n	$\bar{X}$	SS	F	p
1. Life cycle of e-resources	1	78	2.7291	0.79941	1.264	0.287
	2	38	2.6614	0.81157		
	3	15	2.4289	0.77078		
	4	7	2.3286	1.03913		
	5 and more	5	3.1867	0.61355		
	Total	143	2.6760	0.81003		
2. Organization of information resources	1	78	2.1769	0.62542	0.580	0.678
	2	38	2.0342	0.85780		
	3	15	1.9067	1.01099		
	4	7	2.1571	0.79762		
	5 and more	5	2.2600	0.83247		
	Total	143	2.1126	0.74851		
3. Technologies used in university libraries	1	78	1.6741	0.61609	1.597	0.179
	2	38	1.6110	0.70083		
	3	15	1.2838	0.70478		
	4	7	1.3828	0.94798		
	5 and more	5	1.9333	0.43509		
	Total	143	1.6112	0.66768		
4. Research and assessment	1	78	2.8986	0.84477	1.717	0.150
	2	38	2.7385	0.97234		
	3	15	2.7667	0.86448		
	4	7	2.5714	0.96314		
	5 and more	5	3.7438	0.30809		
	Total	143	2.8558	0.88665		
5. Effective communication	1	78	3.2671	0.58931	1.002	0.409
	2	38	3.2939	0.63487		
	3	15	3.2667	0.55205		
	4	7	2.9524	0.45860		
	5 and more	5	3.6333	0.39791		
	Total	143	3.2716	0.58865		
6. Supervising and management	1	78	2.8793	0.82366	1.654	0.164
	2	38	2.8070	0.81335		
	3	15	2.8750	0.71043		
	4	7	2.5833	0.87301		
	5 and more	5	3.7083	0.22048		
	Total	143	2.8741	0.80838		
7. Trends and professional development	1	78	2.4199	0.82915	.887	0.474
	2	38	2.3355	0.85281		
	3	15	2.1667	0.95275		
	4	7	2.4643	0.99403		
	5 and more	5	2.9500	0.20917		
	Total	143	2.3916	0.84418		
8. Personal qualities	1	78	3.1546	0.56819	1.361	0.251
	2	38	3.2539	0.50251		
	3	15	3.1529	0.37455		
	4	7	2.8908	0.63394		
	5 and more	5	3.5529	0.41719		
	Total	143	3.1818	0.53618		

*The Tukey HSD post-hoc test yielded a p-value less than 0.01.

This finding suggests that e-resource librarians employed at state and foundation universities report comparable levels of perceived competency, indicating that institutional type does not significantly influence competency perceptions.

Perceived competency levels by number of e-resource librarians

A one-way analysis of variance (ANOVA) was conducted to examine the relationship between the perceived competencies of e-resource librarians and the number of librarians responsible for e-resources at their institutions. Additionally, Tukey's HSD post-hoc test and Bonferroni correction ($p<0.01$) were applied to control for Type I errors and to identify specific group differences. The results of this study are presented in Table 7.

An analysis of Table 7 indicated that there were no statistically significant differences between the number of e-resource librarians employed at an institution and the perceived competency levels ($p>0.05$).This finding indicates that the number of e-resource librarians is not a direct factor influencing perceptions of competency. The study suggests that variations in the number of e-resource librarians within institutions whether an increase or decrease do not significantly impact individual librarians' self-assessed competencies.

Perceived competency levels by membership in national professional associations

The objective of this study was to determine whether membership in national professional associations is associated with differences in perceived competency levels among e-resource librarians. To this end, an independent samples t-test was conducted.

The t-test analysis results presented in Table 8 indicate statistically significant differences in perceived competency levels based on participants' membership in national professional associations. Librarians who are association members reported higher levels of perceived competency compared to non-members, suggesting that professional association membership may contribute to professional development and shape perceptions of practice.

Perceived Competency Levels by Participation in ANKOS

The impact of participation in ANKOS (Anatolian University Libraries Consortium) on perceived professional competency levels was examined using independent samples t-tests conducted across all identified competency domains. The results are presented in Table 9.

The data presented in Table 9 indicate that participants who have served in ANKOS report significantly higher perceived competency levels across most domains compared to those who have not participated. Statistically significant differences favoring ANKOS participants were observed in the following domains: Life cycle of e-resources ($p = 0.008$), technologies used in university libraries ($p = 0.022$), research and assessment ($p = 0.002$), effective communication ($p = 0.048$), supervision and management ($p = 0.025$), trends and professional development ($p = 0.001$), and personal qualities ($p = 0.048$). However, no significant difference was found in the domain of

Table 8: Perceived competency levels by membership in national professional associations

Variables	Groups	n	$\bar{X}$	SS	*t test*		
					t	SD	p
1. Life cycle of e-resources	Yes	55	2.9891	0.60086	3.805	139	**<0.001**
	No	86	2.4775	0.87297	4.119		
2. Organization of information resources	Yes	55	2.2800	0.68107	2.165	139	**0.032**
	No	86	2.0023	0.77944	2.230		
3. Technologies used in university libraries	Yes	55	1.8270	0.64649	3.158	139	**0.002**
	No	86	1.4718	0.65450	3.167		
4. Research and assessment	Yes	55	3.2131	0.64250	3.887	139	**<0.001**
	No	86	2.6501	0.94269	4.215		
5. Effective communication	Yes	55	3.4455	0.47581	2.821	139	**0.005**
	No	86	3.1705	0.61409	2.982		
6. Supervising and management	Yes	55	3.2045	0.56895	3.953	139	**<0.001**
	No	86	2.6860	0.85913	4.311		
7. Trends and professional development	Yes	55	2.7227	0.67473	3.803	139	**<0.001**
	No	86	2.1948	0.87649	4.024		
8. Personal qualities	Yes	55	3.3283	0.46727	2.466	139	**0.015**
	No	86	3.1156	0.51916	2.524		

Table 9: Perceived competency levels by participation in ANKOS

Variables	Groups	n	$\bar{X}$	SS	*t test*		
					t	SD	p
1. Life cycle of e-resources	Yes	27	3.0494	0.56253	2.698	139	**0.008**
	No	114	2.5889	0.84243	3.438		
2. Organization of information resources	Yes	27	2.0889	0.73240	-0.166	139	0.868
	No	114	2.1158	0.76025	-0.170		
3. Technologies used in university libraries	Yes	27	1.8756	0.69320	2.316	139	**0.022**
	No	114	1.5476	0.65426	2.234		
4. Research and assessment	Yes	27	3.3368	0.52659	3.164	139	**0.002**
	No	114	2.7590	0.91189	4.359		
5. Effective communication	Yes	27	3.4753	0.45691	1.995	139	**0.048**
	No	114	3.2310	0.59559	2.346		
6. Supervising and management	Yes	27	3.1960	0.57466	2.260	139	**0.025**
	No	114	2.8154	0.82810	2.817		
7. Trends and professional development	Yes	27	2.8611	0.61368	3.268	139	**0.001**
	No	114	2.2917	0.85375	3.993		
8. Personal qualities	Yes	27	3.3725	0.42917	1.998	139	**0.048**
	No	114	3.1574	0.51884	2.245		

Table 10: The means, standard deviations, and Pearson correlation coefficients for the competency subscales

	N=143	$\bar{X}$	SS	1	2	3	4	5	6	7	8
1	Life cycle of e-resources	2.676	0.81003	1							
2	Organization of information resources	2.1126	0.74851	0.509*	1						
3	Technologies used in university libraries	1.6112	0.66768	0.698*	0.637*	1					
4	Research and assessment	2.8558	0.88665	0.861*	0.442*	0.671*	1				
5	Effective communication	3.2716	0.58865	0.458*	0.396*	0.462*	0.568*	1			
6	Supervising and management	2.8741	0.80838	0.756*	0.534*	0.682*	0.860*	0.702*	1		
7	Trends and professional development	2.3916	0.84418	0.704*	0.619*	0.723*	0.746*	0.552*	0.771*	1	
8	Personal qualities	3.1818	0.53618	0.54*	0.362*	0.512*	0.664*	0.802*	0.763*	0.598*	1

*This finding is statistically significant at the 0.05 .

the organization of information resources (p = 0.868). These findings suggest that serving in ANKOS may positively influence librarians' perceptions of their professional competencies, indicating that such participation should be considered a relevant factor in shaping professional training, development strategies, and practical engagement.

Means, standard deviations, and correlations among competency subscales

In addition to Pearson's correlation analysis, Table 10 presents descriptive statistics, including the distribution, means, and standard deviations of the dataset variables, as well as detailed interrelations among the subscales.

The competency perception levels of e-resource librarians, evaluated across eight categories, and the interrelationships between these subscales are presented in Table 10. Pearson correlation analysis of the subscales revealed statistically significant positive correlations (ranging from 0.362 to 0.861), demonstrating consistent and meaningful associations between competency dimensions. In this context, a "strong" correlation was defined as a coefficient of ≥0.05. The analysis identified the strongest correlation between the "lifecycles" and "research and assessment" subscales ($r = 0.861$, $p < 0.001$), while the weakest correlation emerged between "organization" and "personal characteristics" ($r = 0.362$, $p < 0.01$). These findings underscore the interconnected nature of e-resource librarians' competencies, suggesting that these dimensions collectively contribute to a cohesive professional skill set.

DISCUSSION

The findings of this study and the survey reveal that the professional competency perceptions of e-resource librarians constitute a multidimensional construct influenced by various individual and professional variables. While factors such as gender, type of university, and the number of e-resource librarians employed at an institution did not generate significant differences in overall competency perceptions, variables including age, professional experience, undergraduate major, participation in ANKOS, membership in national professional associations, and level of education were found to produce statistically significant differences in certain competency sub-dimensions. These results are consistent with previous studies in the literature (Sutton, 2011; NASIG, 2021; Polat, 2023), highlighting that experience, educational attainment, and engagement in professional networks are decisive elements in competency development.

The positive and moderate-to-strong correlations observed among the competency sub-dimensions indicate that technical, managerial, and research competencies are mutually reinforcing domains. This finding aligns with the interdisciplinary and holistic competency development approach emphasized by NASIG (2013) and ALA (2021). In particular, the strong correlation between the "e-resource life cycle" and "research and assessment" dimensions suggests that strengthening these two areas concurrently could yield greater effectiveness in professional practice.

The results further demonstrate that early-career librarians (0–5 years of experience) reported lower competency perceptions in many domains. As noted in previous research (Talbott & Zmau, 2018; Stachokas, 2020), this may be attributed to the extended learning period required to master the complex technical processes of the profession. Consequently, the development of structured mentoring and in-service training programs tailored to the needs of early-career professionals is recommended.

Regarding educational attainment, librarians with graduate degrees exhibited higher competency perceptions across nearly all dimensions. This suggests that advanced academic training contributes significantly to the development of problem-solving, analytical thinking, and technological skills. Moreover, active participation in national professional initiatives such as ANKOS appears to enhance competencies through knowledge sharing and professional interaction.

In sum, this study identifies the key factors influencing competency perceptions in Turkish e-resource librarianship and offers concrete evidence to inform the design of professional development strategies. The findings are of potential value for updating the curricula of undergraduate and graduate Library and Information Science programs, as well as for guiding the educational policies of professional associations and consortia.

CONCLUSION and RECOMMENDATIONS

The findings of the study indicate that the dynamic set of competencies recommended by NASIG serves as a strategic framework for enhancing digital accessibility in academic libraries and advancing the democratization of information. This research contributes valuable insights into the evolving requirements of the e-resource librarianship profession and offers recommendations for strengthening professional competencies. The study aims to provide outputs that will guide the development of professional standards, shape educational curricula, and support academic libraries in their digital transformation efforts. Also, the professional competencies of e-resource librarians are a multidimensional construct influenced by various individual and professional variables. According to the general assessment, factors such as gender, type of university, and the number of e-resource librarians do not have a significant impact on the overall competency perception. However, factors such as age, work experience, program graduated from, participation in ANKOS, membership in national professional associations, and education level were found to create significant differences in certain competency subscales. Partial validation was observed in some sub-items regarding professional experience and the program graduated from, while membership in national professional associations and educational level were found to have positive influence on the level of perceived competence.

In addition, the significant positive correlations between the competency subscales indicate that librarians' development in different areas is mutually supportive. The study identified moderate to strong correlations among technical, managerial, and research competency areas, suggesting that growth in one area may positively influence development in others. Given the moderate-to-strong intercorrelations among technical, managerial, and research competencies, a holistic approach to training is essential. LIS curricula should be revised to reflect the interconnected nature of these competencies, with greater emphasis on practical e-resource management. Library consortia and professional associations are encouraged to offer tiered certification programs tailored to different career stages. At the organizational level, policies should promote collaborative e-resource roles and encourage active participation in professional associations.

Recommendations for E-Resource Librarians

E-resource librarians are responsible for the selection, acquisition, management, and access of resources such as e-books, databases, and digital collections. Due to the rapidly evolving nature of this field, they must possess a variety of competencies. However, it is not expected for a single librarian to be proficient in all processes. Therefore, it is ideal to distribute workflows according to specialized areas of expertise. The e-resource lifecycle includes stages such as procurement, access, management, support, and evaluation, and understanding these stages will help librarians deliver more effective services. The core competencies established by ALA, such as information services, collection management, technology skills, leadership, and management, provide a critical reference point for e-resource librarians, contributing to their professional development. Therefore, e-resource librarianship should be viewed as a profession that is open to continuous development while adapting to the changing information environment.

- Continuous Education and Lifelong Learning: Keeping professional knowledge and skills up to date, adapting to changing technologies and methodologies, enhances both individual success and organizational efficiency.
- Diversification of Competency Areas: The library profession requires different competencies based on the type of institution and its needs. The required knowledge and skills vary depending on the institution's mission and vision.
- Competency Levels Based on Institution Size: Larger institutions, offering more complex structures and broader services, require staff to have higher levels of knowledge and skills.
- E-Resource Acquisition and Subscription Management: E-resource librarians must have mastery over the processes of selecting, acquiring, and managing subscriptions to resources.
- Mastery of Resource Evaluation Processes: Effectively evaluating current and potential e-resources is essential for managing an efficient e-resource management process.
- Pricing Models of E-Resources: Understanding pricing models plays a critical role in managing the library's budget and providing resources that meet users' needs.
- Awareness of Technological Developments: Staying updated on technological innovations is crucial for the professional development and sustainability of e-resource librarians.
- Development of Technology Use Skills: Effective use of digital platforms and library management systems is a fundamental requirement in modern librarianship practice.
- Keeping Up with Current Professional Issues: Professional development requires monitoring industry innovations through academic associations, conferences, and seminars.
- Collaboration with External Stakeholders: Developing strategic partnerships with external stakeholders is essential to resolve technical issues related to e-resources and acquire new resources.
- Improvement of Foreign Language Skills: Proficiency in foreign languages offers important opportunities for professional development and international collaboration.
- Development of Communication Skills: Effective communication in user training and guidance services should be achieved through enhancing written and verbal communication skills.
- Development of Training and Presentation Skills: Acquiring effective training and presentation skills is critical for delivering information in a professional context.
- Encouraging Users to Utilize E-Resources: It is necessary to raise awareness and provide training to help users make more efficient use of e-resources.
- Compliance with Copyright and Licensing Agreements: Ensuring that e-resources are used in accordance with legal regulations and copyright and licensing agreements is the responsibility of librarians.
- Commitment to Professional Ethics: Adhering to ethical standards in librarianship is essential for protecting users' rights and ensuring equal access to information.
- Interlibrary Cooperation: Encouraging interlibrary collaborations helps increase resource sharing, optimize library budgets, and improve user satisfaction.
- Digital Collection Management: Librarians must have in-depth knowledge of e-resources and digital collection management, keeping up with ongoing developments in this field.
- Improvement of User Services and Search Skills: Librarians should focus on developing guidance and search skills to help users effectively use e-resources.
- Data Analytics and Statistics: Collecting and analyzing e-resource usage data contributes to better understanding user needs and making informed strategic decisions.
- Strengthening Your Resume: Engaging in internships, volunteer work, and certification programs support professional development and provide a competitive advantage in the field.

These recommendations provide a comprehensive framework for e-resource librarians to enhance their skills, keep up with technological advancements, and support effective library services in a rapidly changing digital landscape.

Future research should consider mixed-method or longitudinal designs to investigate how perceptions of competence evolve over time and under different organizational contexts. Additionally, qualitative studies could provide deeper insights into how librarians interpret and apply these competencies in their day-to-day work, offering a richer understanding of the dynamic and multifaceted nature of professional growth in academic librarianship.

Thanks: I would like to express my sincere gratitude to Assoc. Prof. Kasım Binici for his valuable support.

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