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End-Users' Requirements from Arab International University Library: What Really End-Users Need?

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Abstract: Information and Communication Technology (ICT) has radically affected the way of accessing information and performing research in academic libraries. With the adoption of ICT, end-users' requirements (EURs) have increased and changed. Thus, the main concern of academic libraries has shifted to address and accommodate these requirements. The purpose of this study is to identify EURs of the AIUL in Syria. Mixed methods approach, using questionnaires and interview, is adopted to collect data from different end-users' groups; 228 of undergraduate students (USs), and 30 of academic staff (AS) participated in this study to understand their requirements of the AIUL. Furthermore, 8 academic librarians were involved in obtaining further understanding. Findings showed that EURs were high in terms of providing supportive IRs, experts, high quality services and personal services. There was a difference on the EURs regarding their groups.

Keywords: End-users' requirements, Academic Libraries, AIUL, Mixed method approach, ICT.

1. Introduction

Academic libraries have been considered the heart of the Higher Education Institutions. They have attached to academic institutions to serve students, academic staff and other potential users in Higher Education Institutions. The main aim of them is to meet their academic requirements. These requirements increased and changed with the adoption of Information and Communication Technology (ICT) in education systems and academic libraries. Investigating new EURs becomes very essential to identify "what really end-users needs" from their ALs.

2. Literature Review

End-users' requirements (EURs) imply their tangible needs of the ALs (Applegate 1993). Assessing EURs has been addressed in the literature review in terms of influencing the end-users' satisfaction. Understanding and identifying needs, preferences, skills and reaction of users is fundamental to the libraries' future (Brophy, 2007).

Critically, identifying the EURs is a difficult task for both the end-users and the librarians. John and Marion (2001) state that identifying exactly what users need is complex, and this complexity increased more with the existence of digital libraries. In addition, Blair (2003) and Makri and Warwick (2010) point out that the EURs, especially students' requirements, are varied and grouping them according to their requirements was possible.

Recently, the EURs increased and changed with the adoption of ICT in education systems and the ALs in the 1960s. Despite all the technical innovations, a considerable number of end-users still prefer to attend ALs in person for traditional purposes as well as non-traditional use. Demas (2005) reveals in his findings that the end-users of a college library tended to physically use traditional library activities such as reading and studying, integrating this with new modernised activities such as “Meeting and Socialising”. Thus, the change of the EURs of the ALs does not mean the elimination of the traditional library role; it means improving the traditional library role by adding social, cultural and technical value to the ALs.

2.1. ALs as Information Resources (IRs): There is an agreement with the notion that end-users require having rapid and easy access to a wide range of IRs, and this requirement has increased in the digital library environment (Casey 2004, Feeney 2004, Sidera-Sideri 2013).

Recently, a number of studies have discovered that the main purpose of using the ALs was to access IRs in both formats, printed and electronic, and obtain required information (Jordan 1998, Sloan 1998, Casey 2004, Feeney 2004, Tremblay and Wang 2008). Interestingly, the needs for IRs have varied based on end-users’ groups. For instance, lecturers’ requirements of the IRs are to obtain the information which supports their teaching purposes with up-to-date information in their disciplines, while students require specific information in a short time to reinforce their EP, in addition to further information about the library rules and guidelines (Jordan 1998). Although providing IRs within ALs is an important factor, it is insufficient without providing an appropriate system that manage, store and retrieve information in a rapid and accurate way in order to meet the EURs.

2.2. ALs as Services: The integration between library services and ICT in ALs has changed the way in which ALs deliver and provide their services. The majority of the ALs have been shifted to electronic format (Al-Samir 2009, Mirza and Mahmood 2012). Based on this change, ALs have faced a number of challenges such as the complexity of the ICT, cost, and increasing the access to e-IR against printed IRs (Rehman 2012, Sidera-Sideri 2013).

The change in ALs’ environment has affected the requirements of using ALs. A study by Crump, Freund et al. (2012) shows that end-users needed to access their ALs for a number of purposes. The main purposes were attending workshops, consultation, and printing. Furthermore there was a need to use e-catalogue, Virtual Reference Services (VRSs) and other e-services. In the Private Academic Libraries (SPALs) context, There was a need to provide further services such as photocopying, searching online, VRS, Selective Information Dissemination Service (SIDS), and Current Awareness service (CAS) alongside other traditional services such as circulation and reference services (Al-Samir 2009).

Another challenge confronting the ALs is to provide personal services tailored to the EURs. Personalising the library services eliminates the gap between the library

service provided and the information required (Brophy 2007, Dollah 2008, Crump, Freund et al. 2012).

2.3. ALs as Staff: Providing expert librarians who are able to respond their requirements in the new ALs' environment is important. Academic librarians have found themselves working as trainers, counsellors, supervisors, and guide. They have discovered new channels to communicate, deliver, develop and assess their skills (Simmonds and Andaleeb 2001, Bawden and Vilar 2006, Kani-Zabihi, Ghinea et al. 2006, Kaur 2010).

Academic librarians have faced a number of challenges. The first challenge is the need to promote their skills and abilities in order to communicate and respond to EURs (Kani-Zabihi, Ghinea et al. 2006). Jordan, Lloyd et al. (2002) agree with Pantry (2000) that although IT skills are essential for academic librarians, there is a set of further skills such as communication skills and meeting skills. The second challenge is the need to enhance end-users' skills and capability to use and benefit from ALs. Ren (2000) points out that demonstrating high self-efficacy affects the end-users' use of the library resources and services. Furthermore, Sidera-Sideri (2013) and Debowski (2000) indicate that the shift toward an electronic library environment requires exploring concrete approaches to meet the new EURs by creating information literate end-users and recognising the difficulties and obstacles they face.

2.4. ALs as a Space: Several publications describe the use of ALs "as a space". Crump, Freund et al. (2012) state that the "ALs as a space" is important to serve potential end-users, operate services and other functions, and to store and organise IRs. In the Syrian SPALs context, the findings of AL-Samir (2009) show that "ALs as a space" was ignored in the majority of the SPALs; as an important element that can influence the end-users' satisfaction and usage.

Recently, ALs confronted a new challenge relating to socialising the ALs' environment. Viewing ALs as a social space is becoming more prevalent; especially after connecting them to social and communication media. However, socialising ALs might attract new users to access them; it, in turn, results in further challenges such as the inability to recognise potential users, relying on e-IR more than library printed collections, and concentrating on the entertainment side more than the content (Brophy 2007).

2.5. ALs a Learning Centre: The main notion of ALs as "a learning centre" is based on creating an ALs' environment related to and integrated with the EP, to improve end-users' attainment and respond to their educational requirements. Barsun (2002) agrees with Hall (1998) that IR are a crucial part of the EP. She suggests that providing e-learning programmes should be compatible with appropriate IRs and services. Furthermore, Sætre (2002) claims that considering the ALs as "a learning centre" is important in terms of associating ALs with pedagogies (cited by Torras, 2009). Hence, ALs as "a learning centre" are required in the higher education field in terms of supporting end-users in their academic achievements by providing them with

all library services and related IRs, and offering the required assistance and other facilities.

2.6. ALs as Technical Facilities: Since technology has been adopted in ALs, the need to provide appropriate facilities and equipment has gradually increased. Literature has articulated a number of issues and challenges related to using technology in ALs (Webb, Gannon Leary et al. 2007, Gannon Leary, Bent et al. 2008, Baker and Evans 2013, Sidera-Sideri 2013).

Although, the main purpose of the shift toward digital ALs was to improve the access to a wide range of IRs and databases at anytime and anywhere; it is meaningless without offering accurate facilities which deliver, retrieve and support this shift. Hence, the internet and other equipment are required in order to search on e-catalogue, access databases and other e-IRs, and search engines such as Google, Yahoo, and Google Scholar. In addition, PC labs and computers with underpinning systems and software, and flexible and usable interface are crucial to connect the end-users with their ALs, and to simplify their access to e-IRs. Furthermore, embracing a library management system (LMS) within ALs is a crucial element in meeting the EURs by controlling and unifying ALs' functions, and increasing access points (Wilson 2012). Thus, offering an efficient LMS can help end-users to access and obtain the information required, check into their library account, renew and/or reserve items, and book rooms.

3. Methods

Mixed methods approach was implemented in this study to collect quantitative and qualitative data sequentially; starting with a quantitative approach followed by qualitative. Questionnaires were adopted to collect data from undergraduate students (USs) and academic staff (AS) in the AIUL. A total of 228 printed questionnaires were used to collect quantitative data from USs, while 30 questionnaires were adopted to collect quantitative data from the AS; using Smart-Survey. In contrast, 8 semi-structured interviews were embraced to investigate the perspectives of the AIUL librarians about the EURs.

SPSS 18.0 was used to analyse the collected data from both questionnaires, while Nvivo 10.0 was implemented to obtain the analysis from the semi-structured interviews.

4. Findings

4.1. End-users' Profile

The focus of the end-users' profile was on the participants' gender, age, status/teaching experience and faculties. See Table 1.

Table 1. Participants' Profile

USs			AS		
Profile	Categories	Percent	Profile	Categories	Percent
Gender	Male	58.3%	Gender	Male	51.72%
	Female	40.8%		Female	48.28%
Age	18-22	65.8%	Age	Under 30	6.90%
	23-27	26.3%		30-39	27.59%
	28-32	5.3%		40-49	44.83%
	33+	1.2%		50-59	13.79%
Users' status	1 st year	14.0%	Teaching experience	1-5 years	25.00%
	2 nd year	21.5%		6-10 years	21.43%
	3 rd year	27.2%		11-15 years	32.14%
	4 th year	21.5%		16-20 years	14.29%
	5 th year	14.5%		Over 20 years	7.14%
Faculties	Business	22.8%	Faculties	Business	21.43%
	Fine Arts	8.3%		Fine Arts	14.29%
	Pharmacy	26.3%		Pharmacy	14.29%
	Civil Engineering	9.2%		Civil	14.29%
	Architecture	11.8%		Engineering	14.29%
	Informatics and Communication Engineering	21.5%		Architecture	21.43%
				Informatics and Communication Engineering	

According to Table 1, the majority of participants, both USs and AS, were male. The largest group of USs' participants, 65.8%, was aged 18-22. This was expected in terms of the normal age of university enrollment, whereas the largest group of AS, 44.83%, belonged to the age group 40-49. In addition, the smallest groups of USs, 1.2%, was aged over 33, while the lowest groups of AS, 6.90%, were aged under 30 and over 60.

Furthermore, the majority of the USs who participated was in their third academic year of study (27.2%), while 32.14% of AS (the largest group) had 11-15 years' experience.

The number of USs varied regarding the total number of USs, while the rates of AS in each faculty were somewhat similar. The highest proportion of USs was studying in the faculty of Pharmacy with 26.3%, while it was 14% of AS teaching in the same faculty.

4.2. End-Users' Requirements of the AIUL

Participants were asked to determine their requirements of the AIUL which are necessary to support their educational processes. Figure 1 depicts the participants' requirements of the AIUL.

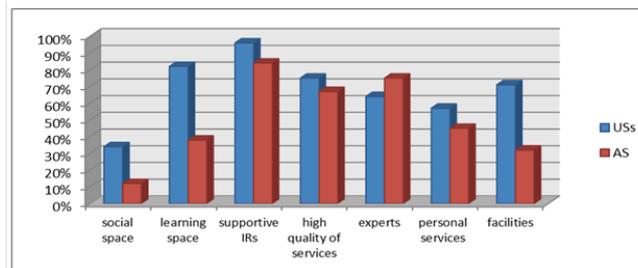


Figure 1. End-Users' Requirements of The AIUL.

Figure 1 illustrates that the requirements of the AIUL for both categories of end-users were high in terms of providing supportive IRs, experts, and high quality services; these requirements were more than 60% of both participants. Moreover, there was a slight difference between USs' and AS's requirements regarding offering personal services with respect of 57% for USs, and 45% for AS. The highest gap between the two groups was in the need of learning space; USs were demanded for learning space twice more than AS with a respect of 80% of USs, and approximately 40% of AS.

On the other hand, the librarians of the AIUL considered that the core objective of the AIUL is to meet its EURs by providing a set of features that support end-users in their EP:

“The most important task of the library is to meet the needs of teaching and learning. That means the integration between it and the activities of the educational environment. From the beginning, we were responsible for providing appropriate books for students... This means acknowledging curricula and all disciplines. That means to increase the communication between the library and the educators”. (AK, Male, Director, 40+ year old).

4.3. End-users’ Perception of Finding Information

End-users were asked to rate the AIUL in terms of finding required information. See Figure 2.

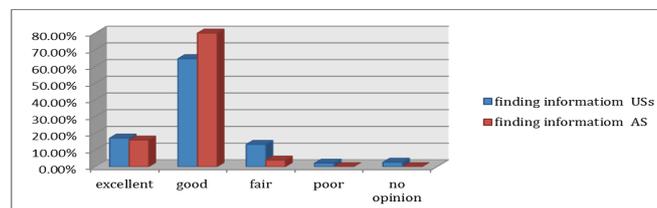


Figure 2. End-users' Perception of Finding Information.

The findings showed a slight difference between USs and AS in terms of rating finding information for both levels ‘excellent’ and ‘good’. Approximately 65% of USs rated the AIUL as ‘good’, whereas the percentage was about 80% for AS. Furthermore, finding information was rated ‘excellent’ for both USs and AS with a percentage of less than 20% for each of them.

From the librarians’ perspective, the library provides a sufficient set of IRs. They believed that the key EURs are obtaining updated and accurate information, and accessing a bulk number of databases rapidly and effortlessly. Obviously, there are distinctions between the EURs regarding the purpose for requiring information and the status of the end-users:

“Students in general look to obtain quick answers and information. Students need information in order to graduate, especially in the final academic year. They need accurate information to write their dissertation, while students in initial levels need information to prepare their assignment or for exams. It is possible that the academic staff needs accurate information or general information about a specific subject”. (C, Female, Librarian, 20-30 years old).

4.4. End-users’ Perception of Using Information

End-users were asked to rate the AIUL in terms of using information. See Figure 3.

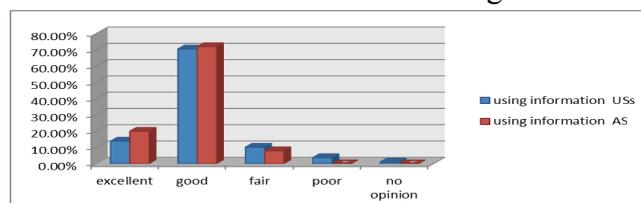


Figure 3. End-users' Perception of Using Information.

Figure 3 shows that there was a slight difference between USs and AS in term of rating using information as ‘good’. Approximately 71% of USs rated using information as ‘good’, while it was 72% for AS. Moreover, 20% of AS deemed that it was ‘excellent’, whereas less than 14% of USs considered it ‘excellent’. In turn, less than 5% of the USs rated using information as ‘fair’.

Using appropriate and valuable e-IRs and the provision of updated editions in both printed and electronic IRs are robust components to meet EURs and therefore, to measure the end-users’ satisfaction:

“The existence of references to be used by students, the existence of collections that meet the needs of end-users in the field of pharmacy, and the continuous provision of new editions of the IRs are very important”. (FA, Female, Librarian, 30-40 years old).

4.5. End-Users’ Requirement of Library Services

Participants were asked to select all used library services that meet their requirements and reinforce their EP. See Figure 2.

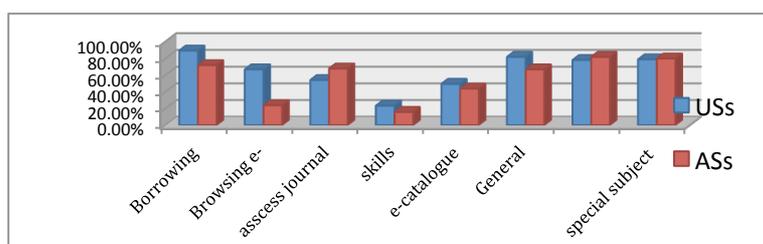


Figure 2. End-Users’ Requirement of Library Services

According to figure 2, there was an agreement between both groups of participants that ‘borrowing printed books, accessing journals, obtaining general and specific information’ were the most used services with respect of more than 75% for each service of them. Furthermore, ‘skills development’ was poorly rated with less than 20% for both groups. This view might show that the requirements, in term of providing library services, for both groups were slightly similar. In contrast, the widest gap between USs and AS’s views occurred in the category of ‘browsing e-books’ with more than 75% for USs, while it was 24% of the AS. This might reflect that USs were more familiar with using technology and electronic facilities than AS. Hence, the more library services were used, the more they were needed in reinforcing the EP.

On the other hand, the AIUL librarians stated that providing library services is varied between facilities according to the EURs:

“As you know, studying Art means using several pictorial resources. So, the library found that it is necessary to provide a high-quality scanner which produces images with high accuracy and in a short time”. (S, Female, Librarian, 30-40 years old).

The AIUL librarians believed that responding to new EURs is required. It is necessary to meet EURs during and after graduation, and to respond to the job market.

Moreover, it is important to adopt appropriate functions, services and technology based on EURs, and according to the nature of the library:

“We are seeking to provide our services for students before and after graduation. Assisting them to get the skills required to get jobs and to develop themselves is important”. (S, Female, Librarian, 30-40 years old).

4.6. End-users’ Perception of Staff

The majority of participants interacted directly with the librarians. This interaction reflects their perceptions about existing staff. Hence, investigating participants’ perceptions of the AIUL staff was important. See Figure 4.

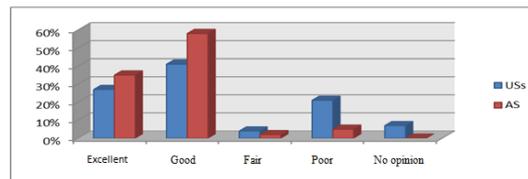


Figure 4. End-Users' Perceptions of the AIUL Staff.

According to Figure 4, AS were more satisfied with the library staff compared with USs. 35% of AS found that library staff was “excellent”, while just 27% of us agreed with USs. Furthermore, 58% of AS believed that library staff was “good”, against 41% of USs. On the other hand, 21% of USs stated that library staff was “poor”, while it was 5% for AS.

AIUL librarians believed that their role has expanded with the adoption of information technology in the librarianship. They considered that end-users, especially USs, required help from expert librarians in guiding, assisting, training and teaching them how to use the library, how to search for and find the required information and how to develop their skills and research strategies

“I am helping students accessing information, training, and guiding them. The majority of users prefer electronic information resources, and they expect me to help them during their journey searching and using the library; so, I guide and help them to find what they are looking for quickly”. (G, Female, Librarian, 20-30 years old).

4.7. End-users’ Perceptions of the AIUL as a Place

Participants were asked to give their perceptions about the AIUL regarding its location, and spaces. See Figure 5.

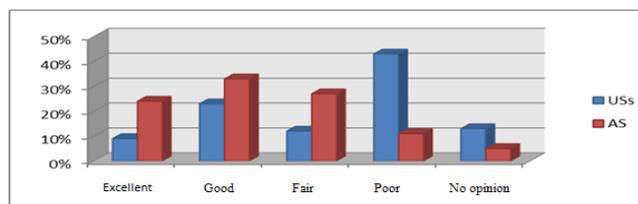


Figure 5. End-Users’ Perception of the AIUL as a Place.

Figure 5 demonstrates that The majority of USs (43%) pointed out that the library as a place was “poor”, while the percentage was 11% of AS. On the other hand, the proportion of AS, who believed that the library place was excellent, was twice the

number of Uss, with 24% of AS and 9% of USs. Interestingly, 27% of AS were neutral about the library place, whereas it was 12% for USs.

AIUL librarians agreed with end-users that the library spaces is not adequate to meet this requirement:

“The library is relatively small; one room. It is not enough to meet our EURs. Nowadays, they expect to be offered a social space in order to meet their friends, discuss and use Facebook and other social media, as well as another space just for study”. (G, Female, Librarian, 20-30 years old).

4.8. End-users’ Perception of Technology and Facilities

Participants were asked to identify to what extent they perceived that the AIUL provided appropriate technology and facilities for its end-users. See Figure 6.

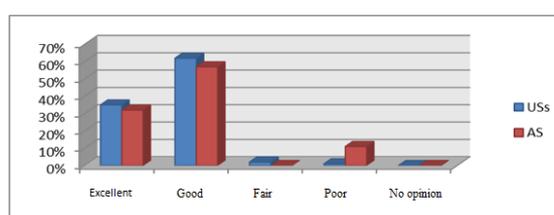


Figure 6. End-users’ Perception of Technology and Facilities.

As seen in Figure 6, USs had a satisfactory perception rather than AS regarding technology and facilities provided, although there was a slight difference between USs and AS in the categories of ‘excellent and ‘good’. USs believed that the AIUL provided excellent technology and facilities with a respect of 35%, and it was good for 62%, versus 32% and 57% of AS respectively. It was surprising that 11% of AS found that technology and facilities provided was poor.

The AIUL librarians were aware of the EURs in terms of providing adequate facilities that manage, retrieve and deliver IRs and services.

“Also, we increase our library performance by providing a quiet and comfortable environment, by providing appropriate physical conditions of lighting and air-conditioning. In addition, we have three labs, more than forty computers, and Internet” (FA, Female, Librarian, 30-40 years old).

4.9. Strategies to Understand EUEs

AIUL focuses on investigating, understanding and meeting their requirements. An important question was: “Are end-users able to determine their requirements?”. Interestingly, the investigation demonstrated that not all end-users were able to determine their requirements. The inability to identify their requirements was because of limitations in search strategies and skills, and/or due to a lack of understanding the tasks performed:

“Sometimes users are unable to determine their requirements... Actually, they have a lack of searching skills or strategies”. (O, Female, Librarian, 20-30 years old).

Understanding EUEs is the first step in meeting the requirements. Hence, librarians sought to understand EURs by adopting different methods. The most commonly used methods were a direct communication with end-user and the connection via emails:

“We rely on the communication with our users to understand their expectations and requirements. We communicate with them, either through direct or indirect communication, or via emails. We adopt face-to-face discussions and communication”. (C, Female, Librarian, 20-30 years old).

Another indicator that assists in understanding the EURs was the frequent use of IRs. It is assumed that the more IRs are used, the more they are required. Additionally, providing requested items via acquiring IRs and obtaining feedback were crucial approaches to meet the EURs. Thus, adopting different methods can assist in understanding and meeting EURs:

“We identify their requirements through the information required, through the frequency of book and topic use, or the less used. Students can submit an acquisition request form to the acquisition department. Furthermore, questionnaires help greatly in understanding end-users’ requirements and measuring their satisfaction level with services or evaluating their needs”. (F, Male, Librarian, 20-30 years old).

With the working experience, librarians became more able to understand and meet EURs, and to distinguish between end-users’ requirements. Providing pro-active services such as CAS and SIDS can lead to better achievements:

“Weekly, I send emails to all faculty members. Now, I have a good experience and clear ideas about the educators’ requirements, even about their interests. So, we filter data and send it to people who are interested in it”. (AK, Male, Director, +40 year old).

5. Conclusions and Discussion

The findings show that USs were demanded in using the AIUL more than AS. USs were more requirements for social and learning spaces, providing personal services and technological facilities. This reveals that the boundaries of ALs have extended to be not just a place to store books and read them; it is now a place to see friends, discuss, search, use facilities and obtain different types of information (Demas 2005, Brophy 2007). Providing supportive IRs reported the highest rate for both groups. This reflects that the ALs become a part of the EP (Barsun 2002, Hall 1998). Furthermore, there was an agreement between both groups in rating “finding and using information” as “good”; however, AS was slightly more ability to find and use information. This agreement can present that the AIUL provides an adequate collection of e/IRs, and it manages and facilitates these e/IRs to be available and accessible for its end-users (Casey 2004, Feeney 2004, Sidera-Sideri 2013). The results are combatable with Al-Samir’s (2009) results who found that end-users required using both services; traditional and electronic. Furthermore, there is a variation between the end-users requirements according to their disciplines (Blair 2003, Makri and Warwick 2010). EURs varied between the end-users’ groups regarding the purpose for requiring information, their status, and their faculties. AS was satisfied with the AIUL staff more than USs. This reflects that USs were more demanded than AS due to their educational needs in term of preparing their assignments, exams and other personal interests. It can be as a result of the direct interaction with the librarians. This reveals the expanding role of the academic

librarians (Simmonds and Andaleeb 2001, Bawden and Vilar 2006, Kani-Zabihi, Ghinea et al. 2006, Kaur 2010). There was an agreement between all groups of participants that the "AIUL as a place" is inadequate. This finding agreed with AL-Samir's (2009) findings. This limitation of the AIUL affects the end-users' satisfaction and usage. Moreover, offering sufficient facilities promotes the AIUL performance by adding values to the library, and managing its contents and procedures (Wilson 2012). Despite the fact that a number of end-users were unable to identify their requirements in the AIUL, library staff implemented several methods to understand, and therefore, meet the EURs. Shifting to Library 2.0 improves the ALs' performance and responded to a number of EURs; however, end-users found a number of its applications and features complicated and difficult to use. Hence, there is a need to improve end-users' information literacy and technical skills for better results.

6. References

1. Al-Samir, A. H. (2009). Private University Libraries in Syrian Arab Republic : A Field Study Department of Library and Documentation and Information Technology. Cairo, Cairo university. MSc: 245.
2. Applegate, R. (1993). "Models of user satisfaction: understanding false positive." RQ 32(4): 525-539.
3. Baker, D. and W. Evans (2013). Trends, discovery, and people in the digital age, Chandos Publishing.
4. Barsun, R. (2002). "It's My Library, Too, Isn't It?" Journal of Library Administration 37(1-2): 59-82.
5. Bawden, D. and P. Vilar (2006). "Digital libraries: to meet or manage user expectations." Aslib Proceedings 58(4): 346-354.
6. Blair, D. C. (2003). "Information retrieval and the philosophy of language." ANNUAL REVIEW OF INFORMATION SCIENCE AND TECHNOLOGY 37(1): 3-50.
7. Brophy, P. (2007). The Library in The Twenty-First Century. London, Facet Publishing.
8. Casey, A. M. (2004). "A Historical Overview of Internet Reference Services for Distance Learners." Internet Reference Services Quarterly 9(3-4): 5-17.
9. Crump, M. J., et al. (2012). Meeting the needs of student users in academic libraries : reaching across the great divide /. Oxford Chandos Publishing.
10. Debowski, S. (2000). The hidden user: Providing an effective service to users of electronic information sources. OCLC Systems and Services. 16: 175-180.
11. Demas, S. (2005). From the Ashes of Alexandria: What's Happening in the College Library? Washington, D.C.
12. Dollah, W. A. K. W. (2008). Determining the effectiveness of digital reference services in selected academic libraries in malaysia. Faculty of computer science and Information technology, University of malaya kuala lumpur. degree of doctor of philosophy.

13. Feeney, M. (2004). "Centralizing information about library services and resources: delivering the library to users at any distance." Improving Internet reference services to distance learners.
14. Gannon Leary, P., et al. (2008). "A destination or a place of last resort? The research library of the future and its users and its librarians." Library and Information Research 22(101): 3-14.
15. Hall, L. (1998). Supporting Distance Learning: Experience and Initiatives in Sunderland, UK. Libraries without Walls 2 : The Delivery of Library Services to Distant Users P. Brophy, S. Fisher and Z. Clarke. Lesvos, Greece, Library Association Publishing 63-71.
16. John, M. and B. Marion (2001). "Library and librarian image as motivators and demotivators influencing academic staff use of university libraries." Performance Measurement and Metrics 2(3): 159-171.
17. Jordan, P. (1998). The academic library and its users. Hampshire, Vermont, Gower Publishing Limited.
18. Jordan, P., et al. (2002). Staff management in library and information work, Ashgate.
19. Kani-Zabihi, E., et al. (2006). "Digital libraries: what do users want?" Online Information Review 30(4): 395.
20. Kaur, K. (2010). "Service quality and customer satisfaction in academic libraries: Perspectives from a Malaysian university." Library Review 59(4): 261-273.
21. Makri, S. and C. Warwick (2010). "Information for inspiration: Understanding architects' information seeking and use behaviors to inform design." Journal of the American Society for Information Science and Technology 61(9): 1745-1770.
22. Mirza, M. S. and K. Mahmood (2012). "Electronic resources and services in Pakistani university libraries: A survey of users' satisfaction." International Information and Library Review 44(3): 123.
23. Pantry, S. (2000). "Changing riles " Impact 3(9): 130-132.
24. Rehman, S. U. (2012) Understanding the expectations of Pakistani libraries users: a LibQUAL study. Library Philosophy and Practice
25. Ren, W. (2000). "Library instruction and college student self-sufficiency in electronic information searching." Journal of Academic Librarianship 26(5): 323-328.
26. Sidera-Sideri, I. (2013). The Effective Use Of Electronic Information Services (EIS) In Greek Higher Education And Their Relationship To Current Greek Educational Practice. School of Computing, Engineering and Information Sciences. Newcastle, University of Northumbria Doctor of Philosophy: 298.
27. Simmonds, P. L. and S. S. Andaleeb (2001). "Usage of academic libraries: The role of service quality, resources and user characteristics." Library Trends 49(4): 626-634.
28. Sloan, B. (1998). "Service perspectives for the digital library remote reference services." Library Trends 47(1): 117-143.

29. Tremblay, P. and Z. Wang (2008). "We Care--Virtually and in Person: A User-Centered Approach to Assessment, Implementation and Promotion of Library Resources and Services to a Remote Graduate Campus." Public Services Quarterly 4(3): 207-232.
30. Webb, J., et al. (2007). Providing Effective Library Services for Research. London, Facet Publishing.
31. Wilson, K. (2012). "Introducing the Next Generation of Library Management Systems." Serials Review 38(2): 110.