Research Support Services in University Libraries of Pakistan: Perceptions and Applications

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ABSTRACT

Research Support Services (RSS) is an emerging and popular area that is becoming an important part of the university libraries. Most of the researchers emphasize on making effective policies for the provision of RSS to the researchers. Further, seeing the trend of library users toward technology, the librarians are encouraged to assist researchers in writing/publishing research work, research data management, use of statistical software in research, bibliographic/citation management, information retrieval and bibliometrics, etc. Additionally, reports of many associations such as OCLC, RLUK, ALA, RIN, CARL, ASERL, CILIP, CAUT, and ACRL recommend that university libraries should provide RSS to the researchers.

Though, very little attention has been made in the past to identify the RSS in the university libraries in general and particularly in the context of Pakistan. Thus, this study aimed to (a) to identify existing RSS in the university libraries, (b) to explore the RSS demanded by the researchers from the university libraries, (c) to observe the assistance/guidance provided by the librarians to researchers, (d) to observe the interest of librarians in establishing/provision of RSS in the university libraries, (e) to examine the constraints affected on the implementation of RSS in the libraries and to illustrate the perception of librarians for the application of RSS in the university libraries of Pakistan were set forth.

For this purpose, a quantitative survey study was conducted on a target population of chief librarians/head library working in the 175 university libraries of Pakistan. A structured questionnaire was designed after employing various approaches e.g. literature review, websites of national/international university libraries, pre-testing the instrument, or opinion from national and international research experts/faculty members/library professionals. Descriptive statistics were used to see the entire picture of existing RSS and demanded RSS by the researchers in the university libraries with the help of SPSS. Further, independent sample T-test and ANOVA tests were used to identify the differences among librarians’ perceptions towards implementing RSS.

The findings of the study show that most of the university libraries are providing RSS [access to HEC digital library, reference services, Journals on specific subjects, current awareness services, digital reference services, new arrival alert services (Books and Journals), and selective dissemination of information services] to the
researchers. Results of the current study also indicate that university libraries have good collections of research/general/specific books to meet the needs of researchers. Further, most of the librarians were interested in providing RSS and emphasized that libraries should upgrade their collection to meet researchers’ requirements. While deficiency in the provision of institutional research repositories services, archival collection and manuscripts services, subscription to tools (NVivo/Leximancer, etc.), online research support tutorial, abstracting and indexing services, and subscription to tools (Survey Monkey, Google form, etc.) for online survey to their researchers have been observed in most of the libraries. Further, it has been observed that most of the researchers demand the subscription of e-Journals, subscription of research oriented software tools, access to the HEC digital library, and institutional repository resources.

Majority of the respondents are agreed that librarians should help/assist researchers in searching literature; writing/publishing research work; use different statistical software in research; bibliographic/citation management and research data management except language editing. Further, most of the respondents were highly agreed to establish RSS section and the recruitment of trained staff in the university libraries for the provisions of RSS such as; orientations for newly registered researchers, provision of the study room to researchers, arrange workshops and training programs, web-based RSS, online tutorials program and provide a subject guide to the researchers. Results also show that financial constraints, inadequate IT infrastructure, lack of library resources, lack of research environment, and administrative support are the major hurdles in the provisions of RSS. Further, the lack of research skills and experience restrict librarians in the provision of RSS.

This study recommends that university libraries should establish RSS Section in which staff having research skills should be appointed for the guidance of researchers. University administration and chief librarians should encourage librarians to improve their research skills. RSS provide an opportunity to the librarians in learning, teaching, and guidance of research activities that enable them to meet the university mission by promoting education, research, and practice.
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CHAPTER 1

1.1. Introduction

Research and publishing have become a strategic priority in university libraries because of the pressure on universities to improve their rankings through research and educational excellence. Therefore, universities are making efforts to focus on research development and improve research quality of the researchers (Riera Quintero, Padrós Cuxart, and Zuñiga Ruiz, 2012). Accordingly, one of the emerging roles of academic librarians is to offer research guidance to the researchers in their research work (Ocholla, Mutsvunguma and Hadebe, 2016). Research support services (RSS) is an emerging area throughout the world generally and particularly, in the university libraries of UK, America, Germany, Australia, New Zealand, and Ireland, where provisions of research support services (RSS) to the researchers is a necessary part of the university libraries core services (Larsen et al, 2010). Generally, RSS has been considered as a major paradigm shift in the current era of information and technology (Corrall, Kennan and Afzal, 2013). Berg, Jacobs and Cornwall (2013) endorsed that RSS is a rising area and both libraries and librarians can play a key role in the provision of RSS to the researchers. RSS are the services provided by libraries to assist and facilitate the researchers in their research endeavor (Wiklund and Voog, 2013). Previously librarians’ role was limited to the collection development, reference desk service, staff supervision and library instruction. However, in the 21st century, librarian’s role has been emerged as a research partner with faculty members, researchers, scholars and students that contribute in their teaching, learning and research projects (Hopper, 2018). Xia and Li (2015) claim that there is a tremendous need for librarians to collaborate with faculty members and guide
the researchers through reference services and instruction service about library resources and services offered in libraries. RSS are on the top priorities in majority of university libraries (Keller, 2015). Most of the university libraries in developed countries are also providing comprehensive RSS to their researchers, such as data management, e-resources management, meta data services, remote storage, bibliographic services, information resources, knowledge access and resources management services, online tutorial, training and advice, access to the required bibliographic databases (e.g. Web of Science, Scopus, and JCR), FAQs and online tools training workshops regarding citation resources, reference management (Endnote or Mendeley), publishing, plagiarism detection, access to e-resources etc (Ale Ebrahim, 2013; Forsman, Ndinoshiho and Poteri, 2012; Leenaraj and Tuamsuk, 2016; Leiss and Gregory, 2017; McAlpine and Mcintosh, 2015). Considering the importance of RSS, some academic libraries are recruiting full time staff to offer RSS services (Zhao, 2014).

Various authors unanimously consider that supporting research or researchers is often employed interchangeably and a recurring idea is that RSS are about to facilitate researchers to get his/her job done such as saving the time of the researchers. Such as Wiklund and Voog (2013) asserted that RSS are the services provided in the libraries to assist and facilitate the researchers in their research endeavor. On the other hand, Jensen (2012) illustrated the following RSS to the researchers such as interlibrary loans and specific services, focusing on matters like questions related to publishing such as open access and copyright issues (Cited by Wiklund & Voog, 2013). According to Larsen et al “RSS is a service that helps researchers to spend more time efficiently in their research, and contributes positively to the quality of research (Larsen et al. 2010). Further, RSS in the libraries can be viewed as specific information services to promote research by
meeting the unique information needs of the researchers within a particular institution (Forsman, Ndinoshiho & Poteri, 2012).

McAlpine and Mcintosh (2015) reported that Australian as well as Ghana University Libraries offer RSS (assistance about the data management plan, copyright issues, research tools, to access research publications/e-journals, staff training and research publications procedure) to the researchers. While, Tran and Lyon (2017) considered that researchers’ networking system plays an important role in improving their impact socially and academically. It generally provides a professional forum to which researchers upload their publication data, research products, research work, and share their research experiences such as LinkedIn, Google Scholar and Research Gate, etc. Likewise, Garner (2006) stated that the Curtin University of Technology established Research Services Unit in 2005 for the provision of relevant resources, scholarly communication, reinforcing the research process, and promoting research outputs to the researchers. Similarly, Simons and Richardson (2012) identified that Australian academic institutions are focusing on the establishment of institutional repositories in academic libraries. United Kingdom, New-Zealand and Australia are also playing their proactive role to promote research services programs such as Research Excellent Framework, Performance-Based Research Funds, and Excellent in Research for Australia (ERA) respectively. Further, they recommended that libraries should establish institutional repositories for the researchers and provide training to the librarians about digital common repository software XML, SQL, D-space, Microsoft Excel, and Access and Metadata standards.

Likewise, Stephen McMinn (2011) observed that most of the Australian university libraries subscribed Endnote to manage references for the research work.
Further, academic libraries of the United States also support researchers in Refworks and Endnote application through training and guides. Further, he stated that George Washington University (2008, 2011), the University of Minnesta (2010), and the University of Wisconsin (2010), are offering instructional guides in pdf format for their researchers and faculty members regarding bibliographic management. Davis (2016) informed that research university libraries offer various technical services to researchers such as data management, e-resources management, Metadata service, remote storage, bibliographic services, information resources, knowledge access and resources management services. Furthermore, Ahmat et al. (2016) identified five service segments e.g. Open Access Publication, Mendeley, Google Drive, Google Scholar, and Easy to Write with Microsoft (MS) Word for thesis writing. Ahmed and Uzair (2017) recommended the subscription of impact factor journals of various subjects in the university libraries of Pakistan.

Different studies and published reports emphasized on the need that research oriented librarians should provide research guidance/assistance to the researchers. Provision of these services to the researchers may help librarians to recognize themselves among library users, faculty members, researchers and administrators etc. that will uplift the status of libraries in research environment. Therefore, in this study, existing RSS in the university libraries and demand of RSS by the researchers and faculty members have been investigated.
1.2. Librarians’ Role regarding RSS

This section covers the literature based on librarians’ role regarding research support services (RSS) by the researchers in their intellectual work in the university libraries' national and international perspectives.

Various studies substantiated that librarians’ role was limited to the collection development, reference desk service, staff supervision and library instruction. Now in the 21st century, their role has emerged as a research partner with faculty members, researchers, scholars and students that contribute to their teaching, learning and research project. However, a librarian can enhance the teaching and research activities of the faculty such as Nina Exner et al. (2016) stated that librarians are offering assistance to researchers and faculty members about the track record-metrics for publishing trajectory, citation management training and consultation, data management planning and dissemination support, developing researchers’ profile, and grant databases search skills training. Similarly, Searle et al. (2015) reported that librarians of Australian Universities are providing maximum support to the researchers in their research efforts. Xia and Li (2015) claimed that librarians are also performing their responsibilities diligently and making efforts to guide the researchers about searching required literature, maintaining, disseminating, and preserving scholarly information resources, databases and access to e-journals. Similarly, Forsman, Ndinoshiho and Poteri (2012) stated that librarians are assisting researchers in searching literature from databases and about the usage of data management software. According to Leeder and Shah (2016), librarians assist the students regarding literature searching by using various searching techniques from
databases and e-resources. Further, findings indicated that after the supervision and guidance of the librarians, students’ searching progress for literature was improved.

Milimo Wasike (2013) described that librarians of Kenya University libraries were playing their active role in the dissemination of research outputs through an open access system. Further, copyright policy was prepared to preserve the intellectual work of the authors. Similarly, Xia and Li (2015) claimed that there is a tremendous requirement for recruited librarians to collaborate with faculty members and guide the researchers about reference services and instruction services about library resources and services offered in libraries. Moreover, Fennewald (2008) informed that Penn State University expects librarians to play their role in assisting the researchers in research activities. It is a basic requirement for their promotion to involve in the research activities of the researchers. Further, the study indicates, although the provision of offering RSS is also expected with librarians there is no official policy in practice and facilities for librarians to motivate them in research activities. In a study, Detlor and Lewis (2015) recommended that librarians should support researchers in their research projects. On the other hand, Searle et al. (2015) claimed that Griffith University is offering financial support for library professionals to improve their research data management (RDM) skills. Further, a coordinated professional development program was initiated in 2015 for library staff to improve their skills associated with research data management and in supporting researchers to deposit data sets in Griffith’s data repository. Neville and Henry (2007) informed that Florida University is offering various training programs related research field. Further, university libraries executives encourage librarians to involve in research activities. They informed if librarians take interest in research activities, the university will provide the facilities such as sabbatical
and financial support and research grants for traveling and attending the conferences. Such as Jacobs and Berg (2013) claimed that the Librarians’ Research Institute (LRI) program was started and sponsored by CARL and held at the University of Windsor in 2012. It provided a chance for librarians to learn about various research elements and tools. Further, LRI programs also developed research collaboration among librarians and faculty members so that they can share their knowledge and experience through scholarly communication service.

The emerging role of university librarians has been considered the promotion of RSS in the university libraries as universities are focusing on research development and research promotion. Further, it has become a strategic priority in university libraries because there is pressure on universities to promote research culture to improve their rankings. Such as Zhao (2014) stated that faculty members are immensely under pressure to increase their research productivity for their high profile status in the modern research environment globally. Further, the role of the librarian as a research support officer is vital to support the researchers regarding scholarly publishing literacy, literature searching, and bibliographic citation management. Similarly, Du and Evans (2011) stated that majority librarians offer guidance to researchers about access literature from various resources, searching thesis and articles from databases, discovering and analyzing cited papers and measuring the quality of journals and publications, etc. Further, academic librarians also informed that researchers mostly seek assistance about searching the literature, bibliographic management and research methodology, setting up alerts on impact factors journals and discovery tools, and online communication through e-mail.

Auckland (2012) developed a research report of the United Kingdom Libraries and emphasized on the re-skilling of librarians to fulfill the emerging needs of the
Researchers. This report recommended that library professionals should develop a close relationship with researchers to guide them in their research work. Further, Rossall et al. (2008) illustrated the significant role of librarians to support the researchers in their research work as a research partner. Further, Hildreth and Aytaç (2007) found that a good number of librarians are practically involved in the research activities. They had written and reviewed many articles to increase research productivity and quality of intellectual work. However, Parker, indicated that the major role of the librarian is to assist the researchers in their research endeavors (Parker, 2012). Similarly, Richardson et al. (2012) predicted that the emerging role of librarians will be as a researcher, scholar and teacher soon. Lampert (2014) as well as Schrader, Shiri and Williamson (2012) stated that librarians should play their vital role to guide the students and researchers about citation management software, reference style and formatting. Equally, Obiora Omekwu (2006) stated that librarians should be technology experts, guides, analysts, information provider and a good researcher. Kleinveldt (2009); Schrader (2010) as well as Xia and Wang (2014) recommended that librarians should work as research partners with researchers, students, and teachers to promote the ranking of the universities. They should aware of researchers about the importance of “deterrent to plagiarism” and guide them on how to avoid plagiarism threats (Hand, 2006, p. 40). Moreover, Borchert and Young (2010) acknowledged the vital role of the librarian to assist the researchers in their research project. They observed that librarians had sufficient knowledge and skills regarding research tools, software, databases and various resources and services being offered in libraries. While Robertson (2014) recommended that university executives should play their proactive role to encourage librarians and develop a comprehensive policy to implement and promote the RSS program effectively.
Research development has become a strategic priority in university libraries because there is pressure on universities to improve their rankings through research development culture. Therefore, universities are making efforts to focus on research development and improve the research quality of the researchers. Resultantly, one of the focusing themes of the emerging role of the academic librarian is to offer guidance to the researchers. Such as Jaguzewski and Williams (2013) informed that librarians of university libraries want to see enhancement of research productivity of the faculty members and researchers and take part in the entire life cycle of the research learning and teaching process.

Above mentioned literature show that librarians are playing a collaborative role in the classroom with instructors/teachers and also guide the students regarding searching the literature, research methodologies, research tools, reference management and publishing research work. That is why the demand for researchers from the librarians is increasing day by day, such as Bhardwaj (2017) suggested that universities should encourage librarians to pursue research publications and research activities. Likewise, Raju et al. (2015) stated that the position of the research support librarian is changing from reactive reference provider to proactive research partner. Further, Federer (2013) stated that the University of California – Los Angeles changed the librarian’s title to research informationist so that they can reflect research activities more energetically in the libraries. Furthermore, Carlson and Kneale (2011) stated the changing role of librarians from supportive to partnerships with their clientele. Librarians help researchers in completing their research work as research partners based on specialized knowledge and skills they possess. Schoombee and Raju (2013) explored the emerging role of librarians from facilitators to contributors to the research environment and the university
community. Moreover, Maceviciute (2014) emphasized the role of the librarian as an equal research partner of promoting education, teaching and researcher with faculty members in an institution. Likewise, in another study, Hart (1999) claimed that Penn State Librarians are participating in research activities of the researchers including (reviewed articles and book chapters, edited books, and attend conferences and workshops).

1.3. Demanded RSS by the Researchers

This section covers the literature based on demands, recommendations, and suggestions made by the researchers in their intellectual work regarding RSS in the university libraries' national and international perspectives.

Wai Fan (2005) recommended that university libraries should upload a list of websites on the home pages included: Science Citation Index (SCI) and Social Science Citation Index (SSCI) journals and provide a hyperlink to “Aims and Scope” and “Notes” for authors for each one. Garner (2006) suggested that librarians should offer guidance to researchers about information literacy, bibliographic management software, citation style, and procedure of submitting research articles. They should arrange workshops regarding awareness of research resources and services. In a study, MacColl and Jubb (2011) predicted that the future role of libraries and librarians will be changed in the information technology era. Libraries will have to offer emerging services e.g. data curating, collecting, advising and preserving research data outputs, develop researchers’ data, awareness about data archiving and preserving. Further, librarians will work as a research partner in the research project of the researchers. They also recommended that
libraries should offer staff development training programs for librarians regarding data management.

Also, Stephen McMinn (2011) recommended that university librarians should guide the researchers about data collection methods, reference tools, reference formatting, and style and assist the researchers in developing footnotes, references, citations and bibliographies. Wiklund and Voog (2013) also suggested that librarians should offer instructional services to researchers regarding e.g. searching literature, research process, research tools, copyrights, reference management, the research publication process, and statistical software tools, etc. Jacobs and Berg (2013) stated that there is a paramount and perceived demand that Canadian Academic Librarians should conduct research activities and promote research culture in parent institutions.

Furthermore, Alam (2014) also recommended that librarians should have research expertise to provide the services effectively including; digital library projects, institutional repositories, publishing in open access journals, metadata services, and developing web portals. Trindade and Agostinho (2014) identified the criteria for selection of research librarians that Portuguese universities made a recruitment policy for selection of the post of a research librarian. They suggested that librarians equipped with research skills, professional competencies and sufficient knowledge of research, analyses of the collected data and analytical skills should be preferred for selection. Likewise, in another study, Sheikh stated because most of the library users demand the provision of Information Commons Desk Services in university libraries of Pakistan (Sheikh, 2015). Thomas and Stacy-Bates (2018) recommended that university librarians should provide targeted assistance to the researchers so that they can better understand the meaning of the impact factor and other publication metrics.
Based on the findings of the various studies that mentioned above, they made several recommendations such as provisions of demanded RSS in the university libraries, motivate librarians to assist the researchers in their research work, improve research skills level of the librarians through staff training programs and training, offer various incentives and financial support for librarians to involve them in research activities.

1.4. Significance of the Study

This section covers the literature based on the significance of the study by the researchers in their intellectual work regarding RSS in the university libraries' national and international perspectives.

RSS is relatively an emerging area and university libraries are considered as “hub or center” to offer various services e.g. document delivery service, circulation, digital reference service, access to databases and e-journals services, I.T support, writing assistance and publishing support to assist the researchers in their research efforts (Keller, 2015; Richardson et al., 2012). Wai Fan (2005) stated that subscribed impact factor journals by the libraries support research scholars in writing and publishing research articles. Fox (2007) observed that the support and motivation of librarians help in promoting research culture and university ranking. Alike, Peyvand Robati and Tahavori (2014) stated that the involvement of librarians in research activities has increased their positive impact among the research community. Similarly, Clapton (2010), as well as Kennedy and Brancolini (2012), informed that most of the academic librarians are taking a keen interest in the research field and activities. Likewise, Perkins and Slowik (2013) examined that librarians’ assistance to the faculty members and researchers has increased their importance in the universities and enrich the relations with the library users. For
instance, Milimo Wasike (2013) noted that open access service supports researchers in accessing the required literature (conference papers, articles, and thesis). Detlor and Lewis (2015) stated that the Faculty-Member-in Residence program (FMIR) involved university librarians in research activities to increase their interest in the research field and collaboration with the faculty members, flourish research productivity. Davis (2016) emphasized that academic libraries need impudent and innovative leadership that motivates the library professionals for offering new emerging library services. Such as Schrader, Shiri and Williamson (2012) noted that university librarians have sufficient knowledge and expertise to offer research services in the libraries. Seeing the importance of research services, some academic libraries are recruiting full-time staff to support the researchers regarding the usages of bibliometrics services and research impact measurement services. Moreover, Tenopir et al. (2014) found that research data management service is an emerging service being offered to the researchers for accessing scholarly literature. Further, libraries are managing research data in institutional repositories.

The above literature shows that no comprehensive study was available that has focused on the RSS in the academic libraries. However, different studies and published reports emphasized the need that research-oriented librarians should provide research guidance/assistance to the researchers. Provision of these services to the researchers may help librarians to recognize themselves among library users, faculty members, researchers and administrators, etc. that further uplift the status of libraries in the research environment. Therefore, in the current study, existing RSS in the university libraries and demanded RSS in which librarians assist the researchers and faculty members have been illustrated.
1.5. Current Situation of RSS in Pakistan

This section covers the literature based on the current situation of research support services (RSS) by the researchers in their intellectual work in the university libraries' national perspectives.

In so far as the current situation of RSS offered in the university libraries of Pakistan, Younus (2014) stated in his Ph.D. thesis that the status of digital reference services, documents delivery services and internet services are improving gradually along with information technology development. Similarly, Sheikh (2015) found that existing level of information commons desk services are not developed to support the researchers. In another study, Mansoor and Ameen (2016) explored that majority of the university libraries are providing only two major services e.g. internet services and plagiarism detection services. However, Farooq et al. (2016) identified that most of the librarians in the university libraries assist researchers in their research work. Similarly, Ahmed and Rehman (2016) stated that majority university libraries are providing E-mail, search engines, web browsing, bibliographic databases and E-journals’ services in KPK, Pakistan. In another study, Khan et al. (2017) found a significant relationship between the digital library resources and research productivity. Likewise, Ahmed and Uzair (2017) found that most of the university libraries are providing Emerald, JSTOR, Project Muse, Taylor & Francis, Wiley-Blackwell Journals and University of Chicago Press databases services to the researchers.

Higher education Commission (HEC) of Pakistan played a significant role to improve the status of research activities in the last one and half decades. Although, more revolutionary efforts are required to improve the quality of research by establishing a
research culture in Pakistan. Further, literature informed that the current status of
services offered in university libraries of Pakistan is not encouraging and satisfactory.
Various studies showed that the majority of the librarians don’t take interest in research
activities because of their workload and various routine services, such as; information
management, collection development and routine library operations. On the other hand,
researchers, faculty members and users of the university libraries want that librarians
should have sound knowledge and expertise regarding RSS to guide them positively
(Mahmood and Shafique, 2010).

The following assumptions may be considered based on the results of the above
studies conducted in Pakistan. First, literature indicates that few studies have been
conducted to examine the status of RSS in the university libraries of Pakistan. Second,
many of the studies explored only one or two RSS provided in the university libraries of
Pakistan. Third, gap in the available literature emphasized on the need that a
comprehensive study to explore the status of RSS offered and demanded services in
university libraries, guidance/assistance provided by the librarians to researchers,
required infrastructure for the provisions of RSS, and constraints faced by libraries and
librarians in the university libraries of Pakistan should be revealed.
1.6. Reports Regarding RSS

This section covers the literature based on Online Computer Library Centre (OCLC) and Research Libraries UK (RLUK) reports, and various reports prepared by various associations such as ALA, RIN, CARL, ASERL, CILIP, CAUT and ACRL. For instance, RLUK report identified that librarian’s role has been changed in the existing modern research environment. RLUK report sees the librarian as a scholar, guide and researcher who should fully aware of research activities, processes, research methodologies and research tools (Auckland, 2012; p.43). Educational Advisory Board (EAB) in his report identified that the role of embedded librarians should be as a research partner to improve the research quality and productivity of the researchers (Cited in Monroe-Gulick et al., 2013). Likewise, Larsen et al. (2010) in his report recommended that the university library should promote research consultancy services and online tutorials on the library web page. According to strategic plan (2010-2012), Canadian Association of Research Libraries (CARL) focused on the development of research skills among librarians and published the core competencies for 21st Century CARL Librarians (Canadian Association of Research Libraries (CARL, 2010); cited in Belzile et al., 2010). Similarly, Potter et al. (2011) stated that the Research Information Network (RIN) in the UK developed a report in 2008 in which they highly recommended the provision of RSS to the researchers. Likewise, Sutton (2011) explained in his Ph. D. thesis that the Association of College and Research Libraries (ACRL), 2010) asserted that librarians should participate in the processes of teaching, learning and research such as the faculty. Similarly, ALA Executive Board in 2008 suggested eight core competencies for LIS professionals; the foundation of the profession, information resources, organization of
recorded knowledge and information, administration and management, continuing education lifelong learning, reference and user service, technological knowledge and approval of research from the board. This board recommended that libraries should initiate such programs to develop research competencies among library professionals working in schools, colleges, public/private/special sector university libraries so that they may be able to provide the services demanded by the library users and meet the mission of the institutions (Extracted from ALA’s Core Competences of Librarianship 2009, available from http://www.ala.org/educationcareers/sites/ala.org.educationcareers/files/content/careers/corecomp/corecompetences/finalcorecompstat09.pdf (ALA, 2009 cited in Sutton, 2011).

According to the Association of South Eastern Research Libraries (ASERL, 2001), research librarians should equip themselves with the research skills and develop collaborative relationships with the researchers to help them in searching/accessing the required literature for their research project (Cited in Ur Rehman, 2016). The Chartered Institute of Library and Information Professional (CILIP) made many efforts to uplift the status of library professionals by involving them in various research activities and training programs. Majority studies and reports published by CILIP recommended that librarians should have sound knowledge and understanding about RSS to assist the researchers in their research endeavors (CILIP cited in Rossall, et al., 2008).

1.7. Theoretical Background of the Study

This section includes exploring the background of the study at the national and international levels. It discovers various studies regarding the guidance/assistance that university librarians offer to the researchers in literature searching, about
writing/publishing research work, usages of statistical software, bibliographic/citation management services and data management services.

1.7.1. RSS in Literature Searching

Fourie (2004) reported that majority of the university librarians guide researchers to access literature from primary and secondary sources and access literature from different subject databases. Librarians also help researchers in data collection, analysis and interpretation. They further guide researchers on how to submit and publish their research work in different research journals. Masson (2009) recommended that librarians should assist/guide researchers in searching literature through offering virtual research environment (VRE) services. In another study, Snyder Gibson and Fangman (2011) informed that librarians guide the students about advanced searching techniques, citation styles, and bibliographic management of research work. They assist researchers in their research projects and class assignments. Likewise, Schrader, Shiri and Williamson (2012) stated that librarians should guide their researchers about library resources and subject databases to the researchers. Farooq et al. (2016) observed that librarians assist the researchers in searching the literature, various services offered in the libraries, subscribed databases, and the publication of their research work. Simons and Richardson (2012) considered that librarians play a key role in the storage/provision of institutional repository services that further help in improving the research quality and productivity of the researchers.

Wang (2013) found that researchers expect that librarians should provide services of face to face meetings, class instruction, lab tutorials, e-mail and social media assistance to the researchers. Further, he recommended that librarians should prepare a manual of library guide including research activities, publication outputs, reports about librarian’s
research productivity and services offered in the library. Guy (2013) stated that librarians of the Arizona State University libraries developed a strategic plan for establishing research repository and study rooms for the researchers. Further, librarians should guide faculty members and researchers about research tools, reference services, access with databases and discovery tools. In another study, Leeder and Shah (2016) observed that librarians guide users about advanced searching techniques of accessing articles from databases. Similarly, Grigg, Jeong, and Exner, (2018) indicated that librarians help students to find articles from discovery tools and STEM databases e.g. MEDLINE (PubMed), SciFinder, Web of Science and analyzing research metrics.

1.7.2. RSS in Writing/Publishing Research Work

Brown and Swan (2007) found in his study that most of the librarians assist students in accessing required literature from various e-resources and open access journals and databases. Further, they guide them on how to submit an article in a journal and their intellectual work in the institutional repositories. Likewise, Gerolimos and Konsta (2008), as well as Farmer and Stricevic (2011), informed that librarians also guide their students and faculty members about research proposal format, research methods, selecting research topics, developing research objectives and research questions, instrument design and data collection methods, data analysis and publishing a research article in a relevant journal. In another study, Jaguzewski and Williams (2013) informed that majority university libraries are providing the following services e.g. document delivery services, digital reference services, access to databases/e-journals, information technology support and assistance in writing and publishing research work. Similarly, Young and Jacobs (2013) stated that librarians should guide students about databases/e-journals, preparing class assignments/presentations, research methods, writing
thesis/articles/dissertation and citation styles etc. Mullen and Otto (2017) suggested that librarians should guide their researchers about research methods and techniques, research design, statistical software tools and application, data gathering tools and methods, analysis and interpret the data of qualitative and quantitative research. Tran and Lyon (2017) suggested that librarians should design online tutorials/e-resources guide, arrange in house workshops, offer individual consulting services to the researchers, scholarly publishing literacy, and develop collaboration with the library patrons. Likewise, Leiss and Gregory (2017) found a good portfolio of bibliometric services in the Technical University Library of Munich. Similarly, Hendrix (2010), as well as Bladek (2014), stated that most researchers seek guidance from librarians about bibliometric indicators e.g. citation counts, h-index, the journal impact factor in the grant application and tenure packages, etc.

1.7.3. RSS in Statistical Software

Snyder Gibson and Chester-Fangman (2011) found that most institutions subscribed to commercial software e.g. Turnitin.com, SafeAsign, Eve/Eve2 and Insit for plagiarism detection and librarians guide researchers about plagiarism, reference management and citation styles. Likewise, Peyvand Robati and Tahavori (2014); Leader and Shah (2016) as well as Sassen and Wahl (2014) recommended in their studies that librarians should guide students about the application of statistical software (SPSS, NVivo), reference formatting and citation styles. Moreover, Butler and Byrd (2016) indicated that librarians offer guidance about plagiarism, endnotes and statistical software applications through research consultation services to students and researchers.
1.7.4. RSS in Bibliographic/Citation Management

Masson (2009) stated that librarians support the researchers about reference management, formatting styles and bibliographic management. Berg, Jacobs and Cornwall (2013) informed that universities have great expectations with library professionals that they should support researchers in reference styles and citations and bibliographic management tools. Young and Jacobs (2013) observed that majority of the researchers have a deficiency in reference management software. Likewise, Reznik Zellen et al. (2012) observed that researchers expect that librarians should help them in the provision/installation/usage of various software packages for data analysis and bibliographic management tools e.g. SPSS, NVivo, Mendeley and Endnote, etc. Similarly, Butler and Byrd (2016) indicated that various researchers do not use proper terms and need help regarding the usage of terms, e-journals and databases, Plagiarism and Endnote, Info Guides and Research Portals, etc.

1.7.5. RSS in Research Data Management

It has been increasingly realized nationally and internationally the importance of data management, data preparation and data sharing to ensure its integrity and sensitivity (Perrier and Barnes, 2018). Fearon, et al. (2013) described that research data management includes; support in the data management plan, data management best practices, metadata support, data citation, data access, data sharing, data storage and data backup. Likewise, Garritano and Carlson (2009) found that librarians assist researchers in their research projects about data curation, data management, information resources, project funding and time framework. Reed (2015) stated that librarians guide researchers about the research data management process e.g. description of metadata, up-to-date links
and plan, search information from the library web page, data access, data sharing, data archiving and preservation. Raboin, Reznik Zellen and Salo (2013) recommended that librarians should offer research data management support services to researchers e.g. metadata service, online data management plan template, making institutional research data infrastructure, strategies and professional development for strategic positioning. McAlpine and McIntosh (2015) examined that most of the librarians demand formal training related to data management services through a continuing education program. Borchert and Callan (2011) as well as Tenopir et al. (2012) stated that the Association of College and Research Libraries (ACRL) implemented RSS in a different way known as Research Data Services (RDS) in the libraries of the United Kingdom and Australia. Moreover, Ahmat et al. (2016) developed a Strategic Program in Research Support Services (SPIRESS) to design new services offered in libraries based on RSS and R&D.

The existing study is based on the ideas presented in the above literature to implement RSS in the university libraries. The current study contributes a new perspective on the topic of at what extent university libraries offer RSS to the researchers, what type of RSS researchers demand from the libraries and librarians, to what extent universities’ librarian's guide/assist to the researchers and intend to promote patron-driven RSS, and further, practical application of RSS in the university libraries to support the researchers and faculty members.

1.8. The rationale of the Study

Following are the reasons that the researcher focused to conduct this study:

1. To meet the university mission associated with the provision of RSS in the university libraries.
2. To identify assistance/guidance provided by the librarians to the researchers regarding RSS.

3. To provide an opportunity for the librarian to work as a research partner with the researchers in their research projects.

4. Researchers, scholars, faculty members, administrators, and users of the library demand RSS from the libraries/librarians.

5. To implement the RSS in the university libraries, enhance the frequency of library users and uplift the status of librarianship among users, faculty members and administrators of the university libraries.

1.9. Statement of the Problem

Various studies and reports such as; OCLC, RLUK, ALA, RIN, CARL, ASERL, CILIP, CAUT and ACRL show that faculty members, researchers and library users are increasingly demanding RSS in the university libraries. Further, these reports emphasized that librarians should assist and guide the researchers in their research endeavors. MacColl and Jubb (2011) as well as Best and Kneip (2010) pointed out that library users, researchers and faculty members had the opinion that libraries should offer RSS in the libraries along with other services. According to Xia and Li, libraries should develop official policy for practical implication of RSS and the induction of research-oriented librarians who can work as research partner for bridging the gap between existing services and demanded services (Xia and Li, 2015). In Pakistani scenario, there is a significant gap between researchers’ demand and services offered in the university libraries. Literature shows that academic librarians don’t meet researchers’ needs (Ahmat et al., 2016). Public and private university libraries are providing a few RSS to the
researchers. Further, literature show that provided RSS to the researchers are few and are different from library to library (Younus, 2014; Mansoor and Ameen, 2016; Farooq et al., 2016; Mahmood and Shafique, 2010. This shows that most of the university libraries in Pakistan are providing basic level of RSS. Therefore, these libraries should plan and consider for the provision of RSS such as access to e-resources, document delivery service, digital reference services, research publishing services, bibliometrics service, data curation, bibliographic management tools, web services, institutional research repository (IR) service, access to subject databases and e-journals services, email alerts, patron driven acquisition (PDA) program, interlibrary loan service, current awareness alert service, research data management, help in using bibliometrics tools, literature searching, writing/research publishing services, software usages in research, and bibliographic/reference management services. Therefore, there is a need to conduct a study that explores the current status of RSS offered in the university libraries of Pakistan. The results of this study may help library professionals to improve their research skills that further help library professionals to work as a research partner with the researchers.

1.10. Research Objectives

The instant purposes of the research study are to investigate the existing status of RSS in the university libraries and RSS demanded by the researchers and further to gain the librarians’ perception regarding the assistance/guidance provided by university librarians, towards establishing/provision of RSS, constraints that affected on implementation of RSS and finally suggestions provided by the librarians for the application of RSS in the university libraries of Pakistan.
These are the main objectives that were explored during the study:

1. To explore the exiting status of research support services (RSS) provided in university libraries of Pakistan
2. To determine the RSS demanded by the researchers (faculty members and students enrolled in university for research purpose) in the university libraries of Pakistan
3. To examine which types of assistance/guidance that librarians should offer to researchers; (a) in literature searching, (b) writing/publishing their research work, (c) about using different software in research, (d) about bibliographic/citation management, and (e) research data management.
4. To explore librarians’ interest in establishing/provisions of RSS in the university libraries of Pakistan.
5. To ascertain the constraints that affected on implementing RSS in the university libraries of Pakistan.

1.11. Research Questions

The research questions were as followed:

1. Which research support services are provided to users in university libraries of Pakistan?
2. To what extent is the demand of users from the libraries regarding research support services?
3. Which types of assistance/guidance that librarians should offer to researchers in the university libraries; (a) in literature searching, (b) writing/publishing their
research work, (c) about using different software in research, (d) about bibliographic/citation management, and (e) research data management.

4. To what extent librarians perceived in establishing/provisions of RSS in the university libraries of Pakistan?

5. What are the constraints that affected on implementation of RSS in the university libraries?

1.12. Hypothesis

1. There is significant difference between public and private sector university librarians towards the provision of RSS to users.

2. There is significant difference between male and female university librarians towards the provision of RSS to users.

3. There is significant difference among university librarians based on qualification towards the provision of RSS to users.

4. There is significant difference among university librarians based on experience towards the provision of RSS to users.

5. There is significant difference among university librarians based on category of university towards the provision of RSS to users.

6. There is significant difference among university librarians based on provinces towards the provision of RSS to users.
1.13. Definitions of Terms

The operational definitions of terms used in this study are:

**University libraries:** All the degree-awarding institutions (DAIs)/universities approved by the Higher Education Commission of Pakistan.

**Web OPAC:** Web OPAC is a significant service offered by libraries through their websites (Mirza and Mahmood, 2009).

**Patron-driven acquisition (PDA):** Commonly used synonymously with the demand-driven acquisition, but also can be used more broadly to refer to the acquisition of library materials based on direct or indirect patron input, including faculty requests and analysis of collection usage (Swords, 2011).

**Research support services:** Library RSS can be viewed as specific information services provided by a particular library to promote research by meeting the unique information needs of the researchers within a particular institution (Forsman, Ndinoshiho and Poteri, 2012).

**LibGuide:** The LibGuide is geared toward graduate students and focuses on best practices for data management, including overviews of repositories, data citation, research ethics, and data management basics (Reznik-Zellen, et al., 2012).

**Reference management tools:** Reference management tools are defined as software tools that help researchers to organize reference and citation, create reference lists or bibliographies, collaborate with other researchers all over the world and explored the latest research in the researcher’s subject areas (Ale Ebrahim, 2013).

**Research data management:** Research data management is defined as the development of the library’s current activities. It can be explained that to describe the research data in
the form of catalogue records or metadata is a key part of the library’s activities as well as making available various types of collections (Fransson et al., 2016).

**Bibliometrics service:** Bibliometric service refers to see research evaluation and impact assessment for individual researchers, organization units, academic groups, and whole institutions and offering opportunities for the strategic alignment of library services with institutional goals and library services promotion (Corrall, Kennan and Afzal, 2013).

### 1.14. Organization of the Study

This study designed into five chapters and at the end, references and appendices are also included:

**CHAPTER 1: INTRODUCTION**

**CHAPTER 2: LITERATURE REVIEW**

**CHAPTER 3: RESEARCH METHODOLOGY**

**CHAPTER 4: ANALYSIS AND INTERPRETATION OF QUANTITATIVE DATA**

**CHAPTER 5: SUMMARY OF FINDINGS, RECOMMENDATIONS, AND CONCLUSION**

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<tr>
<th>Chapters</th>
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<tr>
<td>Chapter 1</td>
<td><strong>Introduction:</strong> this chapter is based on the introduction of RSS that shows the librarians’ role regarding RSS, demanded RSS, significant of the study, the current situation of RSS in Pakistan, reports regarding RSS, the theoretical background of the study regarding assistance/guidance provided by librarians to researchers, the rationale of the study,</td>
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<tr>
<td>Chapter 2</td>
<td>Literature Reviews and Areas of RSS. This chapter identifies various areas of literature review libraries perceptive (RSS provided and demanded in the university libraries), assistance/guidance provided by librarians to the researchers (searching the literature, writing/publishing research work, uses of statistical software in research, bibliographic/citation management and research data management), research competency required to librarian and significant of research skills and services, practical application of RSS and infrastructure, continuing professionals development activities/programs, financial support and provisions for librarians and constraints faced by libraries and librarians and summary of chapter 2, etc.</td>
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<td>Chapter 3</td>
<td>Research Methodology: This chapter describes the basic research plan of the existing study. It describes overview, literature review, research design, research methodology, paradigms of research, quantitative research approach, unit of analysis, survey research study, research objectives, research questions, development of survey questionnaire, approaches for instrument development, pre-testing of the instrument (national research experts and foreign research experts), contents and format of the instrument, measurement scale, population</td>
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of the study, the scope of the study, delimitation of the study, limitations of the study, purposive sampling techniques for an existing quantitative study, pilot testing, reliability of the instrument, data collection procedure, questionnaires responses, data analysis procedures, quantitative data analysis (level of significance, T-tests, and ANOVA), research ethics, writing format and summary of chapter 3).

### Chapter 4

**Quantitative Data Collection and Analysis:** This chapter illustrates quantitative data analysis and interpretation of the data included: demographic information of respondents, existing RSS in the university libraries, demanded RSS by the researchers and assistance/guidance provided by librarians to the researchers, RSS section and designated staff, establishing/provisions of the RSS and constraints that affected on implementing RSS in the university libraries of Pakistan. It also describes descriptive statistics and inferential statistics (T-test and a one-way ANOVA).

### Chapter 5

**Findings, Conclusion, and Recommendations:** This chapter includes findings, and conclusions of the study. The results of the existing study relate to previous studies. It also proposes recommendations and topics for future research.

### References & Appendices

It also contains the instrument used for data collection and references and appendices.
CHAPTER 5
FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

5.1. Introduction
The major objective of the current study was to explore the perception of chief librarians towards the application of RSS in the university libraries of Pakistan. For this five objectives; (a) to identify existing RSS in the university libraries, (b) to explore the RSS demanded by the researchers from the university libraries, (c) to observe the assistance/guidance provided by the library professionals to researchers, (d) to observe the interest of librarians in establishing/provision of RSS in the university libraries, and (e) to examine the constraints affected on the implementation of RSS and suggestions for the application of RSS in the university libraries of Pakistan were set forth.

5.2. Existing Services in the University Libraries
The first objective of the study was to explore the existing level of RSS offered in the university libraries of Pakistan and 29 statements were used to achieve the results of this objective. Descriptive statistics were used to reveal the existing RSS offered in the university libraries.

Findings of the current study show that most of the university libraries have rich collections on research (N: 158; 98.7%) as well as on subject/specific subjects (N: 153; 95.6%). These libraries provide a sufficient number of books to the researchers in all disciplines. Similar results were found in the studies of Hahn, 2008; Forsman, Ndinoshiho and Poteri, 2012; Brown and Tucker, 2013; Cheek and Bradigan, 2010. In
another study, Courtney and Dallis (2015) claimed that most of the researchers rely on print materials in the university libraries. On the contrary, Cheek and Bradigan (2010) showed that university libraries are not providing relevant books to users. Results of the current study show that university libraries are fulfilling needs of the researchers. This may be due to the provision of enough budget to the libraries by the Higher Education Commission of Pakistan and the development of research culture in the universities of Pakistan.

Likewise, findings of the current study indicate that majority of the university libraries offer reference services to researchers (N: 149; 93.1%). In Pakistan, almost all university libraries have a reference section to facilitate researchers. Various studies of Mbofung (2014); Guy (2013) as well as Madhusudhan and Nagabhushanam (2012) also substantiated results of the current study.

Similarly, the results of the current study show that majority of the university libraries are providing access to HEC digital library resources (N: 145; 90.6%). Previous studies showed the same results such as Hahn (2008) stated that the majority of the Association Research Libraries in England were providing access to digital resources. Likewise, (Zhao, 2009) concluded that Shanghai Jiao University Library, China was also offering database access and online information resources to the researchers through the digital library. In the current decade, a similar practice has been observed in the universities of Pakistan under the umbrella of HEC.

Equally, the result indicate that most of the university libraries are providing access to different journals to the researchers in various disciplines (N: 143; 89.4%). Recently, Canuel and Crichton (2015) in their study claimed that majority of the
Association Libraries of Universities and Colleges in Canada are providing journals’ access to the users in various disciplines.

Further, similar results were found regarding current awareness services. Results show that majority of the university libraries are also providing current awareness service (N: 140; 87.5%) to researchers. Mbofung (2014); Soehner, Steeves and Ward (2010); Mattern et al. (2015) as well as Kleinveldt (2009) endorsed the results of the current study.

Next, result of the current study shows that most of the university libraries in Pakistan are providing digital reference services (N: 136; 85.0%) to researchers. Similar results were found in the studies of Garner (2006); Wang (2013); Madhusudhan and Nagabhushanam (2012) as well as Mirza and Mahmood (2009) who reported that university libraries are providing digital reference services to the researchers. However, the results of the current study are different from the previous study of Younus (2014) who conducted a Ph. D study and reported that the level of digital reference services is at an early stage in the university libraries of Pakistan. It is interesting to note that positive change has been observed in the current study towards digital reference services in university libraries. This may be due to the more focus on information technology in educational institutions.

Next, findings of the current study also indicate that most of the university libraries are offering new arrival alert services (N: 132, 82.5%). Similar results reflect in the previous studies of Mbofung (2014); Madhusudhan and Nagabhushanam (2012); Canuel and Crichton (2015) as well as Kleinveldt (2009) who observed that most of the
university libraries are offering new arrival (e-books, e-journals and e-newspapers, etc.)
alert services to the users through mobile apps, Facebook, e-mail, etc.

Similarly, most of the respondents stated that university libraries are providing
selective dissemination of information services to the researches with this result (N: 131;
81.5%). Madhusudhan and Nagabhushanam (2012) in their study stated that university
libraries are providing web-based services (tutorials, links with databases, SDI services,
electronic document delivery services, electronic research guides and virtual reference
desk/ask-a-librarian services) to users.

Findings of the current study show that mostly of the university libraries offer
institutional research repository services to researchers (N: 121, 75.6%). The findings
indicate that most of the university libraries have developed institutional repository
services. Thompson, Amuda and Akeriwe (2015); Simons and Richardson (2012); Reed
(2015); Brown and Tucker (2013) as well as Kleinveldt (2009) endorsed the results of the
current study and they considered that institutional repository service is very popular
among the researchers that enable libraries to store intellectual work of the institutions
and provide access to the researchers. This may enable to enhance the research outputs of
the universities.

Similarly, most of the respondents were informed that university libraries are
providing the facility of reservation of study room for group discussion to the researchers
(N: 111; 69.4%). Similarly, Sheikh (2015) endorsed in a survey that university libraries
of Pakistan are not providing rooms for group discussion.

Likewise, the results of the current study show that sufficient numbers of the
university libraries are offering clipping services to researchers (N: 109; 68.1%). Similar
results were found in the study of Bhatti and Hanif (2013) conducted at BZU, Multan,
Pakistan. Due to the advancement of information technology, most of the researchers seek information through e-newspapers, databases, subject databases, and search engines, etc.

Furthermore, findings of the current study also show that university libraries are conducting liaison librarian programs (N: 106; 66.2%). It shows that sufficient numbers of university libraries implement liaison librarians program to provide provision of research oriented skills to librarians. While Cheek and Bradigan (2010) in their study observed that Health Science University Libraries at the Ohio State University Libraries of USA and Canada are conducting a liaison librarian program for biomedical researchers.

Next, the findings of the current study show that sufficient numbers of the university libraries in Pakistan only conduct RSS training programs positively (N: 100; 62.5%). It also indicates that mostly university libraries are required to provide RSS training programs in university libraries. Studies of Malone and Burke (2016) as well as Young and Jacobs (2013) informed the same deficiency that their university libraries are not providing research support training programs and they suggested that training programs, workshops and orientations regarding RSS should be offered in the university libraries.

In the next statement, it has been observed that sufficient numbers of the university libraries do not provide research advisory desk service to the researchers positively (N: 100, 62.5%). Usually, in the university libraries of Pakistan, reference librarians guide the researchers to access relevant material. Results demand that reference librarians should do their duty through research advisory desk to guide library
users. While Madhusudhan and Nagabhushanam (2012) claimed in their study that most of the university libraries had a research advisory desk for the guidance of researchers.

Findings of the current study show a deficiency in the subscription E-Journals by the university libraries (N: 99; 61.9%). A sufficient numbers of university libraries are not providing the provision of accessing e journals to meet their requirements. However, Mirza and Mahmood (2009) as well as Ahmed and Uzair (2017) confirmed this finding and claimed that HEC digital library is not providing full access to e-journals in different disciplines and they suggested that university libraries should subscribe e-journal recommended by the researchers. On the contrary, Zhao (2014) reported that most of the university libraries subscribed e-journals and provided online databases for the researchers. Similarly, Calvert (2015) stated that the use of e-journals has been increased in university libraries. Databases, e-journals and interlibrary loan services are the major services that university libraries are offering to their researchers.

Next, the findings of the current study show that majority of the university libraries are not providing a manual for research guidance to the researchers (N: 92, 57.3%). Manual for research guidance is an important service that every library provides to new registered researchers. Various studies of Wang (2013); Masson (2009); Wai Fan (2005) as well as Maceviciute (2014) presented the same deficiency and recommended to prepare a manual guide for researchers.

Next, the results regarding document delivery services (N: 90; 56.3%) indicate that majority of university libraries are not providing document delivery service to researchers positively. However, Masson (2009); Borchert and Young (2010); Steiner, Thomas and Thompson (2012); Milimo Wasike (2013); Calvert (2015) as well as Davis
(2016) reported that most of the university libraries are providing document delivery services to researchers.

Furthermore, the result of the current study also shows that the mostly university libraries are not offering interlibrary loan and resource sharing services (N: 87; 54.4%) properly. Similarly, the same deficiency was indicated by Brown and Tucker (2013); Kleinveldt (2009) as well as Calvert (2015) in their studies and observed that university libraries don’t provide interlibrary loan and resource sharing services to the researchers.

Further, findings of the current study show that majority of the university libraries are not offering library to e-repositories’ portal links in specific subjects to the researchers (N: 81; 50.6%). While studies of Richardson et al. (2012); Madhusudhan and Nagabhushanam (2012) as well as Maceviciute (2014) show that university libraries are providing library portals links to e-repositories in specific subjects.

Next, the results of the current study also indicate that most of the university libraries in Pakistan have not subscribed (Turnitin/Safe Assign/Eve and Insit etc.) tools to check plagiarism of researchers’ works with this result (N: 80; 50.%). Similar results were found in the studies of Mansoor and Ameen (2016; as well as Snyder Gibson and Chester-Fangman (2011) reported that some university libraries subscribed software to check the plagiarism of research work for the registered students and faculty members of the university.

Next, the current study shows that a sufficient numbers of university libraries in Pakistan are not providing online scholarly communication services (N: 75; 46.9%) to researchers. Similar results were found in the studies of Jaguszewski and Williams (2013 as well as Kleinveldt (2009) who reported that university libraries are not providing online scholarly communication facilities to the researchers. Further, they recommended
offering online scholarly communication facilities for researchers so that they can easily
communicate and discuss and share their experiences with class fellows, research
stated that the Curtin University of Technology library offered online scholarly
communication facilities to the researchers.

Afterward, the findings of the current study indicate that majority of the
university libraries do not provide subscriptions to the reference tools (N: 72; 45.0%) to
researchers. While, Cheek and Bradigan (2010); Stephen McMinn (2011); Keller (2015)
as well as Butler and Byrd (2016) in their studies reported that most university libraries
provide reference tools (Endnote/Zotero/ BibTex/Mendeley/Refworks) and also provide
guidance/assistance to the researchers regarding creating bibliographies, citation styles
such as APA, MLA, and Chicago, developing endnotes, footnotes and bibliographies, etc.

Furthermore, the results (N: 69; 43.1%) , of the current study indicate that
majority of the university libraries don’t subscribe (SPSS/ SYSTAT & SSS, etc.) tools
for quantitative data analysis for the researchers. Steiner, Thomas and Thompson (2012)
as well as Butler and Byrd (2016) showed the same deficiency that most of the university
libraries are not providing the facility of (SPSS/ SYSTAT & SSS, etc.) for quantitative
data analysis to the researchers.

Additionally, the results of the current study show that majority of the university
libraries don’t provide special, archival collection and manuscripts to researchers (N: 68,
42.5%). It shows that there is a major deficiency of archival collection in majority of the
university libraries. Similar results were observed in the studies of MacColl and Jubb
(2011) as well as Maceviciute (2014) who suggested that university libraries should
collect, preserve the archival collection and make accessible for the researchers. On the
con contrary, Fourie (2004) stated that librarians in university libraries guide the researchers about archive documents. While, Masson (2009) recommended that librarians in university libraries should guide researchers about publishing negotiate, searching the literature, access subject databases, and archive documents.

Likewise, the results of the current study indicate that majority of the university libraries don’t subscribe to the tools for qualitative data analysis (NVivo/Leximancer, etc.) to the researchers (N: 63, 39.4%). However, While Butler and Byrd (2016), as well as Meadows et al. (2013), reported that most of the university libraries are offering services of NVivo/Leximancer, etc. to the researchers.

Likewise, the findings of the current study also indicate that majority of the responding libraries do not provide with the provision of online research support tutorial services (N: 60; 37.5%) to researchers. Similarly, Tran and Lyon (2017) found a deficiency in the provision of online RSS. On the contrary, Keller (2015) claimed that Australian University Libraries are offering online research support tutorials like FAQs, and online tools (Endnote), training and instruction, etc. to the researchers.

Next, the results of the existing study also indicate another major deficiency that majority of the university libraries do not provide abstracting and indexing services to researchers (N: 59; 36.9%). Whereas abstracting and indexing service is very important for researchers to access literature. Similar results were found in the study of Bhatti (2013) conducted at Bahauddin Zakariya University Multan, Pakistan.

Next, the results of the current study also indicate that university libraries don’t provide the facility of subscription to tools for online surveys (SurveyMonkey, and Google form, etc.) to the researchers (N: 44; 27.5%). While Borchert and Callan (2011);
Meadows et al. (2013) as well as Borchert and Young (2010) informed that the majority of the libraries are offering online survey tools.

Descriptive statistics indicated the overall picture of the existing RSS offered in university libraries. Majority of the university libraries have sufficient literature on research field and books on specific subject for researchers. Majority of the university libraries offer services such as access to HEC digital library, reference services, and Journals on a specific subject but majority of the university libraries are not provided services to the researchers according to their requirements. After the exploration of the frequency percentage data, results indicate that university libraries of Pakistan are not fully provided any one of the services except two services e.g. books on research (print form) and books on specific subject (print form) to researchers and highly need to offer research oriented services to researchers in the university libraries of Pakistan. On the contrary, the result indicated significant deficiency that majority of the university libraries are not providing important services e.g. provide online scholarly communication facility, subscription to reference tools (Endnote/Zotero/BibTex/Mendeley/RefWorks etc., subscription to tools (SPSS/ SYSTAT and SSS etc.), special, archival collection and manuscripts, subscription to tools (NVivo/Leximancer, etc.), online research support tutorial, abstracting and indexing services, and lastly subscription to tools (Survey Monkey, Google form, etc.) for online survey to their researchers and highly need to provide research oriented services positively.

5.3. Demanded Services from University Libraries

The second objective of the study was to explore the level of demand for RSS in the university libraries of Pakistan. For this again, 29 statements were used to achieve
the results of the objective. First, descriptive statistics were used to identify the perception of librarians towards the level of demand for RSS in the university libraries. Then, an independent sample T-test between “male and female & public and private sector university librarians” was employed to find the difference regarding demanded RSS. Further, a one-way ANOVA test based on their “qualification, experience and category of university and provinces of the country” was applied to seek the differences among librarians’ perceptions towards the demanded RSS in the university libraries. Additionally, the results of the current study were compared with the previous studies as well as personal observation and views of the researcher were also incorporated.

Respondents were asked to share their views about the extent of the demand for RSS in their libraries. Findings indicate that majority of the respondents are strongly agree on the following services e.g. “e-journals subscription (M=4.63)”, “access to HEC digital library resources (M=4.61)”, and “institutional repository with mean values (M=4.53)” should be provided in the libraries. The reason may be that most of the researchers want to access quality literature through different databases, digital library and institutional repository.

Likewise, majority of the respondents are agreed that university libraries should provide the services e.g. “Journals on specific subject (M=3.99)”, “New arrival alert services (Books and Journals) (M=3.96)”, “Online research support tutorial (M=3.96)”, “Inter library loan & resource sharing (M=3.91)”, “Abstracting and indexing services (M=3.86)”, “Subscription to reference tools (Endnote/ Zotero/ BibTex/ Mendeley/RefWorks etc. (M=3.80)”, “Current awareness service (M=3.79)”, “Digital reference services (M=3.78)”, “Clipping services (M=3.78)”, “Research support training programs in the library (M=3.76)”, Reference services (M=3.74)”, “Subscription to tools
(Turnitin/Safe Assign/ Eve and Insit etc.) for plagiarism (M=3.73)” “Library portals linked e-repositories in specific subject (M=3.70)”, “Books on research (print form) (M=3.66)”, “Subscription to tools (NVivo/Leximancer, etc.) (M=3.66) ”, “Books on specific subject (print form) (M=3.63)”, “Manual for research guidance (M=3.61)”, “Reservation of study room for group discussion (M=3.59)”, “Subscription to tools (SurveyMonkey, Google form, etc.) for online survey (M=3.59)”, “Liaison librarian program (M=3.58)”, “Provide online scholarly communication facility (M=3.56)”, “Research advisory desk for researchers (M=3.55)”, and “Subscription to tools (SPSS/ SYSTAT and SSS etc.) (M=3.52)” to the researchers.

While, the mean values against the following statements revealed that majority of the respondents showed no opinion regarding the level of demand of RSS in the university libraries: “Selective dissemination of information services (M=3.39)”, “Special, archival collection and manuscripts (M=3.36)”, and “Document delivery services (M=3.02)”. Descriptive statistics were used to identify the level of demand of RSS in the university libraries of Pakistan. The findings of the study indicate that majority of the respondents were agreed that libraries should provide demanded RSS to researchers. Similarly, an independent sample T-test was used to identify the difference between “gender” and “public and private sector university libraries” librarians’ perceptions regarding demanded of RSS in the university libraries. Findings indicate that there was no significant difference between the mean scores between ‘gender’ and “public and private sector university libraries” regarding demanded RSS in university libraries of Pakistan. Likewise, a one-way ANOVA test was also applied to identify the differences
among the librarians’ perceptions based on their qualifications, experience, category of universities, and provinces of the country towards demanded of RSS in the university libraries. Findings indicate that there was no significant difference in the mean scores among ‘qualification, experience, and category of universities and provinces towards demanded of RSS in the university libraries of Pakistan.

The findings of the study show that respondents are interested in the provision of RSS to researchers. Previous literature also shows that there is a worldwide need for RSS in university libraries. For instance, Kleinveldt (2009) reported that university libraries should provide (current awareness and alert services; research repository services; document delivery and interlibrary loan services) to meet the needs of the researchers. Likewise, Durmmond and Wartho (2009) stated in another study that bibliometrics services should be offered in the libraries. Similarly, Richardson et.al. (2012) recommended that the University Library of South Australia should offer bibliometrics services for faculty members. Furthermore, Borchert and Young (2010) suggested that the Library of Queensland University of Technology should provide the following services e.g. Queensland University of Technology e-print, bibliographic citation reports, online survey tools, data analysis services, and institutional repository services to the researchers.

Likewise, Stephen McMinn (2011) informed that George Washington University (2008, 2011), University of Minnesta (2010), and the University of Winconsin (2010) is offering an instructional guide to the researchers and faculty members regarding bibliographic management service. Additionally, they found that libraries are also providing license of Endnote to manage references as well as support to the researchers in both RefWorks and Endnote application. They further stated that libraries are also
providing training and instructional materials to the users for the application of bibliographic management tools.

Similarly, Borchert and Callan (2011) asserted that university libraries should offer RSS included: support for publishing strategies, open access, bibliographic citation and ranking services, online survey tools, statistical software applications, research data management, use of online collaboration tools, quantitative and qualitative data analysis, storage solutions and content management to the researchers. Thurman (2011) suggested that libraries should provide specific meta-services e.g. e-mail newsletters, RSS feeds, email alerts, widgets/apps with specialized functions, and social media alerts to the registered users. Similarly, MacColl and Jubb (2011) claimed that the role of libraries will be changed due to revolution of information technology in future and libraries will have to offer emerging services e.g. data curating, collecting, advising and preserving research data outputs, develop researchers’ data, awareness about data archiving and preserving.

Likewise, Forsman, Ndinoshiho and Poteri (2012) as well as Leiss and Gregory (2017) reported that university libraries of Namibia, Helsinki and Tampere are offering bibliometric services to the researchers. Steiner et.al. (2012) observed that Queensland University of Technology library is providing training facility to the students regarding analyzing tools like KeySurvey and SPSS and about open access strategies, managing research data, navigating the patent literature, publishing strategies, tracking research impact and EndNote essentials. Simons and Richardson (2012) suggested that Australian academic institutions should establish institutional repositories like the Council of Australian University Libraries (CAUL). Further, they observed that Queensland University libraries have RSS (data curation, bibliographic management support, online
collaborative tools, web services, assisting with grants, research publication assistance, bibliometrics and research data management) plan for the researchers in future.

Similarly, Taha (2012) found that most of the academic libraries are planning to offer e.g. virtual reference services, online information search and retrieval, processing of research queries and data delivery to the researchers in a virtual research environment. Additionally, Jaguszewski and Williams (2013); Young and Jacobs (2013) as well as Thompson, Amuda and Akeriwe (2015) informed that researchers demand the training programs/workshops for learning bibliographic and reference management, guidance in publication, research tools, subject databases instruction, intellectual property, and access with scholarly publication and copyright services in the university libraries.

Guy (2013) recommended implementing a patron driven acquisition program in the libraries to meet the maximum researchers’ requirements. Meadows et al. (2013) reported that research skills training programs, guidance about bibliographic citation reports and online survey tools should be provided in the libraries. Alam (2014) reported in a study that the library should offer the services included: institutional repositories, publishing articles in open access journals, metadata services and developing web portals. Likewise, Maceviciute (2014), as well as Milimo Wasike (2013), stated that Google, subject portals, vendors of databases, open access archives, Amazon and social media are the main services offered on the desktops for delivery of information and required literature.

Calvert (2015) explored in his study that access to databases, e-journals and inter-library loans are the major services that should be offered in the university libraries. Similarly, Keller (2015) in another study, again emphasized the need of online research support tutorials service, FAQs, and online tools (Endnote), training and instruction,
institutional repository, subscribe reference management software and research data management support, bibliometrics, enhancement of research impact and open access services in the Australian University Libraries. Mattern et al. (2015) also recommended that the availability of resources on the web page, links to library portal and data management services are necessary. McAlpine and McIntosh (2015) asserted that Australian and Wollongong university libraries should assist researchers in data management plans, copyright issues and research publications procedure. For example, Ahmat et al. (2016) designed SPIRESS model for the guidance of researchers consisted of five service segments e.g. Open Access Publication, Mendeley, Google Drive, Google Scholar, and Easy to Write with Microsoft (MS) Word for thesis writing. Furthermore, Ocholla, Mutsvunguma and Hadebe (2016) as well as Lampert (2014) also emphasized that University of Zululand library should provide training workshops regarding citation resources, reference management (Endnote or Mendeley), informatics, Turnitin, publishing, advance searching techniques how to avoid plagiarism and access to e-resources. Likewise, Davis (2016) strongly recommended in his study that research university libraries should offer various technical services to researchers e.g. data management, e-resources management, Metadata service, remote storage, bibliographic services, information resources, and knowledge access and resources management services.

5.4. Types of Assistance/Guidance Provided by the University Librarians

Third, the objective of the study was to explore the assistance/guidance provided by university librarians in the university libraries of Pakistan. Five major areas included;
searching the literature, writing/publishing research work uses of different statistical software in research, bibliographic/citation management and research data management were used to achieve the results of this objective. First, descriptive statistics was used to reveal the perception of librarians towards assistance/guidance provided by the university librarians to the researchers in the university libraries. Then, an independent sample T-test between “male and female & public and private sector university librarians” was employed to find the difference regarding assistance/guidance provided by the university librarians. Further, a one-way ANOVA test based on their “qualification, experience, and category of university & provinces of the country” was also applied to seek the differences among librarians’ perceptions towards assistance/guidance provided by the university librarians in the university libraries. Additionally, the results of the current study were compared with the previous studies as well as personal observation and views of the researcher were also incorporated.

The study identified five major areas in which librarians should offer assistance/guidance to the researchers included; literature searching, writing/publishing research work, uses of different statistical software in research, bibliographic/citation management and research data management.

Respondents were asked whether university librarians should assist researchers in searching the literature. For this, eight statements were given to the respondents to rate their views regarding literature searching as shown in table 4.1.16. Findings indicate that majority of the respondents were strongly agreed that librarians should assist the researchers against the following statements: “Databases (M=4.68)”, and “Institutional repository (M=4.57)”. Similarly, it was found that majority of the respondents agreed that librarians should assist the researchers with the following statements: “Search
engines (M=4.40)”, “Metasearch engines (M=4.23)”, “Discovery tools (M=4.33)”, “University library websites (M=4.41)”, “E-mail alerts (M=4.34)”, and “References given in the books, articles and theses (M=4.24)”. It is interesting to note that all the respondents emphasized that librarians should assist researchers in literature searching.

Respondents of the existing study considered that databases, search engines, email alerts, discovery tools and institutional repository are the preferred sources for accessing required research literature. For instance, Bhatti (2013) stated in a study that information technology has changed the mode of information needs and seeking behavior of the researchers. They frequently use databases for searching literature e.g. Emerald, Science Direct and ERIC etc. and search engines (Yahoo and Google, etc.). Various studies also endorsed the same results. Garner (2006) observed that librarians assist researchers in searching literature from scholarly resources, databases and impact factor journals, bibliographic management software, citation style and procedure of submitting research publishing and arrange workshops regarding awareness of research resources and services. In another study, Leeder and Shah (2016) stated that librarians assist the students in searching for literature from databases and online resources. Further, Young and Jacobs (2013) suggested that librarians should guide the researchers in searching for material from databases and discovery tools, writing dissertations, citing and referencing literature, and publishing articles. Various studies of Xia and Li (2015); Gerolimos and Konsta, (2008); Brown and Swan (2007); Farmer and Stricevic (2011) as well as Horn (1971) also emphasized that librarians should assist/guide researchers regarding information retrieval tactics in the libraries.

Next, the respondents were asked whether university librarians should assist researchers in writing/publishing their research work. For this, sixteen statements were
given to the respondents to rate their views regarding writing/publishing their research work. It was found that majority of the respondents were agreed that librarians should assist researchers against the following statements: “Academic integrity (Plagiarism)” (M=4.42), “Copyright licensing matters (M=4.39)”, “literature review techniques (M=4.31)”, “Awareness and training on open access software(M=4.31)”, “Similarity check software, Turnitin, authenticate, etc. (M=4.29)”, “Awareness of bibliometrics (M=4.25)”, “Publishing articles in research journals (M=4.11)”, “Research proposal format (M=4.04)”, “Quality publishing venues e.g. IF journals (M=4.02)”, “Online manuscript submission (M=4.00)”, “Writing a research proposal (M=3.92)”, “Management of researcher’s profiles e.g. ORCID (M=3.89)”, “Research funding opportunities and assistance (M=3.89)”, “Locating research grants (M=3.79)”, “Instrument design (M=3.75)” respectively as shown in table 4.1.23. However, respondents were not sure about the provision of research language editing (M=3.42)” to the researchers. The results show that librarians should help researchers in research publishing against the fifteen statements out of sixteen. Brown and Swan (2007); MacColl and Jubb (2011) as well as Cheek and Bradigan (2010) stated that most of the librarians guide the researchers in checking plagiarism, quantitative and qualitative data analysis, intellectual property rights, submitting articles in the impact factor journals. Richardson et al. (2012) reported that librarians guide the researchers about bibliometrics (research impact), and bibliographic management. Wang (2013); Young and Jacobs (2013); Peyvand Robati and Tahavori (2014); Keller (2015) as well as Gibson and Chester-Fangman (2011) also emphasized that librarians should assist/guide researchers in writing/publishing their research work the libraries.
Next, respondents were asked whether university librarians should assist the researchers in the use of different software in research. For this, four statements were given to the respondents to rate their views regarding software usage. It was found that majority of the respondents were agreed that librarians should assist the researchers against the following statements: ‘Plagiarism detection service through (Turnitin, Eve & Insit, etc.) (M=4.44)’, “Using online survey tools (SurveyMonkey, Google form, etc.) (M=4.37)”, “Use of quantitative data analysis software e.g. (SPSS, SYSTAT, etc.) (M=4.29)” and “Use of qualitative data analysis software e.g. (NVivo, Leximancer, etc.) (M=4.25)” respectively as shown in table 4.1,30. It is interesting to note that respondents were agreed with all the statements that librarians should assist researchers in the use of different software in their research work. Corrall, Kennan and Afzal. (2013) explored that librarians guide researchers in the use of SPSS/NVivo and they conduct training programs for the awareness/usage of software in the libraries. However, Zhao (2014) observed that most of the researchers are not aware of the reference management, research tools and statistical software applications, therefore, librarians should guide the researchers. Peyvand Robati and Tahavori (2014) as well as Wiklund and Voog (2013) suggested that librarians should have knowledge about research methods techniques, research design and statistical software and should guide them about statistical software. Various more studies of Garner (2006); Young and Jacobs (2013); Butler and Byrd (2016); Simons and Richardson, (2012); Borchert and young (2010) as well as Sassen and Wahl (2014) also emphasized that librarians should assist/guide researchers in software used for their research work.

Next, respondents were asked whether university librarians should assist the researchers in bibliographic/citation management. For this, two statements were given to
the respondents to rate their views regarding bibliographic/citation management. It was found that majority of the respondents were agreed that librarians should assist researchers against the following statements: “Citing and referencing literature through i.e. APA, Chicago or MLA) (M=4.46)”, and “Referencing tools e.g. Endnote, Zotero, BibTex, Mendeley, RefWorks (M=4.44)” respectively as shown in table 4.1.37. Xia and Li (2015) stated librarians guide researchers in citing and references in the articles/theses. Likewise, Stephen McMinn (2011) as well as Young and Jacobs (2013) recommended that librarians should guide the researchers about reference tools, articles/theses formatting. Butler and Byrd (2016) as well as Gibson and Chester-Fangman (2011) demand that librarians should guide the use of EndNote. Various studies of Garner (2006); Young and Jacobs (2013), Zhao (2014); Keller (2015) as well as Davis (2016) also emphasized that librarians should assist/guide researchers in bibliographic/citation management for their research work.

The next area, respondents were asked whether university librarians should assist the researchers in research data management. For this, three statements were given to the respondents to rate their views regarding research data management. It was found that majority of the respondents were agreed that librarians should assist the researchers against the following statements: “Submit thesis in the institutional repository (M=4.26)”, “Submit articles in the institutional repository (M=4.22)” and “Create, analyze, organize, format and share research data (M=4.09)” respectively as shown in table 4.1.44. Likewise, Forsman, Ndinoshiho and Poteri (2012) as well as Wang (2013) observed that librarians guide students about data management in the libraries as well as in the departments of the universities. Keller (2015) found that university libraries of the UK, Germany, Switzerland and Australia are offering guidance to the researchers about
reference and data management software. Various studies of Zhao (2014); Reznik-Zellen and et al. (2012); McAlpine and Mcintosh (2015); Corrall, Kennan and Afzal (2013); Simons and Richardson (2012) as well as Richardson et al. (2012) also gave emphasis that librarians should assist/guide researchers about data management for their research work.

Further, an independent sample T-test was used to identify the difference between “male and female” and “public and private sector universities” librarians’ perception towards the help of researchers in literature searching; writing/publishing research work; use of different statistical software in research; bibliographic/citation management; and research data management. Findings indicate that there was no significant difference in the mean scores between “gender” and “public and private sector university libraries” librarians’ perception towards the help of researchers in the university libraries of Pakistan. Likewise, a one-way ANOVA test was applied to identify the differences among the librarians’ perception based on their “qualification, experience, category of universities and provinces of the country” towards the help of researchers in literature searching, writing/publishing research work, use of different statistical software in research, bibliographic/citation management and research data management. Findings indicate that there was no significant difference in the mean scores among “qualification, experience, and category of universities and provinces” librarians’ perception towards the help of researchers in the university libraries of Pakistan.

Findings of the current study indicated that almost all the university librarians are agreed in the provision of assistance/guidance to the researchers in searching the literature, writing/publishing research work uses of different statistical software in research, bibliographic/citation management and research data management.
5.5. Current Status of Research Support Service Section

To explore the current status of the RSS section, respondents were asked, (a) whether university libraries have RSS sections, and (b) have university libraries designated any staff for RSS to facilitate the researchers. Data indicated that only 20% of university libraries have RSS section, which shows that a comprehensive and well organized RSS section is needed in most of the university libraries of Pakistan as shown in Table 4.1.51. Similarly, only 12% of university libraries have research support staff which shows that most of the university libraries in Pakistan have a deficiency regarding research support staff shown in table no. 4.1.52. Studies of Garner (2006); Leenaraj and Tuamsuk (2016) as well as Wai Fan (2005) endorsed the results of the current study and emphasized on establishing RSS section and recruiting research support staff in the university libraries.

5.6. Practical Applications/Establishing of RSS

The fourth objective of the study was to explore the establishment/provision of the RSS in the university libraries of Pakistan. First, descriptive statistics were used to reveal the librarians’ perception of the establishment/provision of the RSS in the university libraries. Then, an independent sample T-test was employed to find the difference between “male and female” & “public and private sector” university librarians regarding the establishment/provision of the RSS. Further, a one-way ANOVA test based on their “qualification, experience, and category of university & provinces of the country” was also applied to seek the differences among librarians’ perception towards the establishment/provision of the RSS in the university libraries. Additionally, the
results of the current study were compared with the previous studies as well as personal observation and views of the researcher were also incorporated.

Respondents were asked to share their views regarding the establishment/provision of the RSS for practical application of RSS in the university libraries. The results in Table 4.1.53 show that majority of the respondents were strongly agreed with the following statements: “Establish research support section in the library (M= 4.64)”, “Organize RSS orientations for newly registered researchers (M= 4.52)”, “Provide study room for scholarly discussion (M= 4.52)”, and “Arrange workshops, training sessions and programs related RSS (M= 4.51)”. Similarly, majority of the respondents were agreed with the following statements: “Design web-based RSS (M= 4.36)”, “Initiate online tutorials of RSS program (M= 4.33)”, “Provide subject guide on RSS related topics (M= 4.26)”, “Incorporate RSS into the curriculum to ensure equity and sustainability (M= 4.14)”, and “Publish RSS activities annually to inform researchers (M= 4.09)”. It is observed that all the respondents are highly interested in the provision of RSS in the university libraries of Pakistan.

Various studies substantiated that university libraries have established an RSS section for the researchers. For instance, Thompson, Amuda and Akeriwe (2015); Popp (2012) as well as Wang (2013) stated that Ghana University libraries have an e-support unit where the provision of accessing various databases (e-journals, AGORA, Emerald, JSTOR, EBSCOHOST, and Science Direct) for the researchers. Equally, Richardson et.al. (2012) stated that the university library offers online Tutorials and Library Guides about research procedures, research tools, statistical software applications, reference formatting, plagiarism and research publication. Further, Turner (2002) emphasized that librarians working in the RSS section should attend seminars, conferences, and
workshops regularly to update their research skills. In another study, Thurman (2011) suggested that university libraries should conduct an RSS program through an online tutorial program. Additionally, Snyder Gibson and Chester-Fangman (2011) stated that instruction in the classroom, handouts distribution, an online tool through the web page, web-based tutorial, manual guide, blogs, and podcasts are useful to guide the researchers in their research work. Likewise, Stephen McMinn (2011) stated that the University of Wisconsin, George Washington University and the University of Minnesta are offering instructional guides in PDF format to the researchers and faculty members regarding bibliographic management e.g. RefWorks and EndNote since 2008, 2010, 2011 respectively. Richardson et.al. 2012) reported that Queensland University libraries offer online research skills guide and tutorials to the Ph. D students to improve their research competencies, research quality and productivity of the researchers. Many of the previous studies of Garner (2006); Best and Kneip (2010); Borchert and Callan (2011); Trindade and Agostinho (2014) as well as Sassen and Wahl (2014) also endorsed that university libraries should provide (RSS section, Tutorials and Library Guides, web-based tutorial, manual guide, RSS program (seminars, conferences & workshops, etc.).

Similarly, an independent sample T-test was used to identify the difference between “male and female” and “public and private sector”, university librarians’ perception towards the establishment/provision of RSS in the university libraries of Pakistan. Findings indicate that there was no significant difference between the mean scores of “gender” ‘and “public and private sector” university libraries towards the establishment of RSS. Furthermore, a one-way ANOVA test was also applied to identify the differences among the librarians’ perception based on their “qualification, experience, category of universities and provinces” towards the establishment /provision of the RSS
in the university libraries. Findings indicate that there was no significant difference regarding the establishment/provision of the RSS in the mean scores of qualification, experience, category of universities, and provinces of the country in the university libraries of Pakistan. Results show that overall respondents of all the university libraries equally agree for the establishment/provision of RSS in the university libraries.

Furthermore, respondents were asked to share their views regarding infrastructure to establish the “RSS Section” in the university libraries. The results show that majority of the respondents were agreed with the following statements: “Provide electronic devices required for RSS (M= 4.42)”, “Recruit skilled RSS professionals (M= 4.40)”, “Allocate a budget for the subscription of non-accessible research material (M= 4.37)”, “Allocate research grant/budget for the researchers (M= 4.31)” and “Establish RSS committee comprising on research experts (M= 4.19)” as shown in table 4.1.60. It is interesting to note that all the respondents are highly interested to establish “RSS Section” regarding infrastructure in the university libraries of Pakistan.

Similarly, an independent sample T-test was used to identify the difference between “male and female” and “public and private sector”, university librarians’ perception towards the infrastructure for “RSS Section” in the university libraries of Pakistan. Findings indicate that there was no significant difference between the mean scores of “gender” ‘and “public and private sector” university libraries towards the infrastructure for the “RSS Section” in the university libraries. Furthermore, a one-way ANOVA test was also applied to identify the differences among the librarians’ perception based on their “qualification, experience, category of universities and provinces” towards the infrastructure for the “RSS Section” in the university libraries. Findings indicate that there was no significant difference regarding infrastructure for the “RSS Section” in the
mean scores of qualification, experience, category of universities, and provinces of university libraries in Pakistan. Results show that overall respondents of all the university libraries equally demand infrastructure for the “RSS Section” in the university libraries.

Likewise, previous studies also confirm the results of the current study regarding the development infrastructure in the university libraries. For example, Keller (2015) predicted in a study that librarians will have to play their role in the future such as research support librarians, scholarly communication officers and research support coordinators/specialists, etc. Similarly, Best and Kneip (2010) as well as Michael Nolin (2013) recommended that research skills should be a priority in the recruitment of academic librarians. Similarly, Portuguese university libraries are inducting managers and librarians having high research skills (Trindade and Agostinho, 2014). In Pakistan, the University of Management and Technology, Lahore appointed a User’s Service Librarian in the Learning Resource Centre who is assisting in the usage of Turnitin, Endnote, statistical software (Retrieved from https://library.umt.edu.pk/Research-Support.aspx dated 6-4-2018).

Similarly, Borchert and Callan (2011) as well as Riera Quintero et al. (2012) stated that libraries should constitute a Research Support Library Committee (RSLC) to assist the researchers as well as librarians in research. It can provide a working group environment that assists the librarians to seek guidance about various research activities. Furthermore, Schrader, Shiri and Williamson stated that the University of Saskatchewan has “the Dean’s Research and Innovation Funds” committee that motivates and encourages librarians to take part in research activities and also provide them financial
support in conducting research (Schrader, Shiri and Williamson, 2012). Likewise, Sassen and Wahl (2014) reported that the Association of Research Libraries (ARL) established a committee that provides financial assistance to the academic librarians to meet their research requirements and publications. Blessinger et al. (2010) constituted a writers group at Louisiana State University Libraries who critically assesses the manuscripts, articles and research projects submitted by the librarians. Similarly, Reznik-Zellen et al. (2012) established the Digital Strategies Group (DSG) to organize library resources (creation, collection, and curation of unique digital contents and research data management).

5.7. Constraints Faced by Librarians and Libraries

The fifth objective of the study was to explore the constraints faced by the libraries and librarians in the universities of Pakistan. Two major areas included constraints faced by libraries as well as librarians were explored to achieve the objective of the current study. First, descriptive statistics were used to reveal the perception of librarians towards constraints faced by the libraries and librarians in the universities. Then, an independent sample T-test was employed to find the difference between “male and female” & “public and private sector universities” towards the constraints faced by the libraries and librarians in the universities. Further, a one-way ANOVA test based on their “qualification, experience; category of university & provinces of the country” was also applied to seek the differences among librarians’ perceptions towards constraints faced by libraries and librarians in the university libraries. Additionally, the results of the current study were compared with the previous studies as well as personal observation and views of the researcher were also incorporated.
Respondents were asked to share their views regarding constraints faced by the libraries and librarians in the provision of RSS. The results in Table 4.1.67 show that majority of the respondents were agreed with the following statements faced by the libraries: “Financial constraints (M=4.05)”, “Inadequate IT infrastructure (M=4.01)”, “Lack of library resources (M=3.98)”, “Lack of research environment (M=3.93)”, “Lack of administrative support from university (M=3.87)”, “Service structure issues (M=3.72)”, “Lack of motivation from library administration (M=3.71)”, “Nature of job description (M=3.66)”. While librarians faced constraints regarding the following statements: “Lack of research tool awareness among librarians (M=4.06)”, “Lack of research experience, confidence and skills among librarians (M=3.98)”, “Lack of personal interest (M=3.54)”, and “Lack of time (M=3.52)”. Finally, the majority of the respondents rejected the statement that there is “No demand from the users” (M= 2.56) to provide RSS in the university libraries of Pakistan.

Overall the results indicate that all the groups (gender, public and private sector, qualification, experience, category of the university and province of the country) of the respondents were agreed that university libraries/librarians are facing various challenges while offering RSS. They showed a willingness to eradicate the constrains included: financial constraints, inadequate IT infrastructure, lack of library resources, lack of research environment, lack of administrative support from the university, service structure issues, lack of motivation from library administration, lack of research tool awareness among librarians, financial constraints, lack of research experience, confidence and skills among librarians, lack of personal interest and lack of time.
Previous literature endorsed similar results. Fennewald (2008) observed that librarians do not provide RSS to users due to their job description. For instance, Drummond and Wartho (2009) reported deficiency among librarians towards bibliometrics analysis. Likewise, Soehner et al. (2010) claimed that the majority of the university libraries face issues e.g. lack of library resources, expert staff, and service structure issues. In another study, Clapton (2010) stated that time constraint, lack of motivation from administration and senior professionals, fear of rejection of the research work from editors, lack of research confidence, skilled staff and financial resources are the major challenges mostly faced by the librarians and libraries in university libraries.

Similarly, Borchert and Young (2010) identified that libraries faced challenges in the provision of RSS due to lack of expert and technical staff, financial constraints and insufficient storage spaces. While, Corrall, Kennan and Afzal (2013) stated that the incompetency of librarians regarding research data management and bibliometrics services are the major hindrances in the provision of RSS. In another study, Younus (2014) identified that lack of finance, absence of digital reference policy, the paucity of resources, inadequate physical facilities, lack of local research and literature on digital reference services are the major constraints for implementation of the digital reference services in the university libraries of Pakistan. From the previous studies, it is revealed that university librarians are reluctant in the provision of RSS due to lack of time and service structure.

5.8. Conclusion

The study intended to explore university librarians’ perceptions regarding existing services offered in the university libraries, demanded services by the researchers, and
assistance/guidance offered by the librarians to the researchers. Further, establishment/provisions of RSS, infrastructure for RSS and constraints affected in implementation of the RSS were also explored.

This study concludes that the majority of the chief librarians have an MLIS degree in which males are dominant in the executive posts. Results show that most of the chief librarians’ posts are vacant and deputy/assistant are working as in charge of the libraries. This study recommends that there is a need to fill the chief librarian’s posts vacant in university libraries and further improve the professional education of the chief/deputy/assistant librarians. So that they can easily promote and implement the RSS in the university libraries. Furthermore, it is revealed that public sector university libraries are higher in numbers as compare with the private sector university libraries in Pakistan.

Findings of the current study show that most of the university libraries are providing RSS effectively to the researchers including; reference service, access to HEC digital library, and Journals on a specific subject, current awareness service, digital reference services, new arrival alert services (Books and Journals), and selective dissemination of information service positively to the researchers. Further, results indicate that university libraries have a good collection of research/general/specific books to meet the needs of researchers under the umbrella of HEC, Pakistan. While a deficiency in services of institutional research repositories, special, archival collection and manuscripts, subscription to tools (NVivo/Leximancer, etc.), online research support tutorial, abstracting and indexing services, and subscription to tools (Survey Monkey, Google form, etc.) for online survey to their researchers have been observed in most of
the libraries. Further, it has been examined that information technology has improved the level of digital reference services in university libraries. It was also found that majority of the public and private sector university libraries in Pakistan have not uploaded their services on their webpage.

This study illustrates that most of the researchers demand subscription of e-Journals, subscription of research oriented software tools, fast access to HEC digital library resources and institutional research repository to include quality literature in their research. University libraries should focus to establish research section in the central library and provide free access to research oriented software tools in the section.

Next, the results show that respondents having experience above 30 are least interested in the assistance/guidance of the researchers in searching the literature. They may have the opinion that researchers can easily retrieve literature with the increase of searching techniques. However, this study recommends that librarians should aware of researchers’ requirements regarding the usage of databases, and e-journal etc.

All the respondents were agreed that they should provide help/assist researchers in searching literature; writing/publishing research work; uses of different statistical software in research; bibliographic/citation management and research data management except language editing. Results of the study show that all the respondents were highly agreed to establish RSS Section and the recruitment of concerned staff in the university libraries for the provision of RSS (orientations for newly registered researchers, provision of the study room to researchers, arrange workshops and training programs, web-based RSS, online tutorials program and provide subject guide) to the researchers.

Results also show that financial constraints, inadequate IT infrastructure, lack of library resources, lack of research environment, administrative support, lack of research
tool awareness and lack of research experience, confidence and skills among librarians are the major hurdles on the implementation of RSS in the university libraries of Pakistan. On the other hand, researchers highly demand that libraries should implement RSS in the university libraries of Pakistan. Henceforth, “no demand from the users” is not a major hindrance in establishing RSS in the university libraries.

RSS is an emerging and popular area that is becoming an important part of the university libraries. RSS provides an opportunity to the librarians in learning, teaching and guidance of research activities and they can work as a research partner in the research projects of the researchers. It enables university libraries to meet the university mission by promoting education, research and practice. RSS also support researchers to complete their research work positively. Resultantly, the quality and productivity of the research work have been increased in the university.
5.9. Recommendations

This section contains recommendations that university libraries may be employed as implementation to promote the RSS in the university libraries of Pakistan.

1. University libraries should upload Online Research Support Lib-Guides on the library webpage where various online services, databases and research activities should be shared to facilitate the researchers.

2. University libraries should offer online tutorials regarding RSS on the university webpage.

3. Librarians should provide consultancy to the researchers in literature search/review, citation/references, SPSS/NVivo, plagiarism, impact factor journals, publishing articles in the quality journals.

4. All the university libraries should establish RSS Section and librarians having research skills should be appointed for the guidance of the researchers.

5. SOPs should be framed with the help of liaison librarians and researchers for establishing RSS in the university libraries.

6. Job description of the librarians should be redesigned in order to offer RSS in the university libraries of Pakistan.

7. Libraries should subscribe reference tools (Endnote/ Zotero/ BibTex/ Mendeley/RefWorks etc.), (SPSS/ SYSTAT and SSS, etc.) for quantitative analysis, (NVivo/Leximancer, etc.) for qualitative analysis, (Turnitin/Safe Assign/ Eve and Insit etc.) for plagiarism and (SurveyMonkey, Google form, etc.) for online survey, etc.
8. Libraries should conduct and participate in the training/workshops/seminars on RSS in Pakistan.

9. Library schools should include a RSS course in the curriculum of library and information science.

10. Higher Education Commission of Pakistan should play a proactive role in the development of the infrastructure of the RSS section in the university libraries of Pakistan.

11. University administration and chief librarians should encourage/motivate librarians to participate in the research activities and improve their education such as M. Phil and Ph. D. Further, different incentives in the form of reward, promotion and financial support should be awarded to the research skilled librarians.

12. Research thesis should be compulsory for the MLIS students in the schools of library and information science in Pakistan.

13. A manual research guide should be published regularly consisting of information regarding in house RSS to facilitate the users.

14. Chief librarians of the university libraries should be Ph. D degree holders.

15. Vacant posts of chief librarians/Deputy librarians/assistant librarians should be filled on priority bases in the university libraries of Pakistan.

16. A sufficient budget for the RSS Section should be allocated to meet the needs of information technology, subscribed impact factor journals and other research works.

17. There should be research advisory desk service in university libraries.
18. Librarians should deliver lectures/orientation on the usage of RSS to the newly enrolled students in the universities of Pakistan.

19. An institutional repository should be established in the departmental/central libraries for the ease of students.

20. University libraries should promote a patron-driven acquisition (PDA) program for collection development.

21. University libraries should provide a separate study room facility to the researchers.

22. RSS program should be popularized in the public and private sector university libraries of Pakistan.

23. Web based RSS provided by the library should be offered on the mobile apps of the researchers.

24. Librarians should have knowledge of research method and research tools to guide the researchers about research process, identification of research problem, research hypothesis, research questions, instrument design, data collection methods and analysis the collected data.

5.10. Suggestions for Future Study

The following are some suggested areas for the researchers:

1. This study may be conducted in the fields of medical, engineering, technical, and TEVETA colleges, etc.

2. RSS may be compared in public and private sector universities.
3. This study may be replicated in the university libraries of other countries in the world.

**5.11 Contribution to theory and professional practice**

The listing of research support services can inform institutions in recruiting and training librarians and LIS professionals in planning their self-development. Further, it can also help organizations involved in the training of staff develop appropriate curricula, particularly in the context of RSS based education. It reinforces our understanding of librarianship as a service profession rather than building technical expertise or providing consultancy type expert research support services.

The outcomes of this research can help government authorities, policymakers, university library administrators and Higher Education Commission to formulate effective policy to build the RSS section in the university libraries of Pakistan. Moreover, the results of the study may help library professionals to up-skill their research skills that further help library professionals to work as a research partner with the researchers.