

Gender perception in the development of online legal information system for the Indian environment

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Abstract

Purpose – The study aims to identify gender differences and similarities in the awareness of legal information resources and problems faced by legal professionals. Further, the study identifies the differences on the basis of gender, regarding the requirements in developing an online legal information system (OLIS) for the Indian environment.

Design/methodology/approach – The study was carried out in eight law libraries in Delhi using a structured questionnaire. Data were collected through the questionnaire having 27 questions including dichotomous (Yes/No), multiple-choice questions, rating and opinion questions. A need assessment survey was conducted using the structured questionnaire circulated among 750 respondents of eight institutions in Delhi. In total, 397 filled in questionnaires were received back. A total of 246 of the respondents were males and 151 females. The design and development of an OLIS went through five phases, i.e. preliminary preparation, designing and planning phase, development of OLIS covering preparation of software, data structures, metadata, search form, testing and implementation phase and maintenance.

Findings – The study found that 100 per cent of the female respondents were aware of online legal information resources. Maximum 28.4 per cent female respondents rated legal e-resources “very good”, whereas only 19.9 per cent male ranked them “very good”. Female respondents were found less aware about open access resources. In addition, of 246 male respondents, 213 (86.6 per cent) responded “Yes” about awareness of open access resources and 33 (13.4 per cent) marked “No”. In comparison, 116 (76.8 per cent) female respondents revealed they are aware of open access resources; 35 (23.2 per cent) were not aware of open access resources. Fifty-eight (23.6 per cent) male respondents were very dissatisfied, and 60 (24.4 per cent) completely dissatisfied. However, in contrast, 29 (19.2 per cent) female respondents were very dissatisfied and 24 (15.9 per cent) completely dissatisfied in using open access resources.

Research limitations/implications – The study covers only eight institutions in Delhi, India. High courts and law universities in other parts of the country are not covered. In addition, OLIS contains a sample collection.

Practical implications – The study explores the inhibitions faced by female and male legal professionals. A suitable legal information system is developed to match the requirements of female legal professionals, research scholars and faculty members. The study is expected to address problems faced by female legal professionals in accessing the desired judicial and legislative information.

Originality/value – OLIS (www.olisindia.in) has been developed on the basis of a need assessment survey conducted on male and female legal professionals in India. No study has been conducted so far to compare the viewpoints of male and female legal professionals in India for developing an OLIS.

Keywords Information system, Judicial information, Law libraries, Legal information, Open access resources, Women lawyers

Paper type Research paper



1. Introduction

No open access online legal information system (OLIS) with a variety of features to retrieve desired results is available in India to assist legal professionals to perform legal research. Law students and research scholars have difficulty in using electronic legal resources because of the incomplete and incorrect nature of the information yielded by these sources. Commercial legal information databases, though available, are relatively expensive and incomplete. Value addition of legal contents is essential to suit the information requirements of the legal fraternity. Several sources of information are accessible from different websites, but it is cumbersome to access relevant valuable content. Identifying relevant information using search engines may lead to missing useful legal information. Besides this, it is not possible to perform legal research using the existing systems because they are incomplete and are complicated to use. Women's practice in Indian courts came into existence only after a long and prolonged legal struggle. However, even then, their presence in the courts remained insignificant until the end of the twentieth century (Mishra, 2015). Only 8.4 per cent of the judges in Indian High Courts are women. In the trial courts, women judges account only for 30 per cent of the total strength. However, there is a rise in the number of women in legal listing in India – from 12.5 per cent in 2010 to 17.34 per cent in 2015 (Vyas and Sengupta, 2015; Mathur, 2014). However, only 10 per cent of lawyers are women in India (Tokas, 2012) and the legal profession is largely dominated by men (Lawyers Club India, 2016). Men have controlled the profession in the USA also and only 35 per cent of lawyers are found to be women (American Bar Association, 2015). However, the number of females in the legal profession has grown rapidly compared to men. Growth in the number of female lawyers is vital for both women seeking legal careers and women seeking legal aid (Michelson, 2013). Women have high expectations of representational data quality than men. Furthermore, administrators of virtual communities should know that the same information may be perceived differently by different genders (Liu *et al.*, 2017). Information quality means that it should meet the user's expectations and be fit to use, subjectively and objectively (Hillgoss and Rieh, 2008). Moreover, women consider the usefulness of technology along with other factors such as user-friendliness and enjoyment (Zhou *et al.*, 2014). Female students prefer to use licensed resources compared to open access resources more than male students (Steinerová and Šušol, 2007). Female students prefer to login library websites to access electronic resources than male students (Jones *et al.*, 2009).

It is crucial to determine the differences in perceptions of female and male legal professionals prior to developing an open access OLIS. Moreover, no study has been carried out to know the gender-disaggregated viewpoint about an OLIS. Human factors are vital issues in the development of web-based information systems. In addition, users with varied level of prior understanding, different cognitive styles and gender have significant impact in developing web-based applications (Chen and Macredie, 2010). Therefore, the study aims to identify gender differences and similarities in the awareness of legal information resources and the problems faced in accessing legal information resources. The paper presents a comprehensive review of the research in understanding gender differences in the attributes and use of an information system. The study will be useful to practitioners who can gain a sound understanding of legal resources and the various components of OLISs. The study will also assist designers to develop a web-based information system that can accommodate gender perceptions. The study will prove an effective and efficient way to fill the gaps for hassle-free access to online legal information to the legal community (male and female) as well as the common masses in India.

2. Review of literature

Legal professionals need to go into a number of information resources in the process of legal research. Therefore, it is indispensable for libraries to understand gender differences in searching information, level of awareness and problems faced by the legal community so as to deliver effective and efficient library services. Various studies have recognized gender as a significant variable that influences computing abilities (Young, 2000). Several studies have been conducted so far in this area. Moss and Gunn (2009) studied the gender difference in website production and preference aesthetics, and found that men had a significant tendency to prefer websites created by men, and women to prefer websites created by women. Further, it was stated that there must be a match between the website and likely preferences of the users. Inci *et al.* (2015) opined that female managers do not have the same access to information as males, irrespective of their titles and ranks, especially in firms where they are employed. Halder *et al.* (2010) surveyed 600 university students in three universities in West Bengal to know gender differences so as to help them in the information search process and found that females scored high on all the domains of information search except in diversity of search. Roy and Chi (2003) revealed that boys have a different search pattern from girls. Boys have a tendency to oscillate between submitting searches and scanning the document excerpts, while girls open and browse the entire linked documents without filtering search results. Kim (2010) elucidated gender differences in library websites resources and revealed that male and female users' computer self-efficacy varies. Female users have lower levels of computer self-efficacy as compared to males. Therefore, female users' intention to use online resources is derived from ease of use. Margalit (2014) observed that women browse the maximum number of pages and different categories of resources, while men look for exactly what they wanted and, subsequently, log out the website. It was also found that women were less focused on the instructions given on the website. Mohamed and Hassan (2015) evaluated two federated search tools (FST) and found minor variations in retrieval consistency and precision. Interestingly, the FST based on the XML gateway rated slightly higher than the FST based on the Z39.50 protocol. However, Buck and Nichols (2012) investigated participatory design strategy to investigate user and librarian views on information search systems, and revealed that important features for these tools are as follows: navigational, searching and filtering capabilities. Jaffe and Mukherjee (2013) developed an information system having dynamic context-sensitive federated search of multiple resources based on groupings of search results, including the plurality of labeled groups with a plurality of search results in each group. Boiano *et al.* (2006) revealed that gender preferences and personalization are vital components in designing an information system. A variety of features must be considered while developing an online information system such as the speed at which a user can complete a task, robustness and user-friendliness.

Online resources interface should be designed on the basis of usability (Wang and Huang, 2015). Males and females are known to access information differently. Simon (2001) suggested that women using a website may exhibit lower levels of favorable perception and satisfaction in case the website fails to deliver gender-relevant information. Therefore, male users with high spatial visualization ability perform enhanced and quicker information searches than female users with low spatial visualization skills in the context of web navigation. Lin and Hsieh (2016) advocated that compatibility, minimal action and flexibility are significant criteria for designing web resources for male users, whereas the three most important design criteria for females are compatibility, learnability and user guidance. Lorigo *et al.* (2006) conducted a study on college students following eye tracking to know the difference in information search of boys and girls on Google. It was found that

girls more often returned to earlier visited abstracts, whereas boys' navigation paths were more likely to be firmly linear. [Kim et al. \(2007\)](#) studied the attitudes, preferences and behaviors of males and females relating to online information within the domain of travel-related information. The study found that females demonstrated stronger positive attitudes compared to male respondents. Another study by [Ford et al. \(2001\)](#) studied the internet searching behavior of 20 male and 44 female post graduate students and found that females had difficulties in navigating their way successfully, and they were more likely to get lost and did not feel in control. [Drabowicz \(2014\)](#) carried out a comparative study on gender and digital use inequality, and found persistence of gender inequality, apparently in favor of boys. It was also revealed that boys use computers and the internet more often for educational purposes than girls. [Lim and Kwon \(2010\)](#) ascertained that male students used Wikipedia more frequently than females. It was observed that male students used Wikipedia for entertainment and reading more than their female counterparts. Further, male students rated the information quality of Wikipedia better than females. A study by [Gallaway and Gallaway \(2006\)](#) revealed that female students downloaded less number of songs compared to male counterparts. The major deterrent cited by them was violation of the copyright law. These studies revealed that women tend to be more sensitive to observation of laws and taking risks than men. Female students comply with copyright laws more often than male students, and females hesitate to share files because of copyright issues. [Bonneville-Roussy et al. \(2016\)](#) described that engagements and disengagement-coping were foreseen by autonomous and controlled motivation. Women suffer higher levels of stress compared to men. Men were also more negatively affected by the use of disengagement-oriented coping.

[Peruginelli \(2011\)](#) examined the concept map in the legal domain. Legal thesauri need to meet two important functions, i.e. cross-collection retrieval and cross-language retrieval. Identifying words also concerns free-text searchable collection, and a relationship has to be sought between the terms of a vocabulary used for searching and those found in the collections. [Saravanan et al. \(2009\)](#) reiterated that "automatic search algorithms play a vital role in the retrieval of legal documents in the electronic format. The keywords retrieval performed inefficiently during literal term matching because of synonyms and ambiguity of words. In the study, researchers proposed ontological framework for user's query for retrieval of judgments. [Rosa, Teixeira and Pinto \(2013\)](#) reiterated that introducing information systems in courts has several benefits and one of them is reduction in the number of pending cases. It also increases service delivery to the citizens. However, there are some risk factors in the design and development of information systems in courts. In spite of the vast experience in information system design, majority of countries share common risk factors such as the initial design phase and uninterrupted development scrutiny. In support of this, the authors stated that if the initial planning is poor, the entire system will be at major risk.

3. Objectives and scope of the study

This study tries to ascertain differences in the opinions of male and female lawyers for developing an OLIS. The study attempts to meet the following objectives:

- To know gender differences in the awareness of open access and commercial legal information resources;
- to know the gender perception about open access and commercial legal information resources available in India;

- to understand the level of satisfaction of different genders in using online legal information resources;
- to identify gender-wise inhibits faced by the legal community in accessing existing online legal information resources;
- to comprehend gender-wise legal information requirements of the legal community in India for designing an OLIS; and
- to design a model OLIS on the basis of the perceived gender-wise needs assessment.

Scope of the study incorporates the needs of working lawyers, LL.M students, research scholars, faculty members and expert users. The following eight institutions were selected to undertake the study, namely:

- (1) Supreme Court of India (SCI), New Delhi;
- (2) High Court of Delhi (HCD), New Delhi;
- (3) National Law University (NLU), New Delhi;
- (4) Faculty of Law, University of Delhi (DU), Delhi;
- (5) School of Law, Jamia Milia Islamia (JMI), New Delhi;
- (6) Indian Law Institute (ILI), New Delhi;
- (7) Centre for Legal Studies, Jawaharlal Nehru University (JNU), New Delhi; and
- (8) University School of Law and Legal Studies, Guru Gobind Singh Indraprastha University (GGSIPU), New Delhi.

4. Methodology

The system analysis and design method was followed to develop an open access OLIS. Findings of a needs assessment survey have been used to develop the OLIS. The gender needs assessment survey was carried out in eight law libraries in Delhi using a structured questionnaire to develop an open access OLIS. A total of 750 questionnaires were distributed during July to September 2013 among the population group and was completed by the end of November 2013. Various steps were taken for designing the structured questionnaire in this study, such as literature review, designing of questionnaire, pilot study, reliability checking and final questionnaire. With a better understanding of the purpose, objectives and hypotheses of the study, research questions were formulated, keeping in view the scope and targeted population of the study. A pilot study was also conducted to identify the faults, inconsistencies, errors and flaws in the sequence of questions in the questionnaire, based on the feedback of the respondents. Prior to circulating the questionnaire among users, reliability of the questionnaire was tested using the statistical package for social sciences (SPSS) version 16, and the questions were found reliable. Total 397 filled-in questionnaires were personally collected by the investigator, showing a response rate of 52.9 per cent. In total, 246 filled-in questionnaires were received from male respondents and 151 from female respondents. Data were collected through the questionnaire having 27 questions including dichotomous (Yes/No), multiple-choice questions (MCQs), rating and opinion questions. The questionnaire was divided in three sections. The first section collected general information on the respondents. Second section ascertained the level of the awareness of the respondents about legal e-resources and services, and the third section collected information from the respondents pertaining to requirements of an OLIS. Stratified random sampling technique was followed in the collection of data. The obtained data were analyzed using SPSS.

Differences in the responses of male and female respondents were recorded meticulously so that these could be kept in mind while designing the OLIS. A number of suggestions put forward by male and female respondents were also recorded. The questions are designed to know the gender difference of respondents on the following aspects:

- awareness of legal information e-resources;
- rating of existing online legal information resources;
- satisfaction level in using the existing online legal information resources;
- inhibits faced in using the online legal information resources;
- perception about adding judicial and legislative resources in OLIS;
- preferences on search types and search operators;
- gender viewpoints in adding various types of case laws in OLIS;
- citation search parameters;
- reference on online account;
- preferred online help features;
- embedding the Web 2.0 tools; and
- preferred mode of online training.

OLIS was developed on the basis of inferences drawn out of the gender needs assessment survey. Female respondents' problems and requirements were given top priority to make the system suitable to them. Differences in the viewpoints of both genders were recorded and inferences of the survey were used to develop the open access OLIS. Wherever there were no differences in perceptions of gender, generalizations were drawn based on users' perceptions in designing the model OLIS to suit the Indian environment. Features were incorporated based on the highest preferences of male and female respondents. To develop the OLIS (www.olisindia.in), the latest tools and techniques were used, such as Java script, PHP: Hypertext Preprocessor (PHP) programming language, Photoshop, Dreamweaver, asynchronous JavaScript and XML (AJAX) and My Structured Query Language (MySQL).

5. Results

Responses received from 397 respondents were recorded in the SPSS data entry sheet. Thereafter, all the responses were analyzed using SPSS version 16. The results received after analyzing the dataset are presented in [Tables I-X](#).

5.1 Distribution and demographic characteristics

Questionnaires were distributed in all the eight institutions under study. A total of 750 questionnaires were distributed by the researcher in eight institutes, and 397 filled-in questionnaires were received. The overall response rate was 52.9 per cent. The highest response in filled-in questionnaires was noted at the Supreme Court of India (SCI) at 69.3 per cent, followed by Indian Law Institute (ILI) (60 per cent), Delhi University (DU) (57.3 per cent), NLU (57.3 per cent), JMI (53.3 per cent), HCD (50.6 per cent) and GGSIPU (49.3 per cent). The minimum response rate (12.0 per cent) was recorded at JNU, Delhi. The study categorized the gender-wise number of responses in eight institutions which is presented in [Figure 1](#). [Figure 1](#) illustrates that the highest female responses were recorded at SCI (29), followed by HCD (28), NLU (22), ILI (21), GGSIPU (19), JMI (18), DU (13) and JNU (1).

Table I.
Problems faced by
male and female legal
professionals in
online legal
information- cross-tab

Problem (s)	Male			Female		
	Yes	Mean	SD ^a	Yes	Mean	SD ^a
Accessibility the legal information	108	1.56	0.497	45	1.70	0.459
Unable to get the desired information	130	1.47	0.500	52	1.58	0.496
Paucity of online help	116	1.53	0.500	49	1.68	0.485
Poor details of online legal information sources	108	1.56	0.497	45	1.70	0.459
Bewildering search screen	100	1.59	0.492	56	1.63	0.470
Poor design of website	100	1.59	0.492	40	1.74	0.443
Several logins requisite	85	1.65	0.477	49	1.68	0.470
Unclear access instructions	77	1.69	0.465	43	1.72	0.453
Lack of know-how in using database	61	1.75	0.433	40	1.74	0.443
Inadequate ICT infrastructure in law firms	65	1.74	0.442	32	1.79	0.410
Absence of print provision	53	1.78	0.412	36	1.76	0.428
Slow downloading from database	57	1.77	0.423	30	1.80	0.400
Lack of training	44	1.82	0.384	26	1.83	0.379
Insufficient know of ICT	29	1.88	0.323	21	1.86	0.347
Lack of time	22	1.91	0.286	12	1.92	0.271

Notes: Male ($n = 246$), Female ($n = 151$); respondents were allowed multiple answers; ^a Standard Deviation

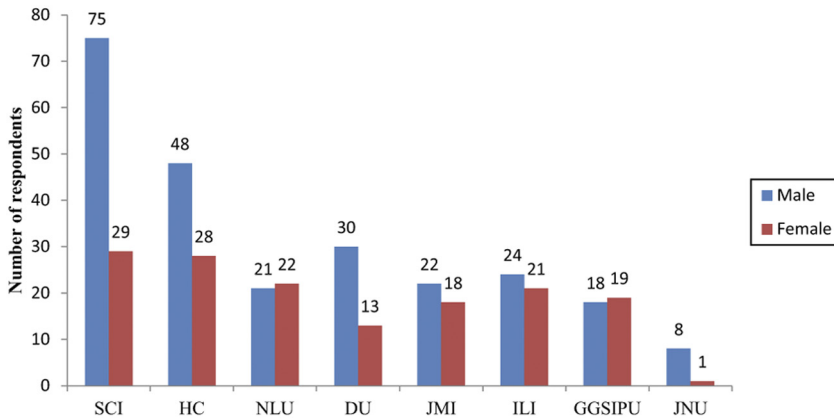


Figure 1.
Gender-wise number
of respondents in
institutions

Of the 397 responses from eight institutes, 246 (61.9 per cent) were males and 151 (38.1 per cent) females. Responses data set also revealed that the highest number of respondents, 41.56 per cent, were LLM students. Lawyers practicing in HCD and SCI were second in number (37.53 per cent), followed by faculty members (8.57 per cent), expert users (8.06 per cent) and research scholars (4.28 per cent). Gender-wise responses were also categorized in these four groups of users and are presented in Figure 2. Figure 2 illustrates that female users were highest (73) in the category of LLM students, followed by lawyers (45), faculty and research scholars (20) and expert users (13). However, male respondents were highest in the category of lawyers (104), followed by LLM students (92), faculty and research scholars (31) and expert users (19).

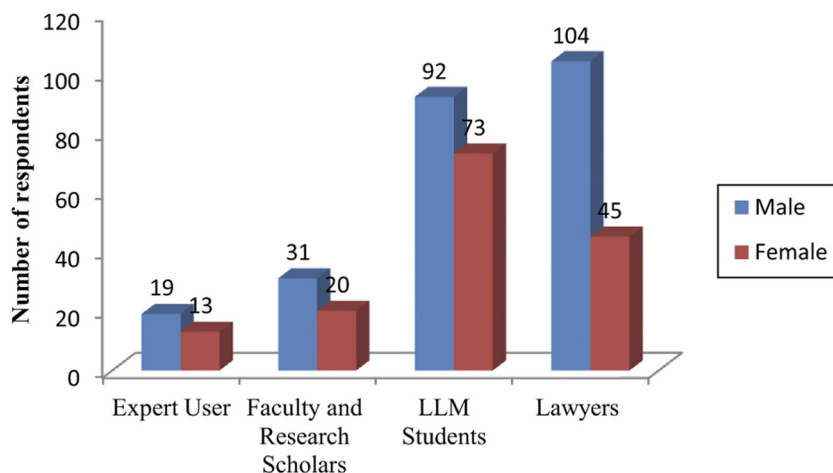


Figure 2. Gender-wise number of responses in four groups of users

5.2 Awareness of online legal information resources

Lawyers have wide interests based on their specialization and profession (Peruginelli, 2011). A sustainable legal information system would help legal professionals to fulfill their diverse information requirements, and also track cases till their disposal. Therefore, a question was posed to know the level of awareness among respondents of different genders. The study found that 100 per cent of the female (151) and male (246) respondents were aware of online legal information resources. Further, the study found that 65.8 per cent of the female respondents were aware about SCC online and Westlaw, and 34.2 per cent about Manupatra and e-Jurix. In total, 45.5 per cent male respondents were aware of SCC online and Westlaw, and 54.5 per cent about Manupatra and e-Jurix. Female respondents were more aware about commercial resources than male respondents. A study by Zhou *et al.* (2014) revealed that females consider the usefulness of technology along with user-friendliness and enjoyment. In addition, it was found by Steinerová and Šušol (2007) that female students prefer to use licensed resources compared to open access resources. Thus, it is not surprising that female respondents were found more aware than males about popular commercial resources, such as SCC online and Westlaw.

5.3 Users' rating in online legal information resources

The legal community in India uses a number of commercial and open access resources to meet their information needs. Several databases are available in the market, some in the public domain. Respondents were asked to rate various online resources. Licker's five-point question was posed to determine the rating of these resources, ranging from poor to excellent. The responses of the respondents were analyzed and are depicted in Figure 3. Of 151 female respondents, maximum 43 (28.5 per cent) rated legal e-resources "very good", followed by 37 (24.5 per cent) "good", 25 (16.6 per cent) "excellent", 24 (15.9 per cent) "poor" and 22 (14.6 per cent) "fair". Male responses were also analyzed, and it was found that maximum male respondents 73 (29.7 per cent) rated online legal information resources as "good", 49 (19.9 per cent) felt they were "very good" and an equal number 49 (19.9 per cent) rated these resources "poor". A substantial number of respondents, 43 (17.5 per cent), rated them "fair", and only 32 (13.0 per cent) rated these resources "excellent". It is concluded from

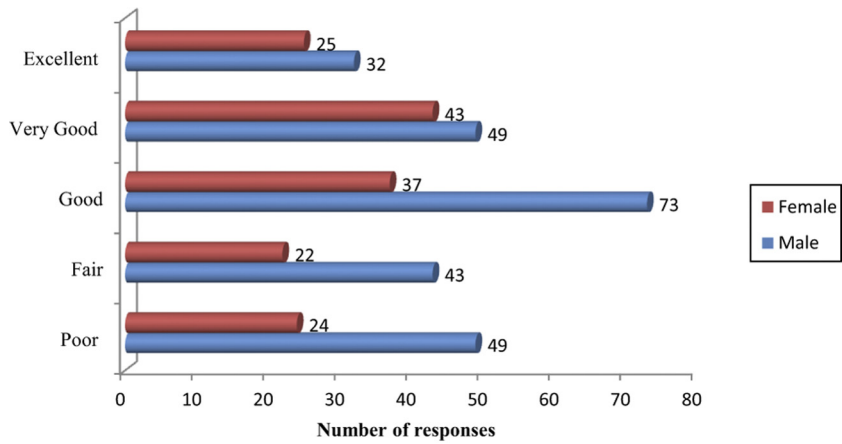


Figure 3.
Gender-wise rating of
online legal resources

Note: Male (n) = 246, Female (n) = 151

the analysis that female respondents have given better ratings to legal information resources than male respondents. In total, 28.5 per cent female respondents rated these resources “very good”, compared to 19.9 per cent by males. Of female respondents, 16.5 per cent rated these resources “excellent”, compared to male 13 per cent. Less number of female respondents rated online legal information e-resources as “poor” and “fair”, compared to males. These resources have several features to access the information. The reason for better rating of these resources by females could be familiarity with features and services. Thus, further research may be conducted in the area to know the exact reason.

5.4 Awareness of open access legal information resources

Open access resources in the field of law are crucial for lawyers to solve legal problems. National Information Centre has developed a judgment information system (JUDIS) containing all the judgments of the Apex Court, High Courts and lower judiciary. In addition, several other initiatives have been taken with a collaboration of lawyers and computer scientists to make legal e-resources available online. A question was asked to determine the awareness of open access resources among male and female respondents. Interestingly, of the 397 respondents in the study, 68 were unaware about open access legal information resources. Of the 246 male respondents, 213 (86.6 per cent) responded “Yes” about awareness of open access resources and 33 (13.4 per cent) marked “No”. In comparison, 116 (76.8 per cent) female respondents revealed awareness of open access resources, but 35 (23.2 per cent) were not aware of open access resources. Further, it was asked to reveal any two open access resources they use frequently. A total of 115 male respondents and 45 female respondents revealed that they use Indian Kanoon and SCI websites regularly. 129 (39.2 per cent) respondents which include 74 males and 55 females stated that they use JUDIS and the High Court website. Forty (12.2 per cent) of the respondents did not express opinion about any open access legal information resource. It is concluded that female respondents (76.8 per cent) are less aware than males (86.6 per cent) about open access resources. Hou and Elliott (2016) revealed that females, more than males, are information, bargain and variety seekers and spontaneous buyers. Further, they

revealed that female online bidders have a higher level of risk aversion and distinctiveness but are low in social interaction.

5.5 Satisfaction level

A question with a five-point scale (very satisfied, somewhat satisfied, very dissatisfied, completely dissatisfied and not applicable) was posed to respondents to know the level of satisfaction among respondents on open access resources and commercial legal e-resources. Figure 4 shows that maximum respondents, 74 (30.1 per cent) males and 50 (33.1 per cent) females, were somewhat satisfied in using the open access resources. Fifty-eight (23.6 per cent) male respondents were very dissatisfied and 60 (24.4 per cent) completely dissatisfied. However, in contrast, 29 (19.2 per cent) females were very dissatisfied and 24 (15.9 per cent) completely dissatisfied in using open access resources. Thirty-three (13.4 per cent) male and 35 (23.2 per cent) female respondents marked “not applicable” in their response.

Gender cross-tab pertaining to satisfaction levels in using commercial resources was determined and is presented in Figure 5. Figure 5 enunciates that 138 (56.1 per cent) male respondents are “somewhat satisfied” with commercial resources, followed by “very dissatisfied” 55 (22.4 per cent), “very satisfied” 43 (17.5 per cent) and “completely dissatisfied” 10 (4.1 per cent). Maximum female respondents 80 (53.0 per cent) responded “somewhat satisfied” and 33 (21.9 per cent) “very satisfied” in using the commercial resources. A considerable number of female respondents 30 (9.9 per cent) highlighted “very dissatisfied” and 7 (4.6 per cent) “completely dissatisfied” in using the commercial resources; only one marked “not applicable”. It is concluded that female respondents are relatively more satisfied in using open access resources compared to male counterparts. Male respondents had more “very dissatisfied” and “completely dissatisfied” in using the open access resources compared to female respondents. It is apparent that more female respondents were “very satisfied” compared to male counterparts in using commercial resources. The reason could be having more information and communication technology (ICT) skills or an additional diploma or degree in computer science. Literature in the field also reveals that female users prefer a robust, user-friendly system with a variety of features. Bhardwaj and Madhusudhan (2016) opined that legal information sources in India lag behind in exploiting the full potential of Web 2.0 features. Also, these resources are incomplete and do not help the legal community in getting the desired results. There is no

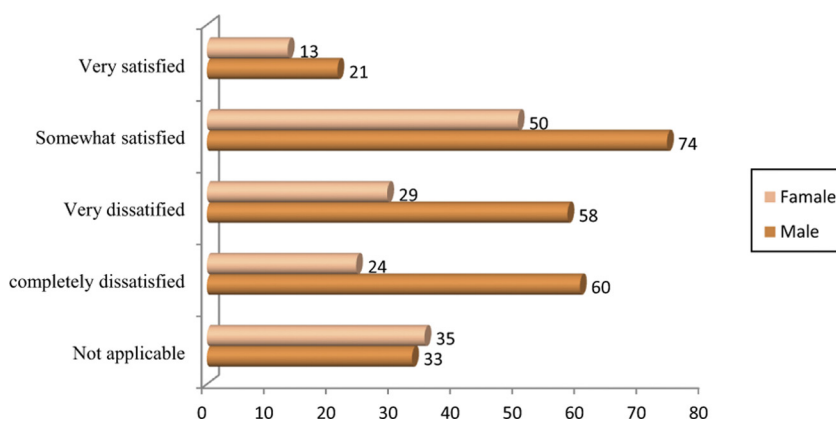
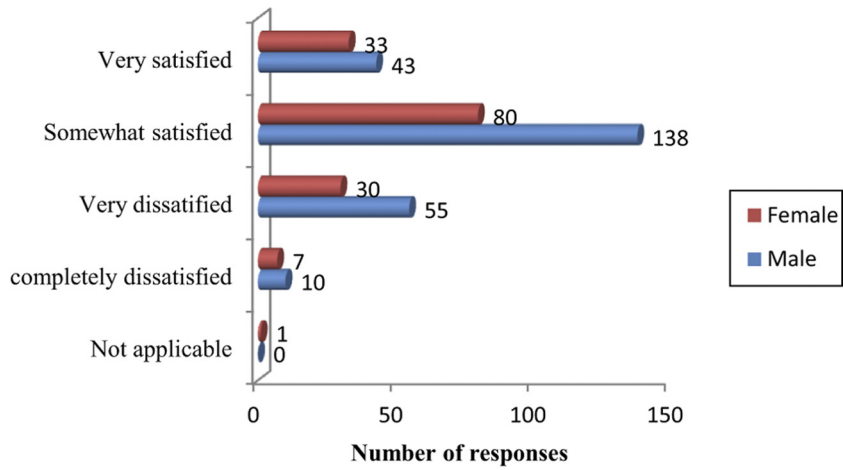


Figure 4. Gender cross-tab of satisfaction levels in using the open access resources

BL
30,2

100

Figure 5.
Gender satisfaction
crosstab in using the
commercial legal
resources



guarantee that open access databases offer authentic legal information whenever required. Eventually, open access of legal information will promote evolvement of legal research. In this aspect, Google Scholar is competing with commercial leaders in the field of law, such as Westlaw and LexisNexis.

5.6. Problems encountered

Legal professionals face several problems in accessing online legal information. A question was asked to respondents with provision to give multiple answers. Male and female responses were calculated separately and are presented in [Table I](#). [Table I](#) shows that major problems faced by male respondents are as follows: unable to get the desired information (130), followed by paucity of online help (116), poor details of online legal information sources (108), accessibility of legal information (108), bewildering search screen (100), poor design of website (100), several logins requisite (85), unclear access instructions (77) and lack of know-how in using database (61). Female respondents responded that the major problems were bewildering search screen (56), unable to get the desired information (52) and paucity of online help (49), followed by several logins requisite (49), poor design of website (40) and lack of know-how in using database (40). It is seen that male respondents faced more problems in getting the desired information compared to females. Male (~ 0.286) and female (~ 0.271) standard deviation value was found lowest for lack of time. Therefore, lack of time is found to be the problem affecting legal professionals the least in using legal information resources.

Male respondents' major problems were as follows: getting the desired information using electronic legal e-resources, lack of details of online legal information sources and online help features in using the resources. Accessibility of legal information was also one of the issues they faced. In contrast, major problems of female respondents were as follows: bewildering search screen, lack of online help features, lack of know-how and too many login-in required in using the database. Female respondents submitted that design of legal information resources was problematic, and they were not happy with designs and their search features. This also supports the findings of various studies wherein female respondents demanded a variety of features in online products and

services. This shows that female users prefer a system which is robust, user-friendly and organized.

5.7 Inhibits in accessing open-access legal resources

Open access resources are crucial for any researcher to pursue research. In every field, open access resources are available which facilitate the users to download and read without any financial repercussions. A question was asked to find the major inhibits legal professionals face while using these resources. A question was asked with five options and respondents were permitted multiple answers. Table II shows that standard deviations of male responses were lowest on “less user friendly” (~0.464) and “not organized properly” (~0.494), while female responses standard deviation value was found lowest (~0.485) for “resources are not organized properly” and “less user friendly” (~0.495). Therefore, it is revealed that for female respondents, the major inhibits in accessing open access resources were as follows: the organization of open access resources and they being less user-friendly. Hence, professionals working to develop these resources should make them user-friendly and organized properly so that female legal professionals can benefit. Tang and Chin (2007) also support the findings, describing that females compared to males are more variety seekers across a number of product categories. Various studies found that female users prefer to access licensed resources over open access resources (Steinerová and Šušol, 2007). The reasons of not using open access resources by female respondents are that these resources are not organized and they are not satisfied with the features and contents of open access resources.

5.8 Type of legal e-resources

Prior to the selection of resources in the system, it is significant to know the preference of legal professionals. Therefore, male and female professional choices for resources were noted. Table III illustrates various resources, along with a number of choices. Respondents were allowed to choose multiple resources in the preferences. Table III indicates that case law is the most preferred resource by males (227) and females (138), followed by parliamentary debates by males (216) and females (122). In addition, male respondents' major preferences were for acts (199), speeches of eminent legal professionals (190), legal news (179), research articles (176), amendments in the state and central acts (168), parliament bills (140), video-audio contents (133), rules and regulations (130), notifications (123), treaties (120), legal forms (115), commentaries (99), trade notices (85) and circulars (90). The least chosen resources were press releases (45), ordinances (40) and book reviews (30). In addition to case laws and parliamentary debates, female respondents' main preferences were

Gender		Less user friendly	Incomplete	Not updated regularly	Interface not well	Not organized properly
Male	Mean	1.31	1.50	1.51	1.48	1.42
	N	213	213	213	213	213
	SD ^a	0.464	0.501	0.501	0.501	0.494
Female	Mean	1.41	1.53	1.52	1.57	1.37
	N	116	116	116	116	116
	SD ^a	0.495	0.501	0.502	0.497	0.485

Table II.
Problem faced in searching open access resources

Notes: Male ($n = 213$), Female ($n = 116$); Respondents were allowed multiple answers; ^aStandard Deviation

Table III.
Gender-wise choice
on different types of
legal information
sources

Source (s)	Male (n = 246)			Female (n = 151)		
	No. of Yes	Mean	SD ^a	No. of Yes	Mean	SD ^a
Case law	227	1.08	0.268	138	1.09	0.281
Parliamentary debates	216	1.12	0.328	122	1.19	0.395
Acts	199	1.19	0.394	107	1.29	0.456
Speeches	190	1.23	0.420	107	1.29	0.456
Research articles	176	1.28	0.452	115	1.24	0.428
Legal news	179	1.27	0.446	109	1.31	0.465
Amendments	168	1.32	0.466	104	1.48	0.501
Videos-Audio	133	1.46	0.499	79	1.48	0.501
Parliamentary bills	140	1.50	0.501	80	1.48	0.501
Rules and regulations	130	1.47	0.500	73	1.52	0.501
Treaties	120	1.51	0.501	80	1.48	0.501
Notifications	123	1.50	0.501	62	1.59	0.494
Trade notices	85	1.60	0.481	95	1.49	0.501
Commentaries	99	1.60	0.491	75	1.50	0.502
Legal forms	115	1.52	0.502	35	1.77	0.390
Circulars	90	1.63	0.483	44	1.71	0.456
Press release	45	1.85	0.375	75	1.50	0.502
Ordinance	40	1.84	0.370	35	1.77	0.423
Book reviews	30	1.88	0.328	28	1.81	0.390

Notes: Respondents were allowed multiple answers; ^aStandard Deviation

research articles (115), legal news (109), acts (107), speeches (107), amendments (104), trade notices (95), parliament bills (80), commentaries (75), rules and regulations (73), notifications (62), press releases (75) and circulars (44). Female respondents recorded minimum choices for legal forms (35), ordinances (35) and book reviews (28). It is also ascertained that female respondents' preferences differ from male respondents on legal forms, circulars, rules and regulations, trade notices and press releases. The reason of the differences in preferences on legal resources could be area of practice and research. Gender differences were found in trade notices and press releases which were not preferred by male respondents but female respondents asked for incorporation in OLIS. Legal forms, circulars, and rules and regulations were preferred less by female respondents but chosen most by male respondents. Legal professional who work in company law, administrative law and service law need more legal forms and ordinances, compared to professionals working in other fields. Therefore, it may be concluded that the differences in preference is due to the area of research and practice.

5.9 Type of case laws

Legal professional consult various types of case laws in preparing cases and legal research work. Thus, it is utmost significant to understand the types of case laws legal professionals need in the OLIS. A question was posed mentioning the following five options:

- (1) Supreme Court Law;
- (2) High Court Case Laws;
- (3) Full Bench Decision-High Courts;
- (4) Constitutional Bench-Supreme Court High Court; and
- (5) Supreme Court Bench with Chief Justice.

Table IV depicts the responses of male and female respondents. It was found that male respondents' highest choice was for Supreme Court case laws (240), followed by High Court case laws (210) and constitutional bench of the Supreme Court (124). The least preferred were High Court or Supreme Court Bench with Chief Justice (mean 1.94; SD = ~0.240) and full bench decision of the High Court (mean 1.86; SD = ~0.346). Female respondents' choices also remained highest for case laws of the Supreme Court (144), followed by High Court case laws (125) and constitutional bench of the Supreme Court (85). However, the High Court or Supreme Court Bench with Chief Justice case laws (mean 1.89; SD = ~0.317) and Full Bench Decisions of the High Court (mean 1.84; SD = ~0.367) were the least preferred.

5.10 Equal citations in other law report

Legal professionals consult numerous law reports in their personal collection and law firm libraries. Therefore, OLIS must have a provision of equivalent citations of various law reports. A question was asked to determine whether respondents require equivalent citations in an OLIS. It was found that of $n = 246$ male respondents, 222 (90.2 per cent) stated "Yes" for equivalent citation and 24 (9.8 per cent) marked "No". A majority of female ($n = 151$) respondents, 134 (88.7 per cent), favored the inclusion of equivalent citations, while 17 (11.3 per cent) expressed their dissent. Further, a question was put to ascertain the name of the law report for inclusion in equivalent citations. Male respondents' highest choice was recorded for Judgments Today (201) followed by Supreme Court Cases (200), All India Reporter (151) and SCALE (23). Supreme Court Report (18) was least preferred by the male respondents. However, majority of female respondents noted their preference for Supreme Court Cases (114), followed by Judgments Today (111), All India Reporter (95), SCALE (18) and Supreme Court Report (12). No gender difference was found regarding choice of equal citations in other law reports. Both the genders prefer to incorporate equal citation in OLIS. However, there was difference in choosing the law report for this purpose. The major reason of choosing different law reports may be the availability of particular law reports in law firms or personal libraries.

5.11 Different descriptors to browse commentaries

Legal professionals depend heavily on primary sources to conduct research. However, it is difficult to locate the primary sources without the help of secondary sources. Therefore, great importance is given to commentaries in law. Commentaries give detailed explanation of the law in place. Thus, it was asked in the questionnaire to submit opinion about inclusion of commentaries. It was found that 227 (92.3 per cent) male respondents marked "Yes" and 19 (7.7 per cent) "No". Majority of female respondents gave their preference as "Yes" 129 (85.4 per cent) and only 22 (14.6 per cent) responded "No". It is

Type	Male			Female		
	Yes	Mean	SD ^a	Yes	Mean	SD ^a
Supreme Court Law	240	1.02	0.155	144	1.05	0.211
High Court Case Laws	210	1.15	0.354	125	1.17	0.379
Full Bench Decision – High Courts	34	1.86	0.346	24	1.84	0.367
Constitutional Bench – Supreme Court	124	1.50	0.501	85	1.44	0.498
High Court or Supreme Court Bench with Chief Justice	15	1.94	0.240	17	1.89	0.317

Notes: Male ($n = 246$), Female ($n = 151$); respondents were allowed multiple answers; ^a Standard Deviation

Table IV.
Gender-wise choices
for various types of
case laws

apparent from the dataset that male respondents give more preference than female respondents to commentaries. The major reason was not ascertained. However, it is possible that male respondents were more involved in litigation than females. Therefore, they consult commentaries on frequent basis and advocated to incorporate in the OLIS. Furthermore, it was asked to suggest descriptors to browse the commentaries. Figure 6 shows that male respondents' highest preference was noted for content page (225), followed by subject index (31) and case index (22). Females recorded their preference for case law index (128), subject index (25) and content page (18).

5.12 Search type and descriptors (s)

Search features in any information system are crucial for its success. Therefore, a question was asked to know the type of search preferred by the respondents. Data analysis (Figure 7) indicates that advance search was the main choice of male and female respondents. Male

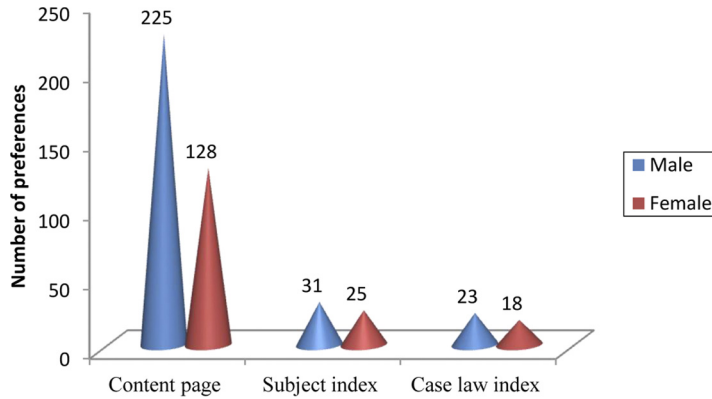


Figure 6. Descriptors to browse the commentaries

Note: Male (n) = 227, Female (n) = 129

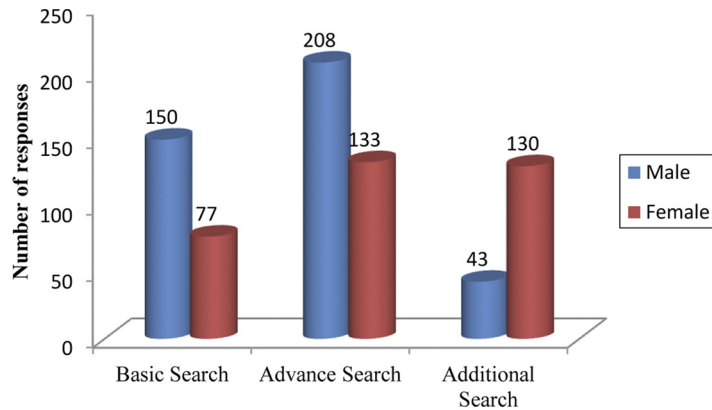


Figure 7. Search type choice of respondents

Note: Male (n) = 241, Female (n) = 138

respondents revealed that their main choice of search type was advance search (208) and basic search (150). Female respondents also showed their highest preference for advance search (133) followed by basic search (77). The major difference was found on additional search which was preferred more by female respondents compared to male. It was found that 130 female respondents advocated adding additional search compared to 43 male respondents. In addition, respondents were also asked to reveal their choice for search descriptors. Table V illustrates that male respondents' highest preference was for "date of judgment" (200; SD = 0.81), followed by "case no." (193; SD = 0.78), "appellant/respondent" (182; SD = ~0.308, "subject" (179, SD = ~0.446), "date before" (123; SD = ~0.501), "date: after" (122; SD = ~0.501), "court wise" (120; SD = ~0.501) and "section wise" (97; SD = ~0.490). Male respondents' least preference was for "synonyms" (41; SD = 0.17) and "case note/head-note" (89; SD = ~0.481). Female respondents' highest preference was recorded for "subject" (114; SD = ~0.432), "appellant/respondent" (113; SD = ~0.347), "date of judgment" (109; SD = ~0.450), "case no." (108; SD = ~0.453), "acts/statutes" (97; SD = ~0.481), "section wise" (76; SD = ~0.502), "judge name" (76; SD = ~0.502) and "court wise" (64; SD = ~0.496). Female respondents revealed their lowest preference for "synonymous" (24; SD = ~0.367) and "bench strength" (37; SD = ~0.432).

Male respondents' highest preference for search descriptors was recorded for "date of judgment" and "case no.", while female respondents preferred "subject" followed by "appellant/respondent". It seems that female respondents were more involved in legal research than males.

Besides this, in an open ended question, female respondents also demanded to incorporate history of case no. (97) and state of applicant/respondent name (97) in additional search interface. However, only 41 male respondents mentioned history of case no., and none asked for state of applicant/respondent in response to an open ended question. Maxwell and Schafer (2010) found that two broader approaches of legal information retrieval exist. First is based on manual knowledge engineering and the other on natural language processing

Search Parameters (s)	Male (n = 246)			Female (n = 151)		
	No. of Yes	Proportion of Yes	SD ^a	No. of Yes	Proportion of Yes	SD ^a
Appellant/respondent	182	0.74	0.308	113	0.75	0.347
Case no	193	0.78	0.412	108	0.72	0.453
Date of judgment	200	0.81	0.391	109	0.72	0.450
Judge name	136	0.55	0.498	76	0.50	0.502
Subject	179	0.73	0.446	114	0.75	0.432
Sub-Subject	90	0.37	0.483	55	0.36	0.483
Date: Before	123	0.50	0.501	59	0.39	0.490
Date: After	122	0.50	0.501	62	0.41	0.494
Case note/head-note	89	0.36	0.481	62	0.41	0.494
Court wise	120	0.49	0.501	64	0.42	0.496
Bench strength	97	0.39	0.490	37	0.25	0.432
Acts/statutes	166	0.67	0.469	97	0.64	0.481
Section wise	97	0.39	0.490	76	0.50	0.502
State of applicant/respondent	0	0	-	97	0.64	0.481
History of case no	41	0.39	0.490	97	0.64	0.481
Synonyms	41	0.17	0.373	24	0.16	0.367

Notes: Respondents were allowed multiple answers; ^aSD: Standard Deviation

Table V.
Search descriptors
preferences in OLIS

(NLP). The former approach deals with artificial intelligence and case reasoning. The study also recommended NLP as a better method for legal information retrieval in the long term. Further, it suggested the linking of natural language to the concept of query, and the mental models lawyers maintain of the law, to handle the vast quantity of electronic legal text. Thus, search system of OLIS adheres to NLP so that the desired highest precision can be achieved.

5.13 Search operator(s)

Search operators help users to identify the desired documents in the shortest possible time. Legal information search is different from academic database search. Several search operators are popular among legal professionals to get accurate results. Respondents revealed their preferences (Figure 8). It was found that for a majority of female respondents, favorite search operator is Boolean operators (73), followed by range operator (68), concept operator (33), proximity operator (30), fuzzy search operator (16), wild card (14), selectable truncation (12), string wildcard operator (11), same operator (10) and query level (9). The lowest preference received was for not same operator (2). Majority of male respondents opted for Boolean operator (132), followed by concept operator (59), proximity operator (39), range operator (34), query level (17) and string wild card operator (13). However, operators such as same operator (4), selectable truncation (6) and fuzzy search operator (6) received least preference from male respondents. A major difference was found that 49.3 per cent of female respondents advocated to add the range operator compared to 14.1 per cent of male. Proximity operator was preferred more by female (21.7 per cent) respondents compared to male (16.2 per cent). Wild card was also preferred more by female respondents (10.1 per cent) than male (2.9 per cent). Selectable truncation was also opted more by female (8.7 per cent) compared to male respondents (2.5 per cent).

5.14 Provision of print and e-mail

A robust information system should have print and e-mail facilities on the basis of user's selection. E-mail of documents, after selection of the appropriate document, to user's e-mail ID saves time and paper. Therefore, respondents were asked to submit preferences for

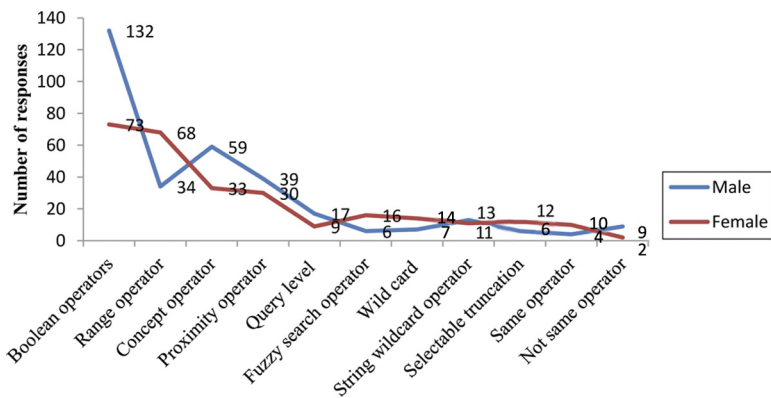


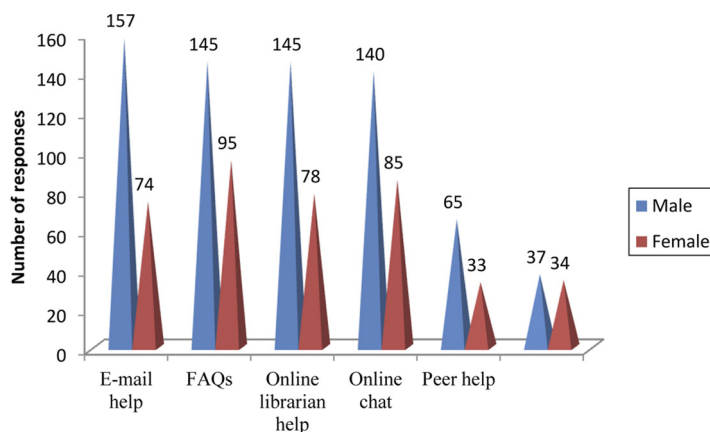
Figure 8. Favorite operator(s) of respondents

Notes: Respondents were permitted multiple answers, Male (n) = 241; Female (n) = 138

printing and e-mail of retrieved records in OLIS. It was found that 97.9 per cent of male respondents stated “Yes” and only 2.1 per cent “No”. The response of female respondents was slightly higher and 98.6 per cent marked “Yes” and only 1.4 per cent “No”. Further, it was asked to reveal which part of the document they prefer most with provision to mark multiple answers. Highest number of male respondents ($n = 243$) submitted their preference for “listing of results” (160), followed by “full text of document” (145) and “head note” (35). However, the female respondents ($n = 148$) preferred “full text” (103), followed by “listing of results” (84) and “head note” (66). It is interesting that female respondents gave highest preference to “full text of document” and male respondents “list of results”. There is a significant difference between the two genders. Major difference in opinion was found on “head note:” 44.6 per cent of females favored to include this, compared to 14.4 per cent of male respondents. Generalization was drawn, and printing and e-mail of head note, listing of results and full text was added in the OLIS.

5.15 Provision of various help features

An ideal information system must have efficient help features. A variety of help features may be included in the system. Respondents were permitted to mark multiple answers. Responses received in the need assessment survey (Figure 9) indicate that highest choice of help for males was for e-mail help (157), followed by FAQs (145), online librarian help (145), online chat (140) and peer help (65). The order of female respondents choice was similar to males, and reserved maximum choices for online librarian help (95), followed by online chat (85), FAQs (78) and e-mail help (74). Female respondents’ least preference was for peer help. Female users prefer formal modes of information services, such as access to information through library website. The trend is apparent and female respondents preferred online librarian help more than males. FAQs were preferred least by female respondents. Thus, online chat and online librarian help features were integrated in the OLIS to provide best services to female users. The difference in perception was found on “email help” preferred more by male (61.4 per cent) respondents compared to female (65.5 per cent). The feature



Notes: Respondents were allowed multiple answers; Male ($n = 236$, Female ($n = 145$

Figure 9.
Mode of help in using
OLIS

“online librarian help” was opted more by female respondents (65.5 per cent) than males (61.4 per cent).

5.16 Citation search facility

Researchers in the field of law highly depend on citations to locate the relevant documents to solve legal problems. Legal professionals use a number of parameters in citation to locate the records. Citation search helps to locate the record conveniently without wasting the time of users. Therefore, it was asked to respondents (male and female) whether to include citation search facility in OLIS. Figure 10 shows that majority of male respondents (95.1 per cent) asked to include citation search and only 4.9 per cent dissented. Majority of female respondents (95.4 per cent) also favored including such facility, while only 4.6 per cent disagreed. In addition, preferred citation parameters for international and national journals were also asked. Male and female preferences were almost the same on this aspect. Majority of male respondents chose international journal year (219), volume no. (201), page no. (189) and court (91). Females opted for year (135), volume no. (114), page no. (112) and court (130). National journal citation parameters chosen by male respondents were year (215), volume no. (191), page no. (185) and court (84). Female responses were as follows: year (134), volume no. (109), page no. (100) and court (123). Difference in perception was noted for adding “court” in citation search parameters. A higher number of female respondents expressed to incorporate court in the parameters, compared to male. This difference was found both for national and international law reports. Based on this difference, court was added in the citation search to make the OLIS suitable to the needs of female users.

5.17 General features sought by respondents

A legal information system ought to have features to make research work easy. A number of features are popular in academic databases to help researchers. However, legal professionals may differ in choosing the features for OLIS. Therefore, it was asked to respondents to reveal their preferences. Table VI shows that male respondents ranked first “search within search” (215), followed by “save the search results” (197), “mail the search results” (176), “save into account” (168) and “dissent judgments” (146). “Male respondents’ lowest preference was recorded for “notes” (51) and “equal citations in law reports” (68). On the

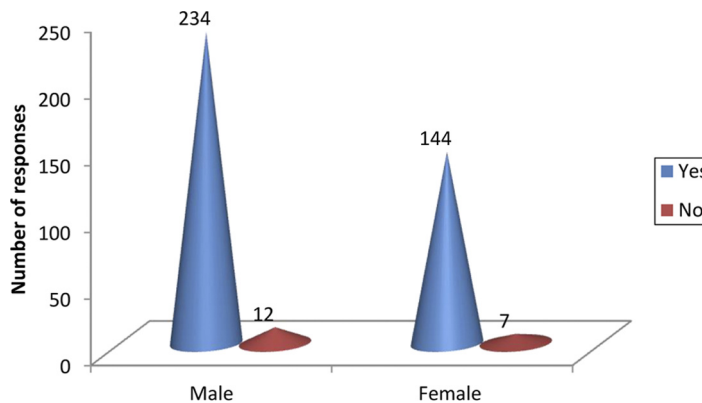


Figure 10.
Citation search

Note: Male (n) = 246, Female (n) = 151

Table VI.

Most sought features
in OLIS

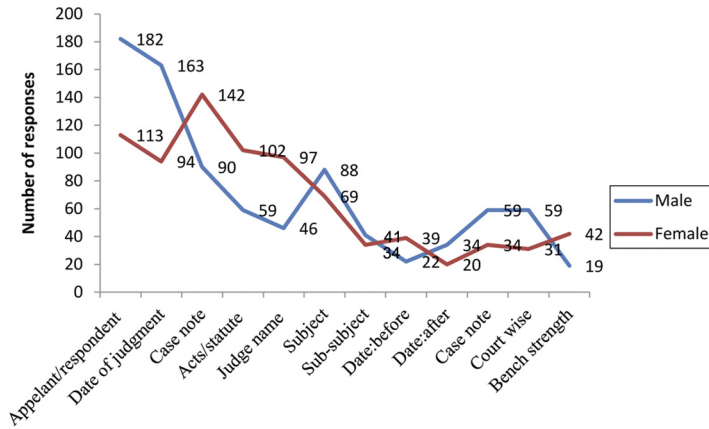
Features	Male (n = 246)		Female (n = 151)		Total no. of Yes and Percentage (n = 397)
	No. of Yes	Proportion of Yes	No. of Yes	Proportion of Yes	
Search within search	215	0.87	131	0.87	346 (87.2)
Save the search results	197	0.80	115	0.76	312 (78.6)
Mail the search results	176	0.72	103	0.68	279 (70.3)
Save into account	168	0.68	93	0.62	261 (65.7)
Equal citation in law reports	68	0.28	131	0.87	199 (50.1)
Over-ruled judgments	106	0.43	147	0.97	253 (63.7)
Further referred (Citor)	105	0.43	52	0.34	157 (39.5)
Dissent judgments	146	0.59	86	0.57	232 (58.4)
Relied upon judgments	123	0.50	77	0.51	200 (50.4)
Notes	51	0.21	71	0.47	122 (30.7)

Note: Respondents were allowed multiple answers

other hand, female respondents gave highest preference to “overruled judgments” (147), “search within search results” (131) and “equal citations in law reports” (131), followed by “save the search results” (115), “mail the search results” (103), “save into account” (93), “dissent judgments” (86), “relied upon judgments” (77) and “notes” (71). Female respondents’ least preference was for “further referred (citor)” (52). The features opted by female respondents have been given special considerations to make OLIS relevant to the needs of female legal professionals. “Search within search” is the most sought feature by both the genders. Male respondents have given the second highest preference to save the search results, but this was not the case in female preferences. Major difference was found on “over-ruled judgments” preferred by 97.3 per cent of female respondents compared to 70.1 per cent male. In addition, “equal citations in law report” was preferred by 26.0 per cent male respondents compared to 86.7 per cent female. “Save the search results” feature was advocated to include in OLIS more by male respondents (80.0 per cent) compared to female (76.1 per cent). “Mail the search results” feature was also opted more by male respondents (71.5 per cent) than female (68.2 per cent). Interestingly, “notes” to know the gist of contents is advocated more by female respondents (47.0 per cent) compared to male (20.7 per cent).

5.18 Provision of online account and allied descriptors

An advance OLIS must have a provision to keep the selected records in an online account. This helps the users to read the documents whenever they get time. Hence, it was asked to know the opinions of respondents about it. It is revealed in the needs assessment survey that 210 (85.4 per cent) of the male respondents favored inclusion of online account, while 36 (14.4 per cent) submitted dissent. Female responses found 130 (86.6 per cent) in favor and 21 (13.9 per cent) in disagreement. Respondents were allowed to tick multiple descriptors they wish to include in this feature. Male preferences (Figure 11) were highest for appellant/respondents (182), followed by date of judgment (163), case note (90), act/statute (59), subject (88), judge name (46) and sub-subject (41). The lowest male preferences were found for date after (34), date before (22) and bench strength (19). In comparison, female respondents’ preferences were highest for case note (142), followed by appellant/respondent (113), act/statute (102), judge name (97), date of judgment (94), subject (69), bench strength (42) and date: before (39). The least preferred descriptors by female respondents are as follows: date:



Note: Male (n) = 246, Female (n) = 151

Figure 11.
Choice of descriptor(s)
in online account

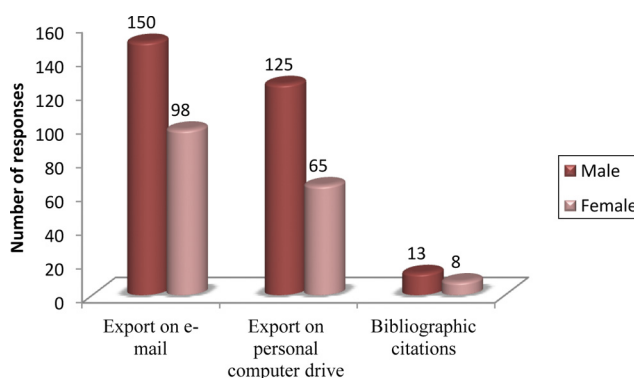
after (20) and court (31). The main difference in preferences was that female respondents preferred more features and online account was preferred more by female than male respondents. Case note was preferred by 94.0 per cent of female respondents compared to 36.6 per cent male. Similarly, act/statutes was opted by 67.5 per cent female respondents and 24.0 per cent male. Subject was also advocated more by 45.7 per cent female respondents compared to 35.8 per cent male. A significant difference in perception was having judge name descriptor in online account wherein a large number of (64.2 per cent) female respondents advocated compared to 18.7 per cent male.

5.19 Bibliographic records export

Bibliographic records help legal professionals to track and get the desired document without wasting time. In appeals, lawyers need various case laws and documents in support of their arguments. Thus, an opinion was sought on including this service in OLIS. A large number of male respondents (110; 44.7 per cent) opined that it should be included in OLIS. However, 136 (55.3 per cent) did not favor to incorporate it in OLIS. Of the female respondents, 86 (57.0 per cent) asked to include this service and only 65 (43.0 per cent) did not favor adding such service.

5.20 Save/export of retrieved results

Attempt was made to establish whether respondents tend to save/export the retrieved items. It was found in data analysis that 178 (72.4 per cent) of the male respondents wish to have the feature in OLIS. Only 68 (27.6 per cent) had the opposite view. Among female respondents, 114 (75.5 per cent) asked to incorporate it and 37 (24.5 per cent) tick-marked “No”. Furthermore, it was asked where they would prefer to save/export (n = 292). Multiple options were allowed. It is apparent from Figure 12 that male respondents’ main choices were as follows: export on e-mail (150) and export on personal computer drive (125). Bibliographic citations (13) were less preferred by male respondents. Female responses also expressed the same with highest preference on export on e-mail (98), followed by drive of personal computer (65) and bibliographic citations (8). In all, 85.9 per cent of female respondents preferred to save/export of retrieved records through e-mail compared to 84.2



Note: Male (n) = 178, Female (n) = 114

Figure 12. Preferred mode to save/export records

per cent male. Also, 57 per cent female supported save/export of retrieved results on personal computer drive than 70.2 per cent male respondents.

5.21 Preference in order of saved searches

Saving searches while browsing the information system can save time of the users. It helps the users to locate records conveniently without wasting time. Therefore, the study tried to ascertain preferences of male and female respondents. It was found that male (206) and female (136) respondents preferred to have this service in OLIS. Respondents were further asked to submit their views pertaining to the order of saved searches. Table VII reveals the responses about preferred order to save searchers. Dataset presented in Table VII highlights that male respondents' main choice was alphabetical order (151; SD = ~0.430), followed by date-ascending order (117; SD = ~0.497) and date-descending order (87; SD = ~0.495). Female respondents opted the order as follows: alphabetical (101; SD = ~0.439), date-ascending order (63; SD = ~0.500) and date-descending order (39; SD = ~0.454).

5.22 Legislative information search and browsing

Lawyers also consult varied legislative sources in preparing the case. The organizations of print legislative information sources are complex and make it difficult to locate the desired information. However, the legislative information sources are of great importance in courts of law. Thus, an MCQ was put to understand the legislative information search descriptors. Responses are illustrated in Table VIII. Table VIII shows differences in the opinion of male and female respondents in search and browsing legislative information. Male respondents

Option (s)	Male (n = 206)			Female (n = 136)		
	No. of Yes	Mean	SD ^a	No. of Yes	Mean	SD ^a
Alphabetical	151	10.24	0.430	101	10.26	0.439
Date – ascending order	117	10.43	0.497	63	10.54	0.500
Date – descending order	87	10.58	0.495	39	10.71	0.454

Table VII. Order to save the searches

Notes: Respondents were allowed multiple answers; ^aStandard Deviation

Table VIII.
Search and retrieval
of legislative
information

Features	Male (n) = 246			Female (n) = 151		
	No. of Yes	Proportion of Yes	SD ^a	No. of Yes	Proportion of Yes	SD ^a
Act no.	205	0.83	0.373	112	0.74	0.439
Amendment under the act	164	0.66	0.472	107	0.70	0.456
Bill no.	154	0.62	0.485	82	0.54	0.500
House, i.e. Lok Sabha/Rajya Sabha	142	0.57	0.495	78	0.51	0.501
Date of Presidential	129	0.52	0.500	51	0.33	0.475
Date of Enforcement	122	0.49	0.501	77	0.47	0.501
Subordinate Legislation	73	0.29	0.454	42	0.27	0.450
Repeal on Date	70	0.28	0.452	36	0.23	0.428
Citation	72	0.29	0.456	61	0.40	0.492

Notes: Respondents were allowed multiple answers; ^a Standard Deviation

preferred “date of presidential” (129) in fifth order, whereas female (51) ranked it sixth. Male respondents (49.6 per cent) gave more weightage to “date of enforcement” than female respondents (51.0 per cent). Female respondents gave higher weightage to citation (40 per cent) than males (29 per cent). Females gave less weightage to “repeal on date” (23 per cent) compared to males who revealed higher favor for the same (28 per cent). Citation was preferred more by female respondents (40.4 per cent) than male counterparts (29.3 per cent).

5.23 Clustering of results

Clustering of results is useful to get the desired impact. It is also useful to know about research published in a particular area. Clustering in legal databases can be done on varied aspects. It was found that 200 (81.3 per cent) of male respondents and 124 (82.1 per cent) female marked “Yes” to cluster the results in OLIS.

Moreover, seven parameters were suggested for clustering, i.e. subject wise, date wise, court wise, statute wise, judge wise, tribunal wise and advocate wise. Responses were sought through a multiple choice and an open-ended question. Respondents were permitted to tick multiple options mentioned above. Table IX depicts the responses of male and female respondents. Male respondents’ highest preferences were noted for “subject wise” (190), followed by “date wise” (155), “court wise” (146), “statute wise” (74) and “judge wise” (34). The lowest preferences were for “advocate wise” (41) and “tribunal wise” (31). Female respondents supported the viewpoints of male respondents and preferred clustering of

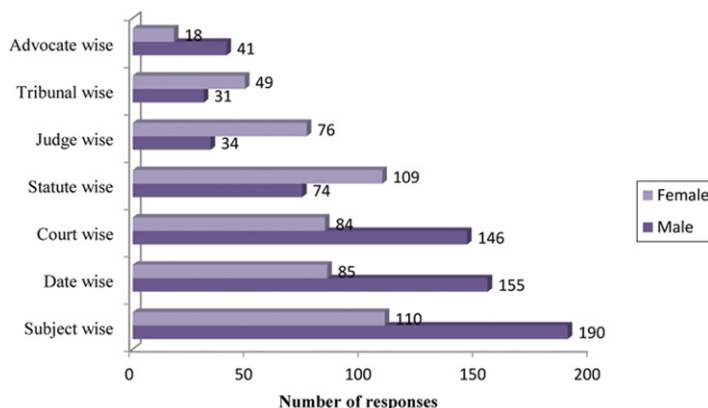
Table IX.
Search results
clustering
parameters

Resource descriptor (s)	Male (N = 200)			Female (N = 124)		
	No. of Yes	Proportion of Yes	SD ^a	No. of Yes	Proportion of Yes	SD ^a
Subject wise	190	0.95	0.218	110	0.88	0.262
Date wise	155	0.77	0.419	85	0.68	0.439
Court wise	146	0.73	0.445	84	0.67	0.455
Statute wise	109	0.54	0.499	74	0.59	0.497
Judge Wise	76	0.38	0.487	34	0.27	0.474
Tribunal wise	49	0.24	0.431	31	0.25	0.432
Advocate wise	41	0.20	0.405	18	0.14	0.387

Notes: Respondents were allowed multiple answers; ^a Standard Deviation

search results by “subject” (110), followed by “date wise” (85), “court wise” (84), “statute wise” (109), “judge wise” (76) and “tribunal wise” (49) (Figure 13).

Figure 14 illustrates that the major difference in preferences of male and female respondents was found on “statute wise” clustering of results which was preferred by (87.9 per cent) of female respondents compared to male (37.0 per cent). Judge wise clustering of results was opted more by female respondents (61.3 per cent) than male (17.0 per cent). Tribunal wise also preferred more by female (39.5 per cent) respondents compared to male (15.5 per cent). Female preferences have been given special consideration while designing clustering features in OLIS. All the clustering descriptors defined by the female respondents have been added in the OLIS.



Note: Male (n) = 200, Female (n) = 124

Figure 13. Clustering of search results



Figure 14. Clustering of search results window in OLIS

5.24 Embedding the social networking tools

Respondents' opinions on embedding social networking tools were analyzed, and it was found that 174 (70.7 per cent) male and 101 (66.8 per cent) female respondents asked to embed social networking tools in OLIS. Only 72 (29.3 per cent) male and 50 (33.2) female respondents did not favor embedding these tools. Besides, it was also asked in an open-ended question to disclose two networking sites they preferred to be incorporated in OLIS. Open social networking (Twitter) empowers the users to share views among the public on a larger scale. However, closed social networks, such as Facebook and LinkedIn, are used to share information among members of the social network (Kaul, 2016). In this connection, the study found that 188 respondents favored Facebook and Twitter (106 males and 82 females). Eighty-seven revealed that they prefer Google+ and LinkedIn (males 57 and females 20). Chan et al. (2015) found that male users' satisfaction in using social media is inclined to entertainment, while relationship maintenance is the major factor in the satisfaction of females. Both the genders advocated including these social networking tools in OLIS. However, further research may be conducted to determine the different purposes of using these tools in research and practice. Bhardwaj and Madhusudhan (2016) opined that legal information resources do not exploit Web 2.0 features. Majority of open access and commercial resources do not integrate Web 2.0 tools with the contents. Besides this, legal e-resources have not empowered users to contribute contents. Therefore, these resources are incomplete and do not help the legal community in getting the desired results.

5.25 Online training

Training is a vital component to make any information system successful. Training helps the users to learn the nuances of the information system and optimize its use. Online training could be imparted through varied modes, such as online tutorial, e-mail, chatting and multimedia. An open-ended question was asked to reveal whether they required online training to use the OLIS or not. Further, along with giving all the four options, it was asked to reveal the favorite mode of online training. In total, 230 male and 127 female respondents supported to incorporate online training. Table X illustrates that the highest number of respondents (male = 158; female 90) asked for training through e-mail, followed by online tutorial (male = 125; female 85) and chatting (male = 140; female 75). The least preferred mode of training was multimedia program (male = 79; female 41). All the four features were integrated in the OLIS to train the users. The main difference was found that 54.3 per cent male respondents expressed to incorporate online tutorial compared to 66.9 per cent female. Chatting feature was preferred more by males, 60.8 per cent, than females, 59.0 per cent.

Online training modes	Male (n) = 230			Female (n) = 127		
	No. of Yes	Proportion of Yes	SD ^a	No. of Yes	Proportion of Yes	SD ^a
E-mail	158	0.69	1.29	90	0.71	1.33
Online tutorial	125	0.54	1.44	85	0.67	1.37
Chatting	140	0.61	1.37	75	0.59	1.44
Multimedia program	79	0.34	1.65	41	0.32	1.69

Table X.
Favorite mode of
online training

Notes: Respondents were allowed multiple answers; ^a Standard Deviation

6. Discussion

OLIS development was divided into five phases wherein the first phase focused on preliminary preparatory aspects which included studying the differences between male and female audience, perceived problems, goals to be achieved, contents selection, flow of information, benefits of the proposed system, input and output description and time duration to complete the proposed model. Problems faced by different genders have been considered in designing the OLIS. The study found that male respondents' major problems were as follows: getting the desired information using electronic legal e-resources, lack of details of online legal information sources and lack of online help features in using the resources. In contrast, major problems of female respondents were: bewildering search screen, lack of online help features, lack of know-how and too many login-in required in using the database. It was also revealed by female respondents that design of legal information resources was problematic and they are not happy with the designs and search features of existing e-resources. The main problems in access for both genders are the organization of open access resources and user-friendliness. Majority of open access resources do not integrate Web 2.0 tools. Besides this, open access legal e-resources do not have empowered users to contribute contents. Female respondents' preferences differ from male respondents on legal forms, circulars, rules and regulations, trade notices and press releases.

Gender differences were identified that trade notices and press releases were not preferred by male respondents but female respondents asked to incorporate in OLIS. Legal forms, circulars, and rules and regulations were preferred less by female respondents but chosen most by male respondents. Both male and female respondents prefer to incorporate equal citation in OLIS, though there was difference in choosing the law report for this purpose. It is generalized from the male and female respondents that Supreme Court case laws, High Court case law and constitutional bench of the Supreme Court are most preferred case laws. Female respondents also strongly advocated adding the range operator. Proximity operator was preferred more by female respondents compared to male. Wild card was also preferred more by female respondents (10.1 per cent) than male (2.9 per cent). Online account was preferred more by female than male respondents. Case note was preferred by 94.0 per cent of female respondents compared to 36.6 per cent male. Act/statute was opted by 67.5 per cent female respondents and 24.0 per cent male. Male respondents (49.6 per cent) gave more weightage to "date of enforcement" than female respondents (51.0 per cent). Female respondents gave higher weightage to citation (40.0 per cent) than males (29.0 per cent). Citation was preferred more by female respondents (40.4 per cent) than male counterparts (29.3 per cent). Female respondents (87.9 per cent) asked to cluster the search results on the basis of "statute" compared to male (37.0 per cent). Judge wise clustering of results was opted more by female respondents (61.3 per cent) than male (17.0 per cent). In addition, female respondents (39.5 per cent) also desired to have tribunal wise filtering more strongly than male (15.5 per cent) counterparts. Therefore, these clustering parameters were incorporated in OLIS to empower female users. Both male and female respondents asked to embed social networking tools in OLIS. Open and closed social networking tools have been added in OLIS. Training helps users to learn the use of OLIS optimally. Thus, OLIS has developed the provision of online tutorial in the system.

The second phase covered designing and planning, including selection of programming language, selection of relational database for backend and searchable form for front end, searching techniques, data security, network security and application of Web 2.0 tools. The system was divided into modules in this phase and their integration was decided. Drop-down listing has been designed in various data entry forms so that metadata can be entered easily. Third phase, i.e. development of OLIS, covered the preparation of software, data

structures, metadata, datasheet and retrieval of legal information. In addition, various steps planned in the designing phase were implemented. Installing the OLIS and making it operational was also part of this phase. Server was configured to make it functional. Metadata entry of various resources was done in this phase. Judicial and legislative open access resources were selected and linked with the website. In the fourth phase, various features of OLIS and modules' functionalities were tested using black box testing technique. OLIS was hosted and made accessible through the internet. Fourth phase, maintenance, encompassed enhancement of functionality, adapting new progression, feedback of users and further development of the system.

7. Conclusion

Web-based information systems deliver varied contents to a large number of heterogeneous user groups. The integration between interface and the back-end becomes more complex. In recent times, because of web-based information systems, expectations of users have increased manifold. Therefore, design and development of an OLIS have become more complex and cumbersome. It is seen that a majority of web-based information systems are being developed in an unplanned way (Murugesan and Ginige, 2008). Designing the proposed OLIS has a hybrid approach and adopts a combination of system development models including commercial and open access resources. OLIS model research approach begins with identification of problems and requirements. Nineteen resources have been added in the OLIS. Each resource has been given due importance to retrieve records out of the database. OLIS is designed in such a manner that each court, legislative body and tribunal can participate in developing the system. The administrative module of OLIS gives facility to each organization to contribute contents produced by the organization. In addition, individuals can also contribute contents such as articles, speeches, forms, audio-video contents and websites. Contributions from users envisage developing a robust system for public and by the public.

The architecture of OLIS is in five layers. These layers are as follows: data layer, network layer, presentation layer and business layer. Data layer deals with metadata of contents, whereas storage layer accomplishes full text contents. Network layer helps in the network of users and institutions to upload contents. Presentation layer enables display of the results using the search engine of OLIS. Business layer coordinates all the operations of the system. Functionality of all these layers has been tested using black box testing technique. The errors identified in the testing have been rectified prior to making it accessible online. The OLIS was tested to verify that all the modules function according to the expectations defined by respondents in the needs assessment survey. Each module in OLIS functions as per specifications. Search results were recorded to observe precision as well as recall ratio of results. Black box testing methods were used in the testing without bothering the internal coding of OLIS. The OLIS is accessible online at: www.olisindia.in. Presently, the OLIS has a sample collection covering all ranges of resources including judicial and legislative. There are several inhibits revealed by female respondents such as paucity of online help, unable to get the desired information, bewildering search screen, requisite of several logins, poor details of online legal information sources and accessibility of legal information.

OLIS has three types of searches, namely, basic search, advance search and additional search. Basic search is a free search, which can be done with any keyword with specified descriptors of the resource. Advance search helps the users to locate the desired document using a variety of search operators. Additional search is limited in scope, and it adds descriptors not accommodated in basic and advance search. The search engine in OLIS is robust and user-friendly so that appropriate documents can be located. The study reveals

several problems faced by female legal professionals. It also provides valuable insights into the administrators of legal and legislative databases to address various inhibits faced by female and male legal professionals. Nevertheless, a major limitation of the study is that it attracted limited responses from female respondents as compared to males. Legal institutions located in other parts of the country were not included in the study. However, the findings of the study can be used by developers of electronic resources and policymakers in the organization. Findings of the study will also help law libraries in subscribing the appropriate e-resources suitable to the needs of female users. Suitable electronic resources will encourage female legal professionals to pursue research and litigation in the field. Moreover, law libraries can also use the findings to overcome problems faced by female professionals in accessing commercial and open access resources.

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