CHAPTER V
SUMMARY, CONCLUSIONS AND SUGGESTIONS

5.0 Overview

This chapter presents the summary, conclusions, recommendations and suggestions for further research. It is divided into four sections. In the first section a brief summary of the purpose and methodology is dealt with, where in the second section, the findings and the conclusions that have been drawn from the results of the study as discussed. In the third section recommendation for overcoming the IT application problems are made and suggestions for further research are offered in the four section.

5.1 Summary

5.1.1 Introduction

The use of information technology for the collection, storage and dissemination of information is profoundly affecting all aspects of information transfer in the industrialized world. Developments in microprocessor technology have brought about large scale reductions in the physical size of computers, whilst at the same time they have also increased their reliability and speed of processing. Mass production of chips has caused dramatic reduction in cost, resulting in a marked improvement in the processing capacity available for unit cost. Laser disk technology, fiber optics, packet switching for the transfer of electronic data have all become a reality. Videodisc technology will further facilitate even more storage capacity.

At the same time, there has been remarkable advancement in telecommunication technology, making possible the reliable, efficient, and
highspeed transfer data around the new concept of telematics, the cornerstone of the new information technology. With the aid of telematics, literature searching has been converted from a rather tedious task involving sorting through card catalogues or printed indexes, to a simulating, interactive process using an online connection to remote databases. Teletext and videotext are recent entrants to the information science. These and many other development are available today and are being used with varying degrees of success.

5.1.2 Statement of the Problem

Information technology is necessary for the efficient functioning and systematic development of fast growing libraries. In the absence of this, it can suffer from a lopsided development. The operations in an automated library system are usually more complex and require more precision in their execution than in a manual system.

Despite a large body of literature on IT and IT application, It is not known that whether any systematic study with regard to the problem of IT application has been carried out or not in Iran. Of late, it has been realised that the problem of IT application ought to be studied in the Iranian university libraries as well; because of the fast expansion of university libraries, rapid development of IT, and the rapid trend of recent years toward computerisation in Iranian university libraries. Finally, it seems that, information technology has not had much impact on the services provided by these libraries. Unfortunately they have infrastructural problems with their chosen areas of IT application and these have prevented them from successfully automating
library process. In addition to these, in most problematic areas, Iranian university libraries experience problems, different from other developing countries, though not in all areas.

This study examined the current status of IT application and the perception of central university library directors towards the problem of information technology application. More specifically, it posed the following two general questions:

1. What is the present degree of development of information technology in Iranian university libraries?
2. What barriers are militating against the IT application in Iranian university libraries?

5.1.3 Objectives

The main objectives of the present study were:

- To find out the current status of information technology application in the university community.
- To determine the level of IT application
- To find out the respondent’s views concerning the technical, managerial, personnel, economical, socio-cultural and governmental barriers of information technology application.
- To study the effect of gender, age, experience and educational qualification and background on the perception of university library directors
- To identify the relationship between attitude of the respondents towards IT application and the problems of IT application
To identify the relationship between the level of IT application and expenditure on IT application as well as number of computers being used.

- To provide suggestions for the successful application of information technology in Iranian university libraries.

5.1.4 Research Hypotheses

In view of the objectives of the study, the following hypotheses were formulated to guide the undertaken investigation:

1. There will be significant difference between the problems of IT application in libraries with high level and low level of IT application.

2. There will be significant difference between the technical, managerial, personnel, economical, socio-cultural and governmental problems of IT application in comparison with each other.

3. There will be significant difference between the problems of IT application in the MCHE and HTME university libraries.

4. There will be significant difference between the perception of the professional and non-professional respondents in relation to the problem of IT application.

5. There will be relationship between the overall attitude of the respondents towards IT usage and the problem of IT application.

6. Demographic variable such as age, sex, educational qualification and experience would influence the perception of the respondents in relation to the overall problems of IT application.

7. There will be significant difference between the level of IT
application in the MCHE and HTME university libraries.

8. There will be relationship between the level of IT application and the percentage of annual expenditure on IT.

9. There will be relationship between the level of IT application and the number of computers in use.

10. Majority of the university libraries would prefer commercial applications software for library automation.

5.1.5 Population of the study

The study called the directors of central university libraries as the population. In Iran, at the time of study there were 79 universities under supervision of Ministry of Culture and Higher Education and Ministry of Health, Treatment and Medical Education. In this study all the central libraries in these universities were surveyed.

5.1.6 Data collection

To gather the necessary data, a questionnaire was designed and its reliability tested in a pilot study conducted with a group of selected academic librarians. The questionnaire was organized in three parts:

(i) Personal information and attitude of library directors towards information technology application;

(ii) Problems of IT application in university libraries;

(iii) Present use of information technology.

A copy of the questionnaire was mailed to each one of the 79 study participants in June and August, 1998. A total of 55 useable questionnaires
were returned. This represented approximately 70 percent of the population surveyed. In addition, a visit and interview was conducted with sixteen respondents from Mashhad and Tehran to complete missing data and clarifying the respondent’s suggestions on successfull application of information technology in the libraries.

5.1.7 Statistical Analysis of Data

Appropriate descriptive statistics like frequency, percentage, mean, median, mode, and standard deviation were computed to analyse the data. The data was also subjected to the inferential statistics techniques such as: Analysis of Variance (ANOVA), Scheffe’s test, t-test, Chi-square and Pearson’s correlation coefficient. Tests results were used either to accept or reject the ten hypotheses.

The level of significance set for the test in the study were 0.01 and 0.05.

5.2 Findings and Conclusions

As brought out earlier in this study all the 79 government university libraries in Iran under supervision of two ministries (MCHE and HTME) have been surveyed. Out of that the researcher received responses from about 70 per cent (55 libraries) of the surveyed libraries. These responses have been included in the final analysis. The analysis of data presented in this study revealed the following findings and conclusions.

5.2.1. Descriptive Data Analyses

Demographic Description. For a better understanding of the
perception of the university Library Directors i.e. respondents, their personal characteristics were examined. The results indicate that a majority (69.8 percent) of the respondents are males and only about one third (30.2 percent) are females. A majority of them (78.8 percent) fall into two age group of that is 30-39 and 40-49. As regards the academic qualifications, majority (62.3 percent) of the respondents possess Master’s degree in Library and Information Science or other subjects. However, more than half of the respondents (55.8 percent) who participated in the study were those who had not specialised in library science. This has led to conclude that about half of the university libraries are not having proper library directors for information management work. Regarding the working experience of librarians, the study shows that 36.5 percent of the respondents have 6 years of working experience, whereas 30.8 percent of them had less than 2 years experience. One can deduce that the change in the qualifications of the university library directors is due to the lack of prescribed qualifications by the connected ministeries, MCHE and HTME.

Current use of IT. The data analysis indicates that 92.73 percent of the surveyed libraries have introduced computer systems, and only 7.27 percent remain without being equipped with the computer system.

All the 51 (92.73 percent) university libraries having been automated, have one IT application or more out of the 16 functions investigated. The analysis of data indicates that out of the various IT applications, computerised cataloguing system (90.20 percent) and CD-ROM databases (82.35 percent) were being highly used in the surveyed libraries. Other popular application of technology to library services include computerised
periodicals system, local area network, and national, in-house databases with 49.02, 49.02, and 34.78 percent respectively. Cataloguing and CD-ROM databases are the most important function of the computerised system in the university libraries. Computerised interlibrary loan services with zero percent is not popular among Iranian university libraries. It can be deduced that the present use of IT has not affected libraries in the interlibrary loan process, that is the sharing of resources between libraries.

The study also reveals that out of the sixteen IT applications included in the survey, the libraries have 5.36 IT applications installed per library on the average, with a range between 1 and 14. Therefore, library automation activities are at two extreme ends, high sophistication to almost primary stages.

CD-ROM databases and facsimile services are the first information technologies that installed and utilised more than 7 years ago by the surveyed university libraries. The results of the study indicate that the majority of respondents (80.72 percent) have less than three years experience of using information technology. Therefore, it may be concluded that the libraries do not have long experience in computer data processing.

The analysis also brings to fore that, based on overall index of the level of IT application in the surveyed libraries, the level scores range from a low of 1 to a high of 41. This has led to form two library groups. The low group includes 40 libraries, whereas, the high group comprises of 11 libraries. Therefore, an overwhelming majority of the surveyed libraries, i.e. 78 percent, fall in the low level of IT application. Taking into
consideration the average number and the available level of IT application it can be concluded that some of Iranian university libraries have a long way to go before they are completely automated.

The data analysis indicates that all the respondents have been only using microcomputers. The total average number of microcomputers in the surveyed libraries is 6.48 micro per library, with a range between 1 and 22. The survey reveals that libraries have acquired 19 different models of microcomputers which has resulted in attaining different type of hardware, thus, creating incompatibility and preventing the libraries from having a national networking due to lack of standardisation.

The surveyed university libraries are building their databases through a variety of software packages developed by commercial vendors. Databases developed in a variety of software leads to heterogeneity of data and it creates problems in networking. It is imperative to bring out that the university libraries database activity needs an immediate attention for more standardization.

The majority of the libraries in the two groups (MCHE and HTME) have devoted up to 25% of their annual budget allocation for installing/upgrading the information technology as there has been a steady growth of annual expenditure on IT. Although some of the libraries are receiving sufficient budget allocations, but it appears that the expenditure incurred for IT is not enough to fore its speedy growth. It was also observed that half of the libraries, having computer system, have introduced IT/computer section. Majority of these sections are manned professionally by librarian who do not possess appropriate qualitative requirement of computer
handling. This brings to fore that the surveyed libraries do not have enough expertise to support sophisticated computer-based system. To make the computer sections effective, there is a requirement to get computer hardware from outside, till bring staff get trained. As per the survey, 58.82 percent of the respondent libraries have been organising IT training programmes for their staff. Therefore, continuing education and in-service training of the staff is an essential requirement to keep up their proficiency and the job experience.

**Problems of IT Application.** Based on the collected data except item “negative attitude of librarian regarding the application of IT in libraries”, all the other 35 items investigated in this study provide a mean of over 2.50 which indicates the prevailing problems of IT application in Iranian university libraries. Deduction drawn from the surveyed libraries clearly indicate that they are facing numerous problems in IT application. The most crucial problems with a mean over than 4 may be termed as serious problems of IT application and they are:

- Lack of national information policy and planning;
- Non-existence of an industrial initiative to support the consolidation and modernization of the information system;
- Non-existence of a national agency to co-ordinate the government action in the information system;
- Legal and financial difficulties in recruiting specialists;
- High cost of information technology services;
- Lack of effective legislation for the information system;
- Inadequate and inefficient telecommunication infrastructure to sup-
port networking and new activities in the information system;
- Limited financial resources for the development and maintenance of library automation system;
- Lack of trained personnel in IT application and database development; and
- Lack of support by the educational system in using information or library services.

Having introduced the result of the descriptive data analysis in respect to the current trend of information technology utilization and problems of IT application makes the outcome evident of the two general research questions. Hereafter, the result of the inferential data analysis is highlighted.

5. 2.2 Inferential Data Analysis

The main objective of the inferential statistical analysis performed on the data was to test the hypotheses of the study. This aspect of the analysis brings to fore the following results and conclusions:

- During the study it has emerged that in the area of economical problems there is a significant difference (at the 0.05 level of confidence) between the libraries with high level and low level of IT application. The mean for economical problems in the low level library group is 12.0882 whereas in the high level library group is 13.6471. Therefore, it is evident that the university libraries with high level in IT application are having more economical problems. It would be more logical to think of this economical element as being a factor leading to more or less involvement in IT application.
The research indicates significant differences at 0.05 level of confidence between the mean scores of governmental and economical problems with the mean scores of technical and managerial problems of IT application in the surveyed libraries. Therefore, based on the mean scores, the problem groups of IT application in Iranian university libraries can be placed in priority as follows:

1. Governmental problems
2. Economical problems
3. Socio-Cultural problems
4. Personnel problems
5. Technical problems
6. Managerial problems

It can be concluded that the Government plays a dominant role to implement the IT application.

The analysis shows a significant difference at the 0.05 level between the managerial problems of IT application in the MCHE and HTME university libraries. However, there are no significant differences between the other IT application problems in these two library groups. The mean of managerial problems for MCHE university libraries is 16.0323 and the mean for HTME university libraries is 19.1304. By this it can be deduced that the HTME university libraries, which have a high mean, have more managerial problems in IT application in comparison to MCHE university libraries. The significant differences between the two library groups in the managerial problems can be attributed to the differences between the two population groups in
the number of professional and non-professional respondents. The number of professional library directors in HTME libraries is significantly higher than those in MCHE libraries. Therefore, this phenomena may be interpreted as that the HTME respondents have a close understanding of their managerial requirement and other IT application problems.

There is significant difference (at the 0.05 level of significance) between the perception of the professional and non-professional library directors in the problems of IT application. The professional's mean scores for the technical, managerial and governmental problems of IT application are higher than the non-professional's mean scores. It may be concluded that the professionals because of their qualifications have a better understanding of IT problems and can initiate measures to overcome the technical, managerial and governmental aspect of IT application.

The attitude of the respondents towards IT application does not show any significant relationship with their approach to the problem of IT application. It is obviously indicative of the fact that the observed problems are independent from the respondent's attitude towards information technology. The descriptive analysis of the study also revealed that the respondents have positive attitude towards information technology usage.

The present survey also revealed that the personal attributes of the respondents such as sex, age, educational qualifications and managerial experience have no significant effect on their view of the
problems of IT application. It implies that the observed IT application problems have not been affected by the personal characteristics of the respondents.

The study showed that there is no significant difference (at the 0.05 level of significance) between the level of IT application in the two groups of university libraries, i.e. MCHE and HTME. So it can be concluded that the two library groups represents same level in terms of IT application.

The research revealed a high and positive relationship between the level of IT application and the annual IT expenditure, and the number of computer in use in the surveyed libraries. The result indicates that the increase in IT expenditure and number of computers, leads to increase in the level of IT application and vice versa.

There is no significant difference at the 0.01 level of significant between the two library groups (MCHE and HTME) in using different types of application softwares. The analyses indicates that an overwhelming majority (77.27 percent) of the surveyed libraries prefered commercial library softwares developed in the country. It can be concluded that the surveyed libraries have more reliance on the commercial library softwares. The study also revealed that foreign library software used in the country is limited to CDS/ISIS, and this software is used only by a few libraries. This is so because foreign library softwares are in English or to be more precise in non-Persian languages. But the commercial library softwares marketed in the country are programmed for both Persian and
English data processing. However, it can be concluded that these national commercial library softwares have enabled the libraries to start automation projects.

In summary, the result of this exploratory study revealed a growing trend in IT application and suggests that computers have started to make an impact on the automation of certain application areas in Iranian university libraries. Among the most important of these are in the cataloguing and CD-ROM databases. However, the surveyed libraries are facing problems in all the problematical areas of IT application, which have been included in this study. From the study it emerges that a similarity between the two university library groups (MCHE and HTME) in their IT application status and problems exist.

5.3 Recommendations to Overcome IT Application Problems

Keeping the findings and conclusions as the basis of this study, the following recommendations are made. As the problems of IT application have been grouped into six categories in this study, therefore, the recommendations are being made to deal with these six problematic areas, i.e. governmental, economical, socio-cultural, personnel, technical and managerial. However, the recommendations made are intrinsically related and dependent on each other.

5.3.1 Governmental Factors

High priority should be given to define the National Information Policy (NIP). The introduction of the national information policies, to provide much
needed guidelines for the management of information and informatics at the national level, is essential in tackling the IT application technologies required by government officials, decision-makers, the sectors of industry, commerce, agriculture, health and education necessary to obtain the relevant information. Iranian librarianship should forge an alliances with the following natural allies in the information sector: the publishing industry, the education and non-formal education sections, the informatics sector, the mass media, and the extension agencies in order to create a strong prescure group to persuade the relevant authorities in the country to implement the formulation of national information policies.

The government should create a national agency or make responsible one of the present organisation such as IRANDOC (Iranian Information & Documentation Centre) to co-ordinate the government’s action in the information system. In addition, it should serve as a body which will implement the terms of the legislation, and put under constant review and direction the objective of the service to be rendered. Co-operation and co-ordination among libraries, can be promoted through the agency. Representations and advice on legislation and other government action for the promotion of library services should be sought by the government from either library professionals or from the Library Professional Association.

The government should further develop the legal framework for information, to cover the protection of intellectual property and the confidentially of data.

5.3.2 Economical Factors

Funds and other support should be provided to the university libraries. Independent Budget should be allocated to each library where in
a subject head should specifically be placed to meet the IT application/programmes. Libraries may explore ways and means to raise funds by innovative ventures. So that when they make proposals to their parent bodies regarding computerisation of their operations, they will receive adequate financial support. If the funds received are inadequate, planning about the best utilization of the funds should be practical and well thought of. The financial burden could be reduced and progress facilitated by assistance from international bodies such as UNESCO and International Research Centre (IRC) of Canada. Both organisations offer free software for bibliographic and text retrieval systems.

5.3.3 Socio-Cultural Factors

Education system should promote the use of information or libraries. People have to be apprised with regard to the value of information. However, a nation like Iran, hurtling into the age of computer and satellite can no longer be held back by an education system relying on textbook and reading lists recommended by teachers. Creative education system curriculum especially in Master and Ph.D. curriculum should be developed. The Library and Information Science education system will have to revise the syllabus to give more emphasis on modern technologies and new skills.

The students undertaking Library and Information Science studies should be imparted with requisite practical training in library automation to make them useful in the field of library automation from the very beginning. User education programmes are required to educate them about computerised databases, online searches, application software, etc.

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English has become the universal communicational instrument and in this international role it should be regarded as a means for integration not as a political tool of imperialism. Therefore, the country (Iranian Education System) have to give a higher level of importance to the teaching and learning of the English language, particularly in the education of technical and professional forces, to surmount the language obstacle which prevents them from exchanging and utilizing the universal resources needed to progress.

The government should execute integrated plans oriented towards the transfer and adaptation of information technology for the infrastructural and operational improvement of the local industry. Information policy should aim at creating impetitive markets for IT products and services.

5.3.4 Personnel Factors

The newly emerging technology will eventually have an impact on every aspect of library, therefore, libraries should prepare their employees for this movement. There should be an organized training programme in the use of computers and information handling libraries for professional and semiprofessional staff. This would eliminate isolation tendencies being felt now and would lead to efficiency in the use of computers at the Iranian university libraries. The training programme can be carried out by holding formal courses, workshops, seminars, discussion groups and so on. The library management could also send the staff, in rotation, to computer institute for short term training. Where the cost of such training presented by computer institutes is not cost effective, arrangement be made for the training to be undertaken at university computer centres. So the staff of a university
library could have part of their computer orientation within the institution’s computer centre. The training of library staff in computer application in libraries is indispensable and the following reasons were put forward to ensure that:

(a) The system is manned by competent personnel;
(b) Acceptance of the system and to avoid isolation tendencies being felt;
(c) Proper understanding and rendering of useful and meaningful service.

The employment of information workers such as libraries and other information professionals to act as intermediaries between advanced information technology and information users will aid in the delivery of information in a form that is appropriate to the user. Non-librarians should be employed to manage support activities while professional libraries must concentrate on providing information, research, technical and educational services.

5.3.5 Technical Factors

Computerisation of library services requires regular upgradation of hardware but as sanction to acquire them, takes time, frustration increases. Software also needs maintenance and upgradation as requirements increase with time and regular online use. It is advisable that each library should have minimum facilities like a PC-486 or preferably Pentium with 16MB RAM and 1GB hard disk capacity system in the library to operate library management work effectively. It is desirable that a standarised software be
selected which enables to cater the future needs and the same should be provided to all university libraries with interface programme to convert their databases into designated university library software. In brief standard software should be developed.

The focus of Iranian university libraries during this decade should be to develop and implement an aggressive IT acquisitions policy which will ensure a steady inflow of these technologies, so that they can benefit from the various development that have taken place world over. While selecting suitable hardware for the system, attention should be paid not only to the technical requirements, but also to such factors as compatibility with other systems in the region or with any collaborative ventures that may be planned, and the service facilities available in the country.

For automation programmes to facilitate library co-operation in Iran, there is a need for the establishment of agreed standards such as those established by the United States Committee on Technical Standards for Library Automation (TESLA). Standards are necessary in view of the observed disparities that exist in the computer hardware and software available in all the surveyed libraries.

Improved telephone service is possible without the laying of expensive wiring for data transmission. It allows transmission of facsimile, video text and computer data as well as voice. Before thinking of automating their services, libraries should consider acquiring standby electric generating plants. Although frequent interruption of power supply is still there, but the destructive effect can be minimized with the use of uninterrupted power supply systems and power stabilizers. Moreover, the
conventional solution to the lack of a reliable stable source of electronic current, would be the utilization of an internal combustion engine/generator to produce electricity. Thrope (1984) believes that solar energy (photovoltaic) system are reliable and need little maintenance compared to conventional generator systems. This can also be taken into account for the continuous availability of electric supply.

The government or particularly the MCHE and HTME, should develop an integrated network for university libraries. It is recommended that all the participating libraries should be connected through a network using PSTN lines, so that the extra wiring is not needed. The implementation of national package switching network and the adoption of a standard format for data collection are expected to promote integration and resource sharing amongst the various systems. The cost of this network could be borne by the MCHE and HTME. For efficient working and smooth running of the proposed network, the organization system should be sound and all problems related to the functions, execution and implementation of policies should be given due consideration. If libraries are to strengthen their data processing capabilities and support the move towards LANs, a special attention should be paid to improve the current technological situation in faculty libraries.

The prime goal of the Iranian university libraries should be the creation of local databases appropriate to the needs of the country, in order to provide the country scientific and technical community with in-house generated information as well as to strengthen the country’s position in the international market. The availability of local information in a properly organized and easily retrievable way, could reduce, the requirements for
access to international information services, hopefully providing more appropriate information for the local needs. This possibility also provides a country with a better position for negotiations, since it can participate in the international data exchange both as a supplier and as a consumer.

Since most of the world’s literature on science and technology is produced in advanced countries, efforts to computerise library operations in Iran should include detailed surveys of the possible ways in which the libraries can access foreign databases at a reasonable rates. The suggestion brings to the fore, the urgent need for the government to galvanize the operations of the Iranian telecommunications system. The university libraries should still attempt to obtain access to foreign database system, as a backup of supplementary service. The options available to be carried out are by mail or telex, possibly via an intermediary centres, such as an information broker, one of the international organisations, or some other cooperating institution. CD-ROM facility should be installed in all university libraries.

5.3.6 Managerial Factors

There is a clear need for a strategy or a plan for introducing information technology. Many of the libraries surveyed did not appear to have a strategy. The Iranian university libraries should have a properly planned automation project. The library administrations should conduct a thorough feasibility study and this should include a cost-benefit analysis, training of staff, and maintenance before any new computer is installed. The library administration is to formulate an approach to automation based on a
realistic assessment of the universities needs and resources. Project should begin at a local level and concentrate on the capture of local information resources. It is strongly recommended here that an automation unit be created in each Iranian university library to collate, manage and implement IT application.

The Iranian university libraries should co-operate in their automation projects. This co-operation should contemplate the required normalisation, training, support and overall planning. They should aim at co-operative networking in order to make automation less expensive and more meaningful. If the total holding of particular library are too small to warrant computerisation, they could pool their resources and set up a co-operative automated time-share network. It will be easy for participating libraries to subscribe to LC or UK MARC CD-ROM to negotiate with computer firms to maintain and service the hardware periodically. This is being recommended as there is currently no Iranian MARC format. Computer based library co-operation could start with serials record and book catalogues, with a view to produce a computer generated union list of serials and a combined catalogue of the books of the participating libraries.

For library services to be run effectively, resources (staff, documents, buildings and equipment, vehicles, etc.), must be managed competently to ensure the lowest cost of expenditure per unit of service rendered. The study suggests that in-service training should be given to those librarian who are already working, so that they may have a better understanding of management and become effective and efficient library managers.

Efforts should be made to impress upon the higher authorities about
the information technologies. Library automation costs money and the library administrators should make that they present a well organised programme to the university authorities to ensure their interest in computerisation programme of the library.

Though virtual libraries are still in their infancy it seems that they are the future libraries. Therefore, the government should provide basic facilities to establish, operate and manage information network. This will make the information resources available through networked digital libraries. All information users, seekers and disseminators should come together and work out the best way to implement the required changes.

5.4 Suggestions for Further Research

The touchstone of any research investigation happens to be its potentiality to indicate fields unknown and new postures. The present study brings into light several topics on which further research can be directed. Based on the findings of the present study, the following suggestions are made for further research on the information technology application in Iran.

1. This study was focused on the current trend of IT and its application problems in Iranian university libraries. There is further need to study the effectiveness, performance-effectiveness and cost effectiveness of the present computer-based systems in use in these libraries.

2. There is a clear need for a strategy or a plan for introducing information technology. In this regard, conducting a comprehensive study and analysis on the present state of the library system in Iran would be of special significance.
3. A realistic appraisal of the existing information technology industry in the country is needed.

4. Criteria for the identification of appropriate information technology should be studied.

5. This study covered Iranian university libraries. It would be of considerable importance, to explore the issue relating to other types of libraries to see if there are any similarities or differences in regard to IT application and its problems.

6. User satisfaction of the present computer-based system in use in Iranian university libraries should be considered for further research.