Chapter 5
FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.1 Introduction

Web 2.0 technologies are one of the best tools to interact with the users on the internet environment. In the library perspective, library staff and library users can collaborate and share the ideas and opinions with each other, library staff can provide best services to the users by adopting various Web 2.0 tools and technologies. National libraries should inevitably adopt Web 2.0 technologies as they are considered as heart of the nation. Many a times, users can not visit the national library personally to get required information may be because of the geographical barriers. If national libraries adopt Web 2.0 tools and technologies such as RSS, blogs, social networking, instant messaging, bookmarking and mashups, users can be benefitted in using library resources. And also it enables the libraries to provide online services like posting the news and events, providing reference services. Sensing this idea, a study of this sort has been conducted.

This chapter presents the major findings of the study and provides practical suggestions for future studies on improvement in implementation of the Web 2.0 technologies in the national libraries.

5.2 Findings of the study

The study began with the hunt for a list of countries especially those having national libraries in the world; researcher has discovered all national libraries having their own websites which are officially available on the Internet. In the next step investigator collected the information about Web 2.0 technologies and listed its various popular tools like RSS, blog, social networking, mashups, bookmarking, vodcasts, podcasts, instant messaging and so on. Later on the checklist of questions for collecting data has been prepared.
The study results are shown under the following list:

5.2.1 Adoption of Web 2.0 tools and technologies in the national libraries.
5.2.2 Continent wise comparative study of the adoption of Web 2.0 in the national libraries.
5.2.3 Continent wise comparison of functional levels of Web 2.0 technologies in national libraries
5.2.4 Developmental status of countries and implementation of Web 2.0 in national libraries

5.2.1 Adoption of Web 2.0 tools and technologies in the national libraries

1. There are 256 countries identified in the world and continent wise distributions of counties were also made. Highest number of countries are found in African (61; 23.8%) and European (59; 23.0%) continents.
2. Out of 256 countries, 203 countries are found to have single national libraries representing 79.3 percent present.
3. USA and Italy each have two more national libraries, totaling to 3 each. Altogether there are 207 national libraries. The highest number of national libraries are from the European (57; 21.5%) and African (51; 19.9%) continents.
4. It was found that 171 (82.6%) national libraries have an official websites available on the World Wide Web. Highly accessible URLs of national libraries are found in European (56; 27.1%) and Asian (42; 20.3%) continents.
5. There are 109 (63.7%) national library websites adopted various tools and technologies of Web 2.0 and highest adoption of web 2.0 tools are found in (45 ; 26.3%) national libraries from European, followed by Asian (28; 16.4%) continents.
6. It was found that 87 national libraries (79.8%) have adopted social networking sites, followed by adoption of RSS in 66 (60.6%) libraries, mashups in 43 (39.4%) libraries, blogs in 38(34.9%) libraries, vodcasts in 33(30.3%) libraries, podcasts in 9(8.3%) libraries, instant messaging in 6 (5.5%) libraries, and folksonomies in 3 (2.8%) libraries and Wiki tools are not implemented even by one library.
7. Out of 87 national libraries, 81 (93.1%) national libraries adopted Facebook, 58 (66.7%) national libraries adopted Twitter and 19 (21.8%) national libraries adopted Flicker.

5.2.2 Continent wise comparative study of the adoption of Web 2.0 in the national libraries

1. Out of 109 national libraries from all continents; only 87 (79.8%) libraries adopted social networking sites. Further it was found that all the national libraries from Australia and Oceania and South America have adopted social networking sites.

2. It was found that out of 109 national libraries, 66 (60.6%) libraries use RSS. All of the national libraries in Australia and Oceania use RSS and 73.3 percent of national libraries in North America used RSS.

3. Mashup has been adopted in the 43(39.4%) national libraries. In continent-wise comparative study of the national libraries has highly implemented mashups tool in Australia and Oceania (50%).

4. Continent taken as a whole 34.9 percent of national libraries (38 libraries) adopted blog and comparison revealed that Australia and Oceania and South American national libraries have highly adopted blogs.

5. Overall 30.3 percent of the national libraries (33 libraries) adopted vodcasts, 53.3 percent of the national libraries from North America have highly adopted vodcasts.

6. 8.3 percent of the national libraries implemented podcasts and continent wise it was highly adopted from Australia and Oceania (50%) national libraries.

7. On the whole, 5.5 percent of the national libraries have implemented instant messaging. The continent-wise comparison was found in South American national libraries are the highest adopted instant messaging service.

8. Among all continents, only 2.8 percent of the national libraries implemented folksonomies. And comparatively Australia and Oceania (50%0%) national libraries has the highest in the adoption of folksonomies tools.
9. All the national libraries of Africa and North America have adopted Facebook, followed by Europe (97.4%), South America (88.9%), Asia (82.4%), Australia and Oceania (50%) have adopted Facebook.

10. Flicker has been in use in all national libraries of Australia and Oceania followed by Asia (23.5%), North America (23.1%) and Europe (20.5%). and national libraries from Africa have not used Flicker in their libraries.

11. Twitter is used in all the national libraries of Australia and Oceania, followed by Asia (82.4%), Africa (71.4%), Europe and North America (61.5%) and South America (55.6%).

5.2.3 Continent wise comparison of functional levels of Web 2.0 Technologies in national libraries

1. The completion of level 3 of social networking is found to be the highest in Australia and Oceania (100%), followed by Europe (37; 94.9%), North America (11; 84.6%), South America (7; 77.8%), Africa (5; 71.4%) and Asia (10; 58.8%). The completion level 2 is found from Africa (2; 28.6%), Asia (4; 23.5%), South America (2; 22.2%) and Europe (1; 2.6%) and completion of level 1, is found in Asia (3; 17.6%), North America (2; 15.4%), and Europe (1; 2.6%) national libraries.

2. Accomplishment of Level 3 in RSS is from Australia and Oceania with 50 percent, followed by North America (5; 45.5%), Asia (7; 43.8%), and Europe (10; 25.6%). Completion of Level 2 of RSS from South America (2; 100%), followed by Africa, Australia and Oceania, North America, Europe and Asia. And Level 1 shows they didn’t accomplished their aim by adopted RSS from Asia (37.5%), followed by Europe, Africa, and North American national libraries.

3. Completed achievement was noticed from the Australia and Oceania which adopted blog (100%), and followed by Europe (87.5%), North America (85.7%), Asia (60.0%), South America (20%) shows at level 3. South America (80%), Asia (40%), Africa (33.3%) and Europe (12.5%) partially completed their aim at the level of 2. And from Africa (66.7%) and North American (14.3%) national libraries didn’t reach their aim completely. So it shows the level 1 in this area.
4. The use of mashups is accomplished to the level 3 in the national libraries of South America (100%), followed by North America (66.7%), Europe (33.3%), Africa (25.0%) and Asia (9.1%). mashups Level 2 is found in Africa (50%), followed by Asia (45.5%), Europe (44.4%), and North America (16.7%). mashups level 1 is found in Australia and Oceania (100%), followed by Asia (45.5%), Africa (25%) and North America (16.7%).

5. The use of vodcasts to the Level 3 shows that only (50%) national libraries of South America accomplished their aim. Level 2 of vodcasts is highest found in national libraries of Australia and Oceania, Europe and South America with 100% each, followed by North America (37.5%), and Asia (16.7%). Level 1 is found highest in Africa (100%), followed by Asia (83.3%) and North America (12.5%).

6. It was found that 40 percent of the national libraries of North America achieved their aim fully by using podcasts tool at level 3. All the national libraries from Australia and Oceania, Europe and 60 percent from North America reached podcasts level 2.

7. Only 50 percent of the national libraries from Asia reached their aim completely by level 3 of instant messaging. All the national libraries from Europe and North America partially reached their aim by adopted instant messaging at level 2. The level 1 is found in Africa and South America (100%) and Asia (50%).

8. None of the national libraries adopted folksonomy at level 3. All the national libraries in Australia and Oceania and Europe adopted folksonomy at level 2 and all the national libraries from North America were at level 1.

5.2.4 Developmental status of countries and Web 2.0 implementation in the national libraries

1. Out of 256 countries 189 (73.8%) are underdeveloped countries followed by 47 countries (18.8%) of which are developed countries and 20 (7.8%) are poor countries.

2. Among 109 Web 2.0 technologies adopted countries, 64 (58.7%) are underdeveloped and 45 (41.3%) are developed countries.

3. Among the developed countries the highest adoption of Web 2.0 technology found in Australia and Oceania (100%) while Europe with 66.7 percent. Among
underdeveloped countries the highest adoption of Web 2.0 technologies was found in South America (100%) and Africa (90%).

5.3 Discussion of the results with respect to hypotheses

5.3.1. National libraries adopted varied types of Web 2.0 tools and technologies.
5.3.2. National libraries in developed countries have deployed varied types of Web 2.0 tools and technologies.
5.3.3. National libraries which have adapted Web 2.0 tools and technologies have a distinct purpose and features.
5.3.4. National libraries which have adapted Web 2.0 tools and technologies have effectively accomplished their aim.
5.3.5. Continent wise national libraries vary in their purpose and features of adoption of Web 2.0 tools and technologies.
5.3.6. National libraries in developed and underdeveloped countries which have adopted Web 2.0 technologies differ significantly in their effectiveness.

5.3.1 Hypothesis-1: National libraries adopted varied types of Web 2.0 tools and technologies

H1 declared as “National libraries adopted varied types of Web 2.0 tools and technologies” is fairly accepted. Overall 109 (63.7%) national libraries have adopted varied types of Web 2.0 technologies and it is significantly proved by the Chi-square test of statistics and on the other hand 62 (36.3%) national libraries websites have not implemented Web 2.0 technologies. Hence this study reveals the lack of understanding and benefit of the new and advanced information technology in 62 (36.3%) national libraries.
5.3.2 Hypothesis-2: National libraries in developed countries have deployed varied types of Web 2.0 technologies

H2 confirmed as “National libraries in developed countries have deployed varied types of Web 2.0 technologies” is fairly accepted. As the test statistics was found that 45 (97.8%) national libraries in developed countries deployed varied types of Web 2.0 technology tools. Therefore the researcher’s assumption comparatively is accepted and only 2 (4.3%) of the national libraries from developed countries do not any types of Web 2.0 tools.

5.3.3 Hypothesis-3: National libraries which have adapted Web 2.0 tools and technologies have a distinct purpose and features.

H3 stated as “National libraries which have adapted Web 2.0 tools and technologies have a distinct purpose and features.” is fairly accepted, as test statistics significantly proved that varied types of Web 2.0 technology tools adopted for varied purposes and features. It is presented as follows:

It is found that, the social networking sites are used for various purposes. There are 84 (96.6%) national libraries highly adopted for general news purpose, followed by 81 (93.1%) library news and events, 72 (82.8%) library services, 69 (79.3%) sharing new books arrivals, 63 (72.4%) information literacy, 59 (67.8%) book discussion, 52 (59.8%) book reviews and 6 (6.9%) using research tools.

All the national libraries adopted RSS for the purpose of sharing general news, followed by 64 (97%) for library news and events, 50 (75.8%) for sharing new books arrivals, 42 (63.6%) for sharing new journals, 37 (56.1%) for sharing new database, 22 (33.3%) for searching library catalogue and 2 (3%) for sharing book reviews use in the libraries.

There are 37 (97.37%) national libraries which have adopted blog for posting general news purpose, followed by 34 (89.47%) library services and information literacy,
33 (86.64%) library news and events, 29 (76.32%) sharing new books arrivals, 26 (68.42%) book discussion, 25 (65.79%) sharing book reviews, and 5 (13.16%) using research tools.

22 (51.16%) national libraries adopted mashups to link to the online mapping, followed by link to the online shopping and online search with (9; 20.93%), link to the video sites and travel details with (8; 18.63%), link to the news sites (6; 13.95%).

Majority (30; 90.91%) of the national libraries have adopted vodcasts for sharing general news, followed by 29 (87.88%) for the purpose of sharing general searching skills, 27 (81.82%) library news and events, 25 (75.76%) study skills workshops, 21 (63.64%) library orientation tours, 20 (60.61%) guidance with resources, 16 (48.48%) sharing book reviews, 15 (45.45%) advise on library services or skills while 4 (12.12%) using research tools and 3 (9.9%) searching the library catalog.

There has been a completed adoption of podcasts in the national libraries for general news and general searching skills, followed by 8 (88.89%) library for news and events and guidance with resources, 7 (77.78%) study skills workshop, 5 (55.56%) advice on library skills, library orientation tours and sharing book reviews and 2 (22.22%) searching library catalog and using research tools.

6 (100%) national libraries have adopted instant messaging for the purpose of reference service.

There are 3 (100%) national libraries have adopted folksonomy for general news purpose, followed by 2 (66.6%) library for news and events, book discussion and research tools.

Majority (94.3%) of the national libraries use social networking sites features to link to the library home pages, followed by 93.1 percent date and time of postings, 92.0 percent archival entries are up to 1 year and entries are browsable by date, 85.1 percent
links to the relevant internet resources, 83.9 percent latest postings are within last 2 days, 46.0 percent transcripts accompanies each postings in the tools.

A greater part of the national libraries use RSS features’ latest postings within the last 2 days and provide links to the download RSS feed with 87.9 percent archives for the RSS feed and entries are searchable by keywords with 86.4 percent, entries browsable by date with 65.2 percent, transcript accompanies for each postings 63.6 percent.

94.7 percent of the national libraries have adopted the date and time features of blog, 92.1 percent entries are browsable by date, 89.5 percent categories for postings and archival entries are up to 1 year, 84.2 percent archives for the blog entries are browsable by topics, 81.6 percent links to the library home pages and link to the relevant Internet resources, 78.9 percent provide links to download RSS feed, 76.3 percent entries are searchable by keywords, 65.8 percent archival entries are more than one year and latest postings are within the last 2 days, and 47.4 percent of the libraries use RSS features of adequacy instructions on how to use blog and links to the similar tools.

50 percent of the national libraries adopted mashups to link to the satellite, address of the library, and less than half of the libraries adopt the features like place searching, link to the library home pages and link to the Google search.

More than three fourth of the national libraries use vodcasts features of archival entries are up to 1 year (87.9%), There are dates and times of postings, Entries are browsable by date (84.8%). There are categories for postings, link to the library’s home page (75.8%), and more than half of the national libraries used vodcasts features of entries are browsable by topics (69.7%), Archival entries are more than 1 year (60.6%). There are archives for the postings (57.6%), and less than the half of the libraries adopt vodcasts features of entries are searchable by keywords and transcript accompanies of the each postings.

All national libraries applied podcasts features of provide link to download RSS feed and archival entries are up to 1 year; 88.9 percent categories for the postings,
browsable by date. There are archives for the entries, library builds own podcasts and links to the relevant internet resources; 77.8 percent adequacy instructions on how to use podcasts, 66.7 percent latest postings are within the last 2 days, 55.6 percent entries are searchable by keywords and less than half of the libraries used dates and times for the postings, links to the similar tools and entries browsable by the topics.

50 percent of the national libraries adopt instant messaging features to give instructions on how to use instant messaging tools.

66.7 percent of the national libraries implemented folksonomy for various features like categorizing of posts, providing links to the library home pages, date and times for postings, linking to the relevant internet resources, making entries browsable by topics,; and 33.3 percent of the national libraries used folksonomy features to provide link to download RSS feed, make entries searchable by keywords.

5.3.4 Hypothesis-4: National libraries which have adapted Web 2.0 tools and technologies have effectively accomplished their aim.

H4 stated as “National libraries which have adapted Web 2.0 tools and technologies have effectively accomplished their aim” is accepted, as test statistics significantly proved that varied types of Web 2.0 technology tools have been adopted for varied purposes and features. It is follow the below:

72 (82.8%) national libraries accomplish their aim fully by adopted social networking sites for various purposes and features at the Levels 3 and 9 (10.3%) somewhat completed their aim at the levels 2 and 6 (6.9 %) of the national libraries completed level 1.

23 (34.8%) national libraries completed their aim by adoption of RSS at the level 3. 24 (36.4%) national libraries accomplish their aim by adoption of RSS at Level 2 and 19 (28.8%) national libraries are in functional level 1.
A greater part of the 26 (68.4%) national libraries achieved their aim completely by adopted blog at Level 3; 9 (23.7%) national libraries belongs to level 2 and 3 (7.9%) national libraries are in basic steps at level 1.

Further on the study revealed that 15 (34.9%) national libraries adopted mashups at level 3; 16 (37.2%) national libraries are at Level 2 and 12 (27.9%) national libraries are at level 1.

Only 4 (12.1%) national libraries completely accomplished their target by adopted vodcasts at level 3 and 19 (57.6%) national libraries completed their target by using vodcasts at level 2 and 10 (30.3%) national libraries completed level 1.

Just 2 (22.2%) national libraries fully reached their target by adopted pdcasts at level 3 and 7 (77.8%) national libraries partially reached their target at level 2.

Merely 1 (16.7%) national library accomplished their target by using of instant messaging at level 3; 2 (33.3%) national libraries somewhat finished their target at the level of 2 and 50 percent of the national libraries completed level 1.

66.7 percent of the national libraries somewhat completed their target to use folksonomy at level 2 and 33.3 percent of the national libraries completed level 1.

5.3.5 Hypothesis-5: Continent wise national libraries vary in their purpose and features of adoption of Web 2.0 tools and technologies

H5 stated as “Continent wise national libraries vary in their purpose and features of adoption of Web 2.0 tools and technologies” is accepted, as test statistics discovered that there is continent wise variation in their purposes and features in adoption of Web 2.0 technologies this is explained below:
Social networking sites had fully adopted in the Australia and Oceania and South American national libraries for general news purposes. RSS has highly adopted by Australia and Oceania (100%) and North America (73.3%). blogs has highly adopted by Australia and Oceania (100%) and South America (55.6%). vodcasts has extremely used by the North America (53.3%) and Australia and Oceania (50%). podcasts has very highly adopted by the Australia and Oceania (50%) and North America (33.3%). folksonomies has highly used by the national libraries of Australia and Oceania (50%) for general news purpose.

The entire national library from Australia and Oceania and South America has used social networking sites for the purpose of library news and events; An RSS feed has used by the entire national libraries from Australia and Oceania and percent of the national libraries from North America (73.3%) for the purpose of library news and events; blogss has been used by the national libraries from Australia and Oceania (100%) and 44.4 percent of the national libraries from South America for the purpose of library news and events; vodcasts has used by the 50 percent of the national libraries from Australia and Oceania and North America (46.7%) for the purpose of library news and events; folksonomies and podcasts had used by 50 percent of the national libraries from Australia and Oceania for the purpose of library news and events.

Mainstream of the national libraries from Australia and Oceania and South America (100%) has adopted social networking sites; 100 percent from Australia and Oceania and 53.3 percent from Europe national libraries has adopted RSS; entire national libraries from Australia and Oceania and 44.4 percent from South America has adopted blogs; and 50 percent from Australia and Oceania has adopted folksonomies for the purpose of sharing new books arrivals.

RSS feeds implemented for the purpose of sharing new journals, and sharing new databases by the entire national libraries from Australia and Oceania and North America (60%).RSS, vodcasts and podcasts were used for the purpose of searching library catalogue was by the entire national libraries from Australia and Oceania highly. The entire national libraries of Australia and Oceania have adopted social networking sites
and blog tools, followed by 11.1 percent of the national libraries from South America have used instant messaging for the purposes of providing reference service.

The entire national libraries of Australia and Oceanic have used social networking sites and blogs for the purpose of discussion of books highly. All the national libraries from Australia and Oceania and 73.3 percent from Europe highly adopted social networking sites; 100 percent from Australia and Oceania and 44.4 percent South America used blogs; 50 percent Australia and Oceania used folksonomies for the purpose of sharing information literacy.

The entire national libraries from Australia and Oceania have adopted social networking sites, blog, vodcasts, podcasts and folksonomy for the purpose of finding research tools. 50 percent of the national libraries from Australia and Oceania and North America (6.7%) have used vodcasts and podcasts to advice on library skills highly, followed by 50 percent of the national libraries from Australia and Oceania and North America (6.7%) have used vodcasts and podcasts for the purpose of guidance with resources.

vodcasts and podcasts has used by the national libraries of North America (40%) for purpose of library orientation tours.

All the Australia and Oceania national libraries has adopted social networking sites and blog for sharing book reviews followed by North America; 50 percent of the national libraries from Australia and Oceania has used vodcasts and podcasts for the same purpose.

Mashups has used to establish link to online mapping, online shopping, video site and travel details site by the national libraries from Africa (40%), Australia and Oceania (50%), Europe (11.1%) and North America (13.3%) respectively.

Majority of the national libraries from Australia and Oceanic have adopted the features of adequacy of instructions on how to use social networking sites, RSS, blogs, vodcasts, podcasts, and folksonomy tools. Majority of the national libraries from
Australia and Oceanic have used social networking sites, blog, RSS, podcasts and folksonomy.

The social networking sites has used by the national libraries from Europe (53.3%) for the categories for the postings, followed by RSS feeds has used by the entire national libraries from Australia and Oceania and 60 percent from North Americas; blogs has been used by the national libraries from Australia and Oceania and 44.4 percent from South America; 50 percent from Australia and Oceania and 40 percent from North America has used vodcasts; 50 percent Australia and Oceania and 33.3 percent of North America has used podcasts; 50 percent of Australia and Oceania national libraries has used folksonomy for the feature of categories for the postings.

The entire national libraries from Australia and Oceania have adopted social networking sites, RSS and blogs for the features of entries are searchable by keywords; 26.7 percent of the national libraries from North America have adopted vodcasts and podcasts. 50 percent of the national libraries from Australia and Oceania have adopted folksonomies for the entries are searchable by keywords.

All Australia and Oceania and South American national libraries have adopted social networking sites to link the library homepages; followed by Australia and Oceania (50%) and North America (40%) has used RSS; Australia and Oceania (100%) and Europe, North America, and South America (33.3%) has used blogs; South America (33.3%) and Asia (17.9%) has used mashups; Australia and Oceania (50%) and North America (46.7%) has used vodcasts ; North America (13.3%) has used podcasts and North America (6.7%) has used folksonomies for the features of link to the library homepages.

Social networking sites has used by the national libraries from Australia and Oceania, South America (100%), and Europe (84.4%) for the displaying date and time of postings highly; RSS has used by the national libraries from Australia and Oceania (100%) and North America (66.7%); blog has used by the national libraries from Australia and Oceania (100%) and South America (44.4%); vodcasts has used by the
national libraries highly from North America (46.7%); podcasts has used by the national libraries highly from North America (33.3%) and folksonomies has used by the national libraries from Australia and Oceania (50%) national libraries for the displaying date and time of postings.

The entire national libraries from Australia and Oceania and South America and Europe (84.4%) has used social networking sites for the purpose of archival up to one year; followed by Australia and Oceania (100%) and South America (44.4%) has adopted blog; Australia and Oceania (50%) has adopted vodcasts and podcasts for the purpose of archival up to one year.

All the national libraries from Australia and Oceania and Europe (82.2%) has adopted Social networking sites for the purpose of archival entries are more than one year; followed by Australia and Oceania (100%) and South America (44.4%) have adopted blogs; North America (40.0%) have adopted vodcasts; Australia and Oceania (50%) have adopted vodcasts for the purpose of archival entries are more than one year.

All the national libraries from Australia and Oceania (100%) and Europe (82.2%) has adopted social networking sites for the features of latest postings are within the last two days; Australia and Oceania (50%) and North America (33.3%) has adopted RSS; Australia and Oceania (100%) and North America (33.3%) has used blogs for the features of latest postings are within the last two days.

All the national libraries from Australia and Oceania have adopted social networking sites and blogs for the features of link to the relevant internet resources; 50 percent of national libraries from Australia and Oceania have adopted RSS and folksonomies for the features of link to the relevant internet resources.

All the Australia and Oceania national libraries have adopted social networking sites and blogs for the features of link to the similar tools.

The entire national libraries from Australia and Oceania and 66.7 percent of Europe has used social networking sites for the features of entries which are browsable
by topics; followed by 100 percent from Australia and Oceania and 66.7 percent from North America has used RSS; Australia and Oceania (100%) and 44.4 percent South America has used blogs; 50 percent from Australia and Oceania and 40 percent from North America has used vodcasts; 50 percent from Australia and Oceania and 33.3 percent from North American national libraries used podcasts; and 50 percent from Australia and Oceania has used folksonomy for the features of entries are browsable by topics.

The highest national libraries from Australia and Oceania and South America have adopted social networking sites and blogs for the features of entries are browsable by date; followed by Australia and Oceania and North America have adopted RSS highly; vodcasts and podcasts have the highest adopted North American national libraries for the features of are browsable by date.

Most of the national libraries from North America adopted social networking sites, vodcasts and podcasts for the features of transcript accompanies each posting in the tools.

33.3 percent of the national libraries from Africa have used mashups for the features of link to the satellite options. 14.3 percent of the national libraries from Asia have adopted mashups for the features of address of the library, link to the Google search.

5.3.6 Hypothesis-6: National libraries in developed and underdeveloped countries which have adopted Web 2.0 technologies differ significantly in their effectiveness.

H6 state as “National libraries in developed and underdeveloped countries which have adopted Web 2.0 technologies differ significantly in their effectiveness.” is partially accepted, as test statistics revealed that there are significant and also non-significant.

42.5 percent of the national libraries of underdeveloped countries accomplished their aim have adopted social networking sites at functional level 3, and 77.8 percent from the national libraries from South America have adopted social networking sites highly and 71.4 percent from Africa. On the whole 40.2 percent of the national libraries
of developed countries completed their target fully using social networking sites at level 3, and the entire the national libraries from Australia and Oceania and 61.5 percent from Europe have adopted social networking sites at functional level 3.

25.8 percent of the national libraries from developed countries achieved their target in using RSS at the level of 3, and 50 percent of the national libraries from Australia and Oceania and 36.4 percent from North America has adopted RSS feed at functional level 3. 9.1 percent of the national libraries from underdeveloped countries achieved their target aim fully using RSS at the level of 3 and maximum adopted from Asia that is 18.8 percent.

On the whole national libraries from developed countries adopted blogs at level 3 with 22.7% and achieved their goal completely, and most of the national libraries achieved their target fully using blogs level 3 from Australia and Oceania (100%) and Europe (56.3%); on the whole national libraries from underdeveloped countries adopted blog level 3 with 16.7% and the uppermost is found in North America with 42.9 percent and Asia (40.0%).

There are 18.2% of the national libraries from underdeveloped countries which achieved their target by adopting mashups and the entire national libraries from South America have followed the same; only 4.5 percent of the national libraries from developed countries achieved their aim by adopting mashups and 33.3 percent of the national libraries from North America have followed the same.

Overall 3 percent of the national libraries from both developed and underdeveloped countries reached their target using vodcasts with level 3 and the highest was found from only North America; and many of the national libraries adopted vodcasts and partially achieved their aim at the levels of 2.

Only 3 percent of the national libraries from developed countries adopted podcasts at levels 3 and achieved their aim fully but it was not found in underdeveloped countries. On the whole 7.6 percent of the national libraries from developed countries has adopted podcasts at level 2, and partially achieved their target.
1.5 percent of the national libraries from developed countries were used instant messaging tools and they accomplished their aim fully at the level of 3 with only; from underdeveloped countries no national library accomplished their aim fully.

The national libraries from both developed and underdeveloped countries have not used folksonomies with level 3 and not reached their aim completely.

5.3. Recommendations

- The national libraries have to adopt advanced technologies like Web 2.0 tools to provide the best services to the users. In the present study, none of the national library has implemented Wiki tool completely. Less number of libraries have adopted folksonomies tool. The library and information centers has to adopt the latest Web 2.0 tools like Wiki, folksonomies or bookmarking or tagging etc.. to collect and organize the required online resources for the benefit of users.
- Many of the national libraries have adopted social networking sites for updating news, events, videos, or posters, but none of the national library implemented the chatting or 24 hours reference service in the social networking sites to help user to collaborate and interaction with library organizations so all the national libraries has to facilitate the chatting or 24 hours reference services in the social networking sites.
- The study found that few of the national libraries have implemented mashups tool. If the libraries used mashups tool in their websites by providing library route map, photo, and address, users can easily connect to the library.
- Some of the national libraries have adopted Web 2.0 tools like YouTube, podcasts, and blogs, but they do not update frequently. Hence the national libraries have to continuously update the Web 2.0 tools in their library websites by providing new information to attract the users.
- The library professionals have to undergo training programme to learn the latest web tools and technologies for effective implementation in their libraries.
5.4. Further scope for the research

- The present study has been limited to the use of web 2.0 tools and technologies in the national libraries. Future studies may explore academic libraries, public libraries, school libraries, parliamentary libraries, national museum and archives and so on.
- The present study concentrated only on popular web 2.0 technologies that are publicly available, but in future, researchers can undertake a study on use of web 3.0 or semantic web tools and technologies.
- The present study has used content analysis method using checklist techniques as a tool for collecting data and analysis. Future studies may use other types of methods like questionnaire methods, interview techniques and so on.
- The present study revealed adoption of web 2.0 in the national library websites but future research studies can concentrate on applications of web 2.0 in OPAC services and other such related services.

5.5. Conclusion

National library is the heart of any country. Common man’s entry into a national library may not be possible because of geographical boundaries. However, he/she can access the host national library websites of any county’s national library, if they have a web presence and through their resources and services can enhance man’s knowledge. The present generation is capable of quickly grasping the ICT tools, technologies and techniques in satisfying their information/ knowledge needs. On the other hand, present day library and information centers also are influenced by the ICT tolls and technologies such as RFID, online catalogue, online databases, and various Web 2.0 tolls and technologies. To conclude, Web 2.0 tools and technologies are available free of cost, easy to install, easy to learn, and help to get updated in the field of library and information science. The LIS professionals should have the zeal to learn and adopt web 20 technologies in their libraries.