Analysis of perceived attribute of individual characters on ICTs adoption in the university libraries in West Bengal

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Abstract: This paper tries to analysis the perceived individual characters on ICT adoption in the university libraries. Here we applied Roger's individual perceived attributes on ICT diffusion. The important aspects of this paper are the application of innovation diffusion theory in the field of Library to analysis the ICT adoption in the University Libraries. For this study survey method is administered with structured questionnaire, conducted among the Librarians and library staffs of the university libraries as well as face to face interview were conducted for data collection. From the collected data researcher has analyzed the data and came to the conclusion that most of the respondents opined that the implementation of new technologies in the university libraries has a high relative advantage with mean score (7.19), compatibility (6.91), Observability (5.1), Trialabiity (3.8) and low mean score of complexity (0.82). From the results it can be inferred that except in case of complexity, university libraries have shown positive attitude and perceptions towards the adoption of ICTs.

1 Introduction:

Today computer and associated Technologies have drastically changed way of providing information. Perhaps this is the vital period most of the people are changing from techno- illiterate to Techno- literate. The society is undergoing a kind of transformation with the passing of each day; we find that IT is implementing and influencing in every part of our life even in every sector of the society. Library and information centre is a part of our society and we may call it is a social organization. So IT has changed the way of providing traditional service and in this present situation without ICT facilities a library will not be able to provide the service to meet the user varied approach. In this present situation library and information professionals are also enhancing their competency level to adopt and learn the modern tools and techniques to compete with this situation. Technology became the fourth pillar of the library. A technologically advanced university library has the varied facilities to satisfy the maximum demands of the present advanced user. But in the present situation we find that some university libraries adopted ICTs very well and some are not in this article we try to identify the impact of individual characters on ICTs adoption

Rogers, individual perceived attributes on ICT diffusion are control the rate of adoption these are 1. Relative Advantage 2. Compatibility 3. Complexity 4. Trialibility 5. Observability

1. Relative Advantage is the level to which the modernization is supposed as better than the idea it supersedes.

2. Compatibility is the level to which a modernization is supposed as being reliable with the existing values, past experiences and needs of potential adopters.

3. Complexity is the level to which a modernization is perceived as difficult to understand and use

4. Trialibility is the level to which an innovation may be experimented with on a limited basis or trial basis

5. Observability is the level to which the results of a modernization are visible to others.

2 Purpose: This paper try to explore the extend of ICT adoption among the university libraries in west Bengal, and to identify the perceived attribute of individual characters on ICT adoption. Another perspective of this study is to application of innovation diffusion theory(IDT) to the diffusion of ICT in the university libraries .

3 Hypothesis: "Innovations that are perceived by the Library professionals as having better relative advantage, compatibility, trial ability and observe ability and less complexity will be adopted"

4 Methodology

For this study survey method is administered with structure questionnaire, conducted among the professional staff of the university libraries as well as face to face interview were conducted for gathering data. From data gathered the research has analyzed the potential influences on the adoption of ICT, including the attributes of innovation in university libraries .This is based on the attributes of an innovation in Rogers' theory of diffusion of innovation.

4.1 Population

The population for this study comprised of the University library (Central library) of West Bengal , the library which was established at least ten years ago ,name of the library and number of respondent are as follows:1. University of Calcutta central library,(36) 2. Jadavpur university library, (49) 3. Rabindrabharati university library, (16) 4. presidency university library, (11) 5. st.xaviers university library,(12) 6. Kalyani University library, (11)7. North Bengal University library,(7) 8. Burdwan University library (17) 9. Viswabharati University Library (36)10.Vidyasagar University Library ,(9)) all the professional staff of the library is considered for study.

4.2 Sample Design

In order to achieve desired representation, stratified random sampling will be used. This is because the accessible population is not homogenous in terms of the role they play in fostering ICT adoption. The two strata namely the librarians and library assistants will be formed from the accessible population. This is almost a census study all the librarian and professional staff has been considered from selected universities. And total 206 numbers of staff are considered

4.3 Data Collection Tools

The questionnaire method was adopted for collection of data for this study, supplemented by interviews of Librarians to gather additional information. A draft questionnaire was designed based on discussions with professional colleagues and related research studies.

Two sets of structured questionnaires were prepared; one questionnaire to the University Librarian or Librarian in Charge and another to the library professionals in the central and departmental libraries in the universities selected for the study.

5 Findings:

The research findings are summarized after the analysis of data which is collected from questionnaire related to the objective of the study, and interview method

 Table depicts the ranked order of impact of Relative advantage on ICT adoption of all the selected University libraries on the base of mean value of answer to review the impact of Relative advantage on ICT adoption, respondents were asked to put tick marks against the five statements on Relative advantage enlisted in the survey. The mean value has been calculated on the basis of five point Likart scale. As discussed in the methodology, the table shows that the average score on the five statements ranging from 1.31 to 1.51, the highly recognized relative advantage statements are 'Using ICT enable one to access information easily and quickly', all the statements show the high impact of relative advantage on ICT adoption , because mean value of all the statements are not much difference to each other and all are the above 1, overall it is observed that perceived attribute of relative advantage have high impact on ICT adoption . According to Rogers "The superior the perceived relative advantage of an innovation the better the rate of adoption will be", therefore

we can conclude from the table that library professionals have the high degree of perceived usefulness on the ICT adoption .

5.1 Relative Advantage   (It is the amount to which a new idea is supposed to be superior than the idea it supersedes.)

Table 1 Containing Relative Advantage

Rank	Statement	.SA(+2)	.A(+1)	N(0)	.D(-1)	.SD (-2)	Score	Mean
1	1	120	27	11	4	5	253	1.51
5	2	104	35	12	7	9	219	1.31
2	3	117	30	10	6	4	250	1.49
4	4	117	20	15	9	6	233	1.39
3	5	127	14	16	2	8	250	1.49
							Total	7.19

[SA= Strongly Agrec, A= Agrec, Neutral/No comments, D= Disagree, SD= Strongly Disagree]

Statements

1= Using ICT enables one to access information easily and quickly.

2 =Using ICT enhances effectiveness in accessing relevant information.

3= Using ICT allows to access different types of information service.

4= ICT provides 24/7 hour service.

5 =Through ICT single source of information can be used by many users at a time.
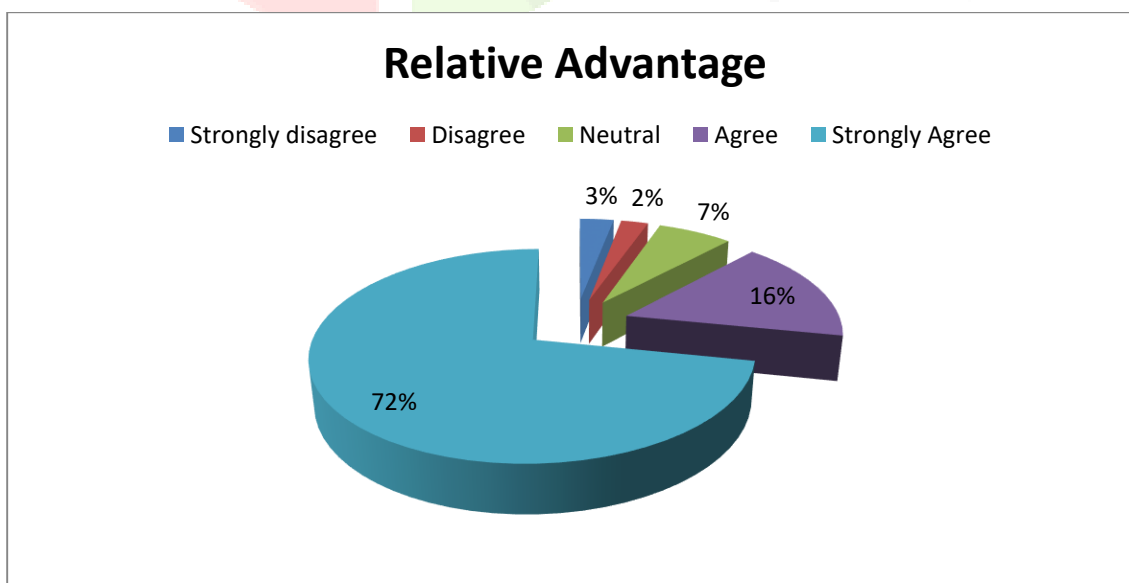

Fig-1 Pie diagram showing Relative advantage about ICT adoption.

88% of the respondents' agree and strongly agree about relative advantage of ICT, they believe that ICT is superior to traditional methods of providing information service.

Relative Advantage- The degree to which the University libraries are likely to implement ICT productively will be amplified by the degree to which it offers relative advantage.(These relates to the level that it is apparent as better than conventional methods of providing information service to the users.) In the surveys library staff indicated that in their opinion maximum respondents agreed that ICT in the library offered a number of different advantages over customary information services. These advantages comprise the following:-

It offers .24/7 services in providing information to library users at anytime, anywhere, anyplace. It offers rising range of materials for a diversity of purposes because it includes roughly everything of interest to user community. It helps multiple users at the same time because through ICT information can search easily, expeditiously, and effectively. Staff can offers better on display searching that facilitate users to discover information quickly and efficiently, employees can also introduce extra contents easily on the library website. From these views articulated by the library staff it is apparent that all the library staff believe that ICT has relative advantage over the conventional methods of providing information services to the user group of people.

5.2 Compatibility- (It is the amount to which a novelty is supposed as being steady with the accessible values, past experience, and need of possible adopters.)

The table shows that the average score on the five statements ranges from 1.22 to 1.51. The highly recognized compatibility statements is ICT use is cost effective than the traditional one, all the statements show the high impact of Compatibility on ICT adoption because mean value of all the statements are not much different and all are above 1. However, it is observed that perceived attribute of compatibility has a high impact on ICT adoption. According to Rogers- "The greater the supposed compatibility of an innovation the better the speed of adoption will be."

Table 2 Containing Compatibility

Rank	Statement	.SA(+2)	.A(+1)	.N(0)	.D(-1)	.SD (-2)	Score	Mean
3	1	107	40	13	4	3	244	1.46
5	2	87	50	15	10	5	204	1.22
4	3	77	60	25	3	2	207	1.23
2	4	107	42	15	2	1	250	1.49
1	5	120	20	22	3	2	253	1.51
							Total	6.91

Statements:-

1. Using ICT fits well with the way of our user's service.

2. Using ICT fits well with our library's value and culture.

3. Using ICT fits well with the existing information system.

4. Using ICT fits well with the libraries existing communication channel.

5. Using ICT fits well with the way our management would like.
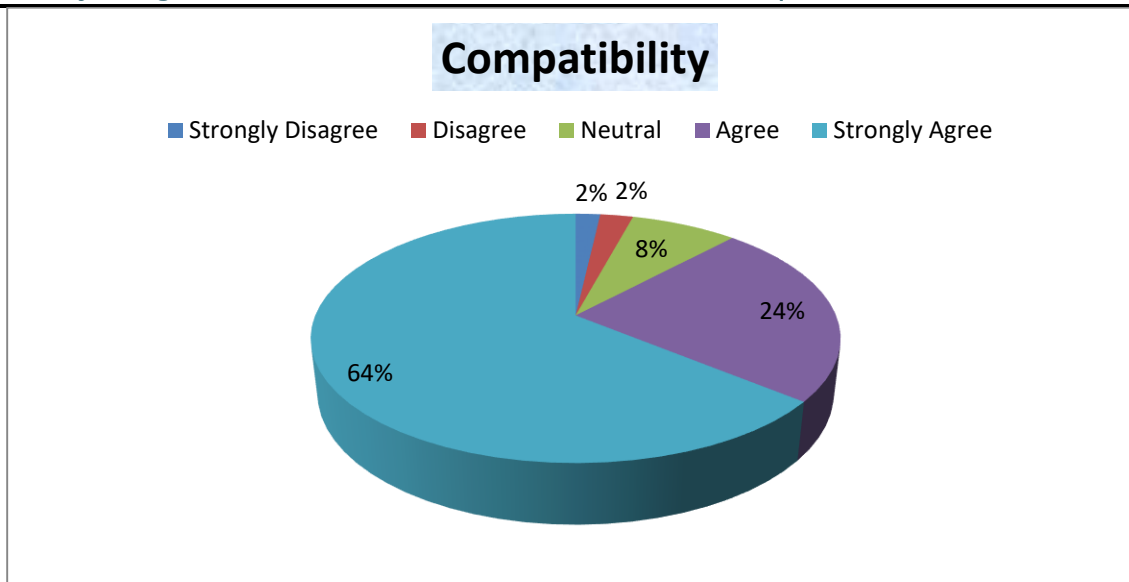
Fig-2 Pie diagram showing percentage of Compatibility of ICT

Diagram showing 88% of the respondents are compatible with ICT. Compatibility is The quantity to which ICT is possible to be successfully implemented will be improved by the degree to which it offers.

The ICT is well-matched with staff's needs as well as users' requirements; staffs are at ease in doing their jobs in relation to ICT. They are contented in processing information and are eager to use innovative technologies related to ICT adoption. Staff have high expectations in serving users need through ICT.

In University libraries it seems that compatibility is a optimistic characteristic of this ICT adoption. It is well-suited with employees expertise, so that employees feel relaxed when asked questions about ICT application in libraries, all the respondents agree that the ICT is vital in helping them to their job, the compatibility of ICT is therefore surely related to its speed of adoption.

5.3 Complexity (level to which a modernism is supposed as hard to know and use) fresh idea that are simpler to appreciate are adopted more quickly than innovation that need the adopter to build up new skills.

This table shows that average score of the statements are low ranging from 0.11 to 0.35, highly recognized complexity statement is- "it is difficult to keep up to date about new technology interface". The lower mean value of complexity indicates the higher chances of ICT adoption, because complexity has a negative effect on ICT adoption.

Table 3 Containing Complexity

Rank	Statement	S.A(+2)	A.(+1)	N.(0)	D.(-1)	S.D (-2)	Score	Mean
3	1	40	27	39	35	26	20	0.11
2	2	27	45	45	31	19	30	0.17
5	3	21	35	50	40	21	16	0.09
4	4	39	30	39	27	32	17	0.10
1	5	50	37	25	32	23	59	0.35
							Total	0.82

Statements

1 Use of ICT is more difficult than traditional one.

2 ICT needs big fund.

3 ICT adoptions require adequate trained staff.

4 ICT users need depth knowledge in search technique of information.

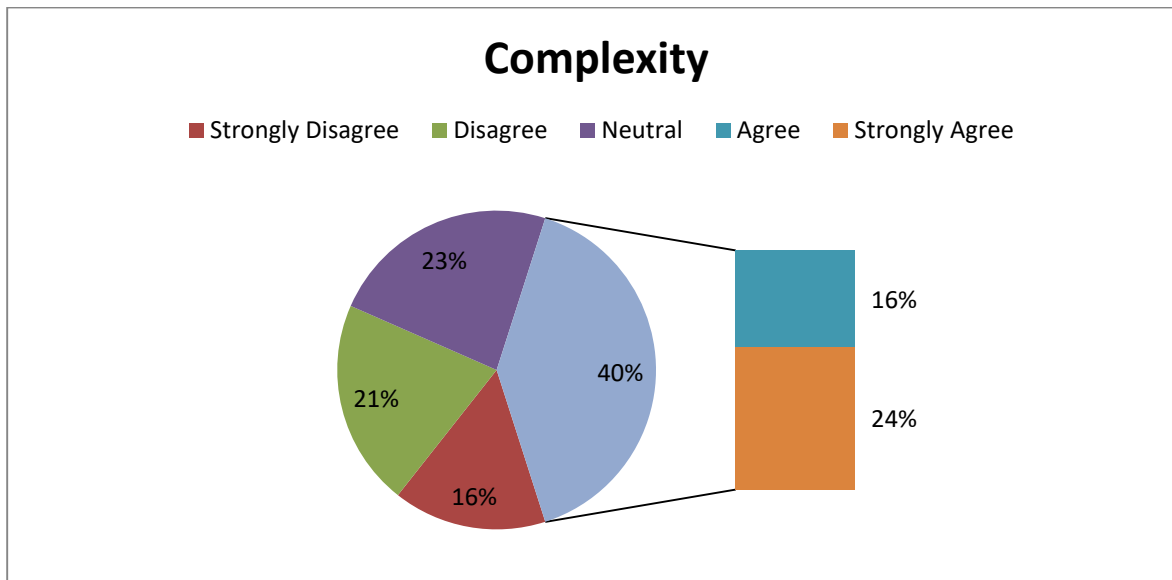5 It is difficult to keep up to date about new technology interface.

Fig-3 Pie diagram showing complexity feeling by the respondents

Respondents are almost equally distributed. Library staff are confused about complexity of ICT, 40% staff agree and strongly agree about complexity, 37% staff strongly disagree and disagree about complexity, 23% are neutral.

Complexity including incompatible hardware, various confusing software application, requirement of large amount of fund, ability to use the interface, complexity in technological matters. Results point out a high degree of complexity are present among the employees of the selected university.

5.4 Trial ability (Is the provision of implementation of an innovation on trial basis or srep by step implementation).

The table shows average score ranging from 0.67 to 0.85, highly recognized trialability statements are "New idea that are divisible are good for the library than that are not divisible", All the statements show the moderate impact of trialability on ICT adoption.

Table 4   Containing Trialability

Rank	Statement	S.A(+2)	A.(+1)	N.(0)	D.(-1)	S.D (-2)	Score	Mean
1	1	75	37	23	20	12	143	0.85
2	2	67	40	29	25	7	135	0.80
5	3	62	38	33	18	16	112	0.67
3	4	70	33	25	30	9	125	0.74
4	5	62	42	33	19	11	125	0.74
							Total	3.8

Statements

1 New ideas that are divisible are good than that are not isolatable

2 A new idea or new objects which are divisible produce less doubt among the adopters.

3 Partial implementation of ICT in selected sections ensure its effectiveness.

4. Partial implementation of ICT delays the proposed work.

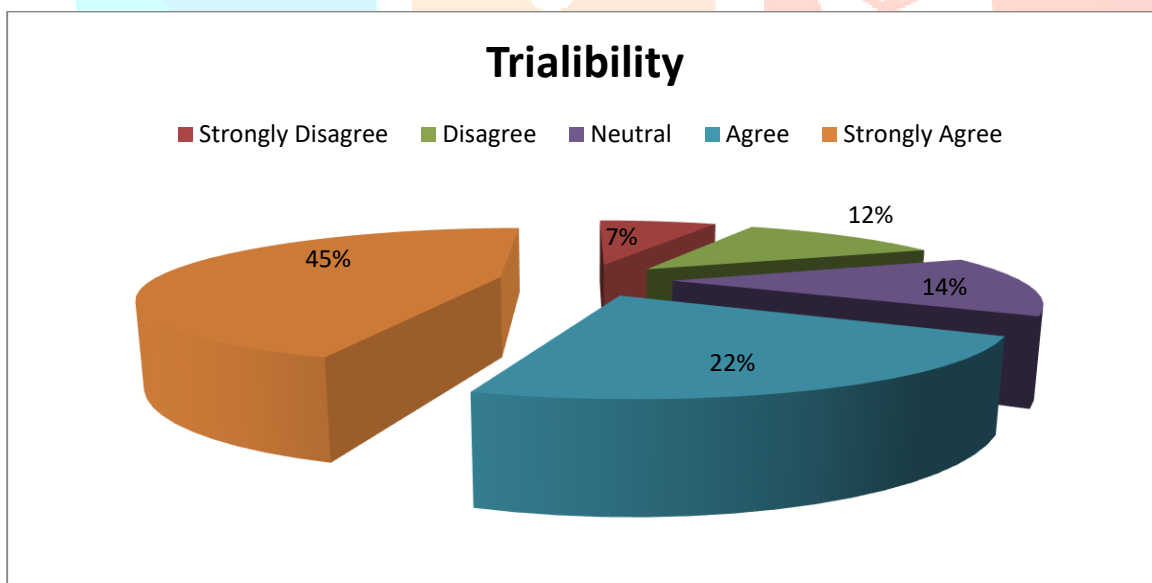5 experiment of the novel idea minimize the risk of financial loss

Fig-4 Pie diagram showing percentage of respondents on trialability

Diagram shows 67% of the respondents agree and strongly agree about Trialability 14% Neutral, 12 % disagree and 7% strongly disagree

5.5 Observability (level to the outcome of an innovation are able to be seen to others)

To evaluate the impact of observability on ICT adoption, respondents were instructed to put a right mark against the five statements on observability enlisted in the survey questionnaire. The mean value has been calculated on the basis of five point Likart scale , as discussed in the methodology. The data has been represented in table below:-

Table 5 Containing Observability

Rank	Statement	S.A(+2)	A.(+1)	N.(0)	D.(-1)	S.D (-2)	Score	Mean
1	1	87	52	12	9	7	203	1.21
2	2	82	48	19	13	5	189	1.13
3	3	73	55	22	9	7	178	1.06
4	4	70	41	31	15	10	146	0.87
5	5	76	35	22	21	13	140	0.83
							Total	5.1

Statements

1 ICT users have more scope to gather knowledge of their field than those who do not have

2 Using ICT to keep the knowledge up to date is very easy

3 Resource sharing is very easy through ICT

4 Using ICT increases the social prestige
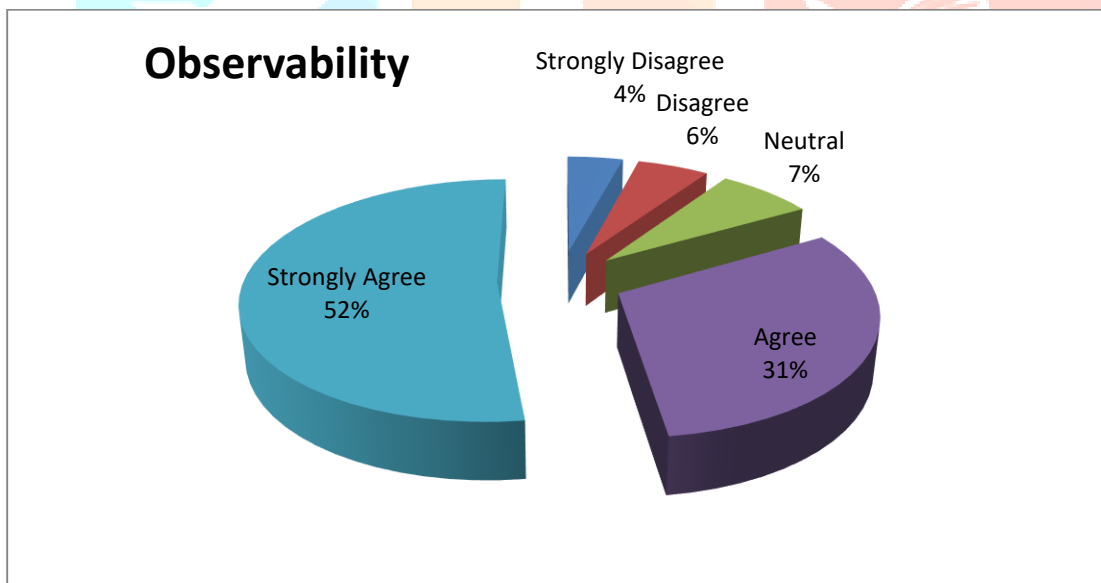
5 ICT saves the time of the users.

Fig-5 Pie diagram showing percentage of respondents on observability

From the above diagram it is clear that about 83% of the respondents agree and strongly agree about observability.

6 Conclusion:

The result shows that diffusion of Innovation theory was successful in predicting the future adoption of new technologies for the better service to the users. Therefore based on the above analysis, it can be concluded that most of the respondents opined that the implementation of new technologies in the university libraries has a high relative advantage with mean (7.19), compatibility (6.91), Observability (5.1), Trialabiity (3.8) and low mean score of complexity (0.82). From the results it can be inferred that except in case of complexity, university libraries have shown positive attitude and perceptions towards the adoption of ICTs. Hence the Hypothesis "*Innovations that are perceived by the Library professionals as having better relative advantage, compatibility, trial ability and observeability and less complexiety will be adopted*" -stands as valid

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