Dissertation
At

TRIO TREE, VAISHALI

(March1st – April31st, 2014)

A STUDY ON

"User Manual Effectiveness"

BY

Dr.Aparna Gupta

Under the guidance
of

Dr.AbhijitChakrabarty

Dissertation Report submitted in partial fulfillment of the requirements for the award of

Post-Graduate Program in Hospital & Health Management

2012-14

International Institute of Health Management Research

New Delhi – 110075

March 2014

CERTIFICATE OF APPROVAL

The following dissertation project entitled **"User manual Effectiveness"** is hereby approved as a certified study in management, carried out and presented in a manner satisfactory to warrant its acceptance as a pre-requisite for the award of completion of dissertation project for which it has been submitted.

It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation project only for the purpose it is submitted.

Abhijit Chakrabarty,

Professor,

IIHMR DELHI

TO WHOMSOEVER MAY CONCERN

This is to certify that Dr. Aparna Gupta student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at Trio tree, Vaishali from March 2014 to April 2014.

The Candidate has successfully carried out the study designated to her during dissertation Training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her all success in all her future endeavors.

Dean, Academics and Student Affairs Professor

IIHMR, New Delhi IIHMR, New Delhi

Certificate Of Approval

The following dissertation titled **"User Manual Effectiveness"** at **"TRIO TREE, VAISHALI"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
Dr. Anandhi Ramachandran	
DR. ABHIJIT CHAKRABARTY	20/05

TO WHOMSOEVER MAY CONCERN

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15/5/2014

Dean, Academics and Student Affairs Professor

IIHMR, New Delhi IIHMR, New Delhi

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It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation project only for the purpose it is submitted.

20/05/14

Abhijit Chakrabarty,

Professor,

IIHMR DELHI

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Aparna Gupta,** a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. She is submitting this dissertation titled "**User Manual Effectiveness**" at "**TRIO TREE, VAISHALI**" in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management.**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

22/05/14

Abhijit Chakrabarty,

Professor,

IIHMR

TRIOTREE TECHNOLOGIES GHAZIABAD

Abhishek Shrivastava,

Triotree Technologies Ltd

CERTIFICATE OF DISSERTATION COMPLETION

TrioTree Technologies Pvt. Ltd.
1024/25, First Floor, Sector – 3
Vaishali, Ghaziabad (UP)

Date: 5th May 2014

To whom it may concern

This is to certify that Aparna Gupta, student of International Institute of Health Management Research has successfully completed her internship for a period of 2 months during March-April 2014 at TrioTree Technologies Pvt. Ltd. She has worked on the project entitled **"Effectiveness of User Manual post HIS/EMR Implementation"** under Dr. Rajesh Gupta.

The work is original and genuine to the best of our knowledge. She has worked sincerely on analyzing the effectiveness of User Manual post HIS/EMR Implementation in India.

The project has been thoroughly supervised, examined and approved. We wish her good luck for her future endeavors.

Dr. Rajesh Gupta

Director – Product Innovations
TrioTree Technologies Pvt. Ltd.

FEEDBACK FORM

Name of the Student:	Dr. Aparna Gupta
Dissertation Organisation:	TrioTree Technologies Pvt. Ltd
Area of Dissertation:	User manual for HIStree
Attendance:	Satisfactory
Objectives achieved:	Yes
Deliverables:	▪ Need assessment for user manual ▪ User manual development ▪ Analysis of the effectiveness of the user manual
Strengths:	Hard working
Suggestions for Improvement:	N/A

Date: 5th May 2014
Place: Ghaziabad

TRIOTREE TECHNOLOGIES PVT LTD GHAZIABAD

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

INTERNATION INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **User Manual Effectiveness** and submitted by Dr. Aparna Gupta(PG/12/014)under the supervision of Dr.AbhijitChakrabarty for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from March 2014 to April 2014embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Aparna

Signature

Acknowledgement

Hard work, guidance and perseverance are the pre requisite for achieving success. Support from an enlightening source helps us to proceed on the path to it. I wish to thank first of all the almighty that provided me energy for the successful completion of dissertation at Trio Tree, Vaishali.

I am thankful and obliged to our mentor at Triotree,VaishaliDr.Rajesh Gupta, Triotreefor giving me an opportunity to work on this project. I am also thankful to my mentor – Mr.SparshGoelfor his continuous support, guidance and perseverance during the course of my project.

I am highly indebted to my mentor Prof. Abhijit Chakrobatory for his valuable guidance and motivation on various aspects of project.

It has been my good fortune to be benefited by their knowledge, guidance and deep insight without which this project would not have taken the exact shape .To them, I tender my heartfelt regards.

Finally I thank all the people who gave their valuable time and participated in our study.

Index

List of Figures

List of Tables

List of Appendix

1. Survey 1: **User Manual Effectiveness Survey**

2. Survey 2: **Feedback form for Triotree software**

Abbreviations

HIS- Hospital Information System

PACS- Picture Archiving and compressing system

RIS- Radiology Information System

HIE- Health Information Exchange

ERP- Enterprise Resource Planning

SAP- System, Application, Products

EHR- Electronic Health Record

EMR- Electronic medical record

LIS- Laboratory Information System

HL7-Health level 7

OCD- Ortho clinical diagnostics

CSC- Computer Science Corporation

IT- Information Technology

ADT-Admission, discharge and transfer

IPD –In patient Department

OPD-Out patient Department

MIS-Management Information System

Insight to Organization

TrioTree Technologies

TrioTree Technologies has been founded by a group of doctors and engineers with decades of experience in the healthcare domain. The founders have conceptualized, designed and deployed a variety of large scale systems for the healthcare industry to streamline business operations and to create a framework for clinical and strategic decision making.

About us

They have a global experience in product designing and deployment. They also have worked for International health IT standards while catering to the needs for flexibility and localization of the systems. Our major strengths include: Microsoft technology for enterprise systems (Healthcare), iSoft- eHIS, IntersystemsMedTrak&LabTrak, Meditech EHR, VistA EHR, CareEMR (US healthcare), ERPs (Lawson, Oracle Financials, SAP), PACS & RIS (Seimens, AGFA, GE and Fuji), LIS & Transfusion medicine packages, Middleware solutions (ASTM, Kermit, HL7 protocols) and HIE (HL7 integrations).

Many automation projects has been led by them in eminent healthcare organizations in India and abroad such as American Hospital (Dubai), Artemis Health Institute (Gurgaon), Max Healthcare group of Hospitals (across NCR and Northern India), Johnson and Johnson (OCD), Sri SathyaSai Institute of Higher Medical Sciences (Andhra Pradesh), SantokbaDurlabhju Memorial Hospital (Jaipur) among others. Also they have process excellence from large IT corporates such as Dell Services and iSoft Health (now CSC).

Logo

The logo of Triotree technologies is a tree.Its essence is listed below:

- The Tree represents the growing state of the company - A strong organic growth.
- The Trunk represents the fusion of three unique identities joining in a triple helix, uniting towards a single foliage.
  The identities being very different in character - strong and vibrant on their own.
- The Foliage represents the united energy.
- The bubbles - new ideas expanding, taking shape.
- Our Spirit- United, Strong, Ideating.

Introduction

Definition of User manual

A user guide or user's guide, also commonly known as a manual, is a technical communication document intended to give assistance to people using a particular system.

About user manuals

User manuals have been an important tool in business environment to understand the products of a company. It step-by-step describes how the users can use the system. Generally the description is in detail keeping in view the fact that the target users using the system have limited knowledge about it.

It is usually written by a technical writer, although user guides are written by programmers, product or project managers, or other technical staff, particularly in smaller companies.

Most user manual contains both a written guide and the associated images. In the case of computer applications, it is usual to include screenshots of the human-machine interface(s), and hardware manuals often include clear, simplified diagrams. The language used is matched to the intended audience, with jargon kept to a minimum or explained thoroughly.

The manuals being developed makes easier for users to understand, comprehend and use the products. They are used to instruct and guide employees on technical procedures and other kinds of information that is not intuitively obvious or easy to remember.

Manuals are a valuable reference store and come very useful in learning day to day technical procedures and also in troubleshoot timings.Thus need of user manual comes out**.**

While writing a user manual some important points have to be considered:

1. Know your audience.

2. Identify and define language.

3. Select a personal point of view.

4. Organize for clarity.

5. Review the finished product.

Literature Review

Donna JReddout (Apr 1987): **Manual Writing Made Easier**; Training and Development Journal; Apr 1987 41, 4; ProQuest Health Management:The author of this article is discussing on the topic that how writing a user manual is made easier and has come out six points i.eknow your audience, identify and define language, select a personal point of view, organize for clarity, write clear, factual prose, review the finished product.

John Davis, Minton-Eversole, Theresa (Oct 1993): **How to Write a Training Manual**; Training & Development Journal 47.10 (Oct 1993): 77; ProQuest Health Management: The author is describing how to write a training manual so he highlights a perfect training would complete if there is solid documentation. The study highlights the manual should clarify course content, timing, delivery, pace, and style in order to meet the last of these requirements.

Massey, Annie (Feb 8, 2010):**Avoid the user manual approach**; Canadian HR Reporter Journal 23.3 (Feb 8, 2010): 13, 15; ProQuest Health Management.The author emphasizes that user manual approach won't help a person to like the product.Instead of it online,interactive discussions, education downloadable to a phone and planning tools can all be delivered through the intranet.

Buchan, Alastair(Mar 1994):**Have you looked in the manual?;**Management Services Journal38.3 (Mar 1994): 8; ProQuest Health Management.This research was done in a recent research within a leading financial institution indicated that, despite the presence of a well written comprehensive branch manual of business procedures, the users could simply not spare the time to reference the documentation. The author has highlighted the user's documentation requirements the advantages of electronic Help are clear:

- easy indexing and searching
- concurrent access to information
- simple updating
- economical distribution
- low cost storage
- excellent as a training aid
- completely portable
- paperless office

Companies that continue to spend L'000s producing piles of manuals that no one has time to read will rapidly become uncompetitive as their rivals discover the real benefits of electronic information.

Cobaugh, William B. (Dec. 1978): **When It's Time to Rewrite Your Personnel Manual**; Personnel Journal 57.12 (Dec. 1978): 686; ProQuest Health Management. The author studied about the task of rewriting the manual completely. So a study was carried out at a task force and assigned to the job of rewriting the personnel manual at Fireman's Fund Insurance Companies used the following procedure: 1. selection of a writing style, 2. use of a loose leaf-binder so that pages could be changed when product were revised, 3. subject headings chosen to cover all relevant information, 4. concentration on product, rather than on procedures, and 5. incorporation of all memo data and separate manual material, including salary administration, performance appraisal, and job evaluation into one manual.

Gordon, JackView Profile; Lee, Chris; Picard, Michele; Zemke, Ron(Dec 1993): **Tips for writing a readable manual** Training30.12 (Dec 1993): 14ProQuest Health Management.

People use manuals as more like dictionaries than novels. Keep that in mind when you write a manual, say Daniel Hawthorne and Susan Seifert of Hawthorne Writing Technologies, a technical-writing firm in Fairfield, IA. Also remember that people use manuals differently.

Daniel Hawthorne and Susan Seifert of the technical-writing firm Hawthorne Writing Technologies offer some tips that can help training manuals appeal to as many people as possible.

- Write in plain English.
- Use the active voice instead of writing.
- Make the information easy to find.
- Organize your manual logically.
- Write a detailed table of contents.
- Write a detailed index.
- Appearances count.

Casady, Mona JView Profile (Mar 1992): **The Write Stuff for Training Manuals;** Training & Development 46.3 (Mar 1992): 17 ProQuest Health Management, According to the author effective manuals are: 1. well written, 2. attractively designed, 3. formatted to make it easy for readers to follow instructions and for designers to revise easily, and 4. illustrated appropriately to enhance understanding. To produce an effective manual, the writer must be knowledgeable about its topic. Putting together a manual involves 9 steps: 1. preparing to write, 2. writing the first draft and seeking feedback on it, 3. revising text and planning or choosing illustrations, 4. laying

out pages, 5. producing the final copy, 6. having the manual reproduced, 7. distributing the copies, 8. arranging for training, and 9. reporting to management.

Even the best manual is ineffective if employees do not know how to use it. Training sessions can help employees learn to use a new manual in the most effective way.

9

Boynton, Randall S. (Jun 2001):**Running on manual;** Security Management 45.6 (Jun 2001): 79-83 ProQuest Health Management. Preparing the manual is a team effort. The team members charged with research should begin by reviewing present security and non-security operations and all existing policies and procedures. The manual should be written so that it is easily understood.

A well-written manual establishes the who, what, where, when, how, and why of a casino's security operations. It sets the parameters of the product, and it serves as a framework on which to build training programs.

1. Style
2. Acronyms
3.Content

Objective

To access the need of the user manual for the different modules of HIStree, develop the user manual and draw out effectiveness of the developed user manual.

Specific Objective

To access the need of user manual for different modules of HIStree software.

To develop a user manual for the modules identified.

To understand the effectiveness of the user manual developed.

To cull out weak and strong aspects of the user manual developed.

Methodology

Research Design

Type of Research: Experimental Research

Sample Design

- Sample Unit: Hospital personnel
- Sample Size: 25
- Sampling Technique: Convenience Sampling
- Sampling Area: Megacity Hospital, Roorkee
- Study Time: 2 months

Data Collection

- Sources
  1. Primary Data: Data was collected through structured questionnaire over email responses and direct interview.
  2. Secondary Data: Available on Internet and journals.
- Tools

  The data was collected through email responses and personal interview.

Data Analysis

Statistical analysis (spss 16)

Techniques: Frequencies, Cross-tabs

Results

Age (in years)of survey population

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 25	7	31.8	31.8	31.8
	26-30	12	54.5	54.5	86.4
	31-35	1	4.5	4.5	90.9
	41-45	1	4.5	4.5	95.5
	56-60	1	4.5	4.5	100.0
	Total	22	100.0	100.0	

Table 1: Age wise distribution of people undertaking the survey

Most of the people in the sample where belonging to age 26-30 years

Gender of survey population

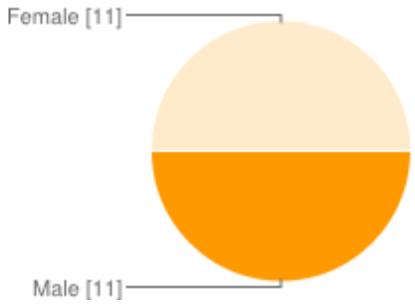

Figure 1: Gender of survey population

Gender	Frequency	Percentage
Male	11	50%
Female	11	50%

Table 2: Gender distribution of survey population

Qualification of survey population

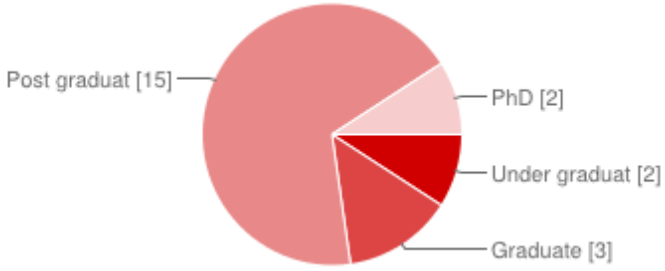

Figure 2: Qualification of survey population

Qualification	Frequency	Percentage
Under graduate	2	9%
Graduate	3	14%

Post graduate	15	68%
PhD	2	9%

Table 3: Qualification distribution of survey population

Professional details

Computer skills of survey population

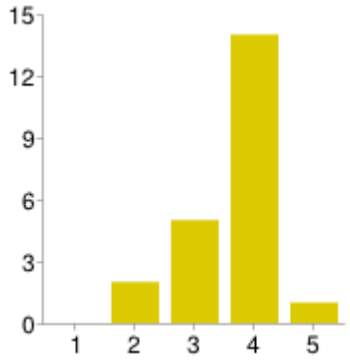

Figure 3: Computer skills rating of survey population

Computer skill rating	Frequency	Percentage
1	0	0%
2	2	9%
3	5	23%
4	14	64%
5	1	5%

Table 4: Computer skill rating of survey population

Working Experience (in years) of survey population

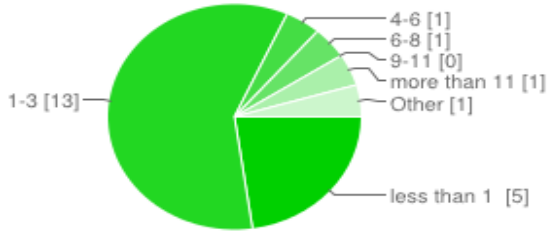

Figure 4: Work experience of survey population

Work Experience	Frequency	Percentage
less than 1	5	23%
1-3	13	59%
4-6	1	5%
6-8	1	5%
9-11	0	0%
more than 11	1	5%
Other	1	5%

Table 5: Work experience of survey population

Role

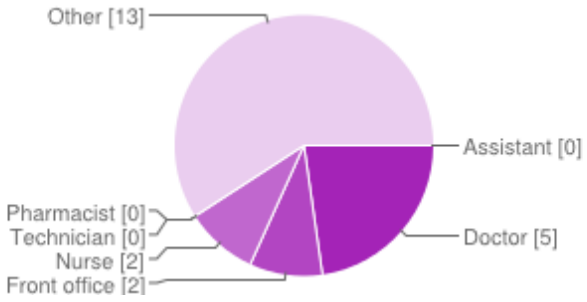

Figure 5: Role in hospital of survey population

Profession	Frequency	Percentage
Assistant	0	0%
Doctor	5	23%
Front office	2	9%
Nurse	2	9%
Pharmacist	0	0%
Technician	0	0%
Other	13	59%

Table 6: Role in hospitalof survey population

Which module the survey population where using?

Module using

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ADT	6	27.3	27.3	27.3
	Front office	8	36.4	36.4	63.6
	Nursing	3	13.6	13.6	77.3
	Physician	5	22.7	22.7	100.0
	Total	22	100.0	100.0	

Table 7: Module used by survey population

Most of the survey population is using front office

Speciality of doctors and nurses in survey population

Speciality	Frequency	Percentage
Anesthesia	0	0%
Dermatology	0	0%
Dental	3	38%
Cardiology	0	0%
ENT	0	0%
Gastroenterology	0	0%
General Surgery	1	13%
Gynecology & Obstetrics	0	0%
Internal Medicine	0	0%
Occupational therapist	0	0%
Oncology	0	0%
Ophthalmology	0	0%
Orthopedics	0	0%
Nephrology	0	0%
Neurology	0	0%
Nutrition and Dietetics	0	0%
Pediatrics	0	0%
Physiotherapy	3	38%
Rheumatology	0	0%
Urology	0	0%

Other	1	13%

Table 8: Speciality of doctors/nurses used by survey population

Staff strength of your department?

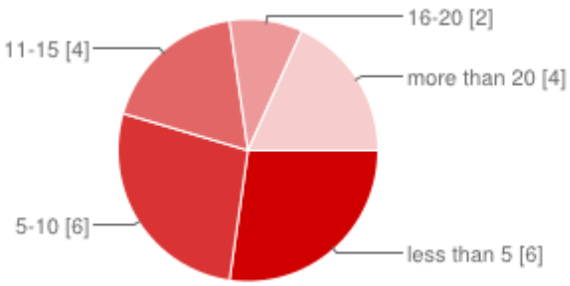

Figure 6: Staff strength of departments of hospital

Staff Strength

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 5	6	27.3	27.3	27.3
	5-10	6	27.3	27.3	54.5
	11-15	4	18.2	18.2	72.7
	16-20	2	9.1	9.1	81.8
	more than 20	4	18.2	18.2	100.0
	Total	22	100.0	100.0	

Table 8: Staff strength of departments of hospital

Manual assessment

Manual the people under survey dealt with?

Manual explored

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		7	31.8	31.8	31.8
	Front office	5	22.7	22.7	54.5
	Nursing	2	9.1	9.1	63.6
	Physician	8	36.4	36.4	100.0
	Total	22	100.0	100.0	

Table 9: Manual explored by survey population

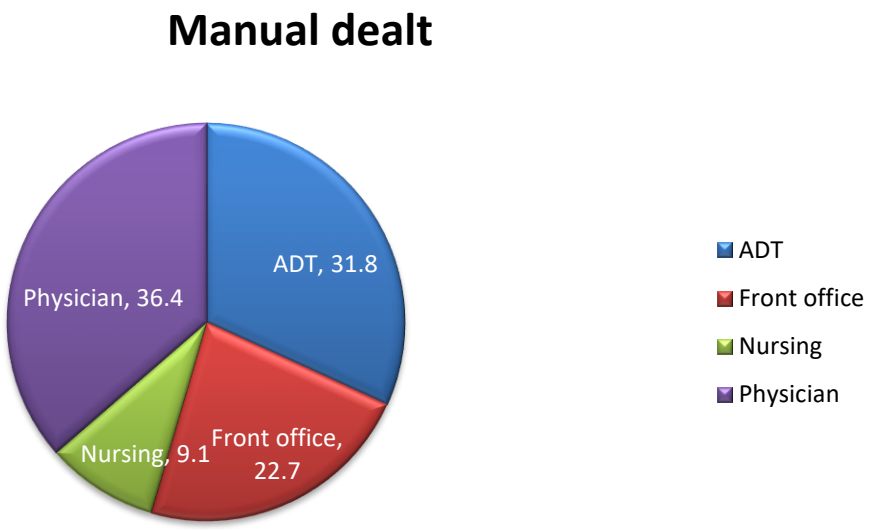

Figure 7: Module used by survey population

Was the user manual beneficial?

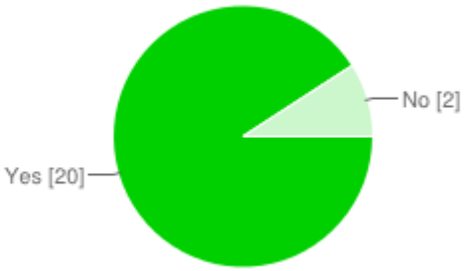

Figure 8: User manual beneficial

Was manual beneficial?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	20	90.9	90.9	90.9
	No	2	9.1	9.1	100.0
	Total	22	100.0	100.0	

Table 10: Manual beneficial percentage in survey population

Was the manual able to solve your problems?

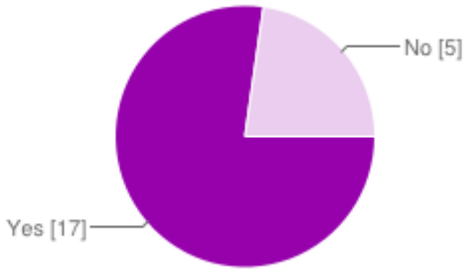

Figure 9: Manual problem solving ability

Did manual solve prob?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	17	77.3	77.3	77.3
	No	5	22.7	22.7	100.0
	Total	22	100.0	100.0	

Table 11: Manual problem solving ability

Did you require the user manual only in troubleshoot time?

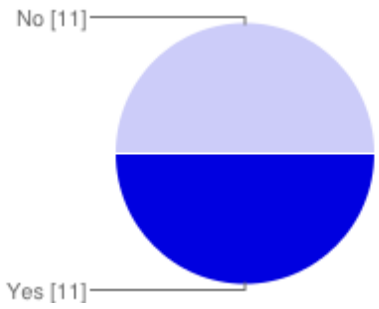

Figure 10: Troubleshoot ability of manual

Was the manual used only in troubleshooting

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	11	50.0	50.0	50.0
	No	11	50.0	50.0	100.0
	Total	22	100.0	100.0	

Table 12: Troubleshoot ability of manual

Rate the manual on various parameters?

Ability to solve the problems related to HIStree system working

Statistics

Ability to solve problems Rating

N	Valid	22
	Missing	0

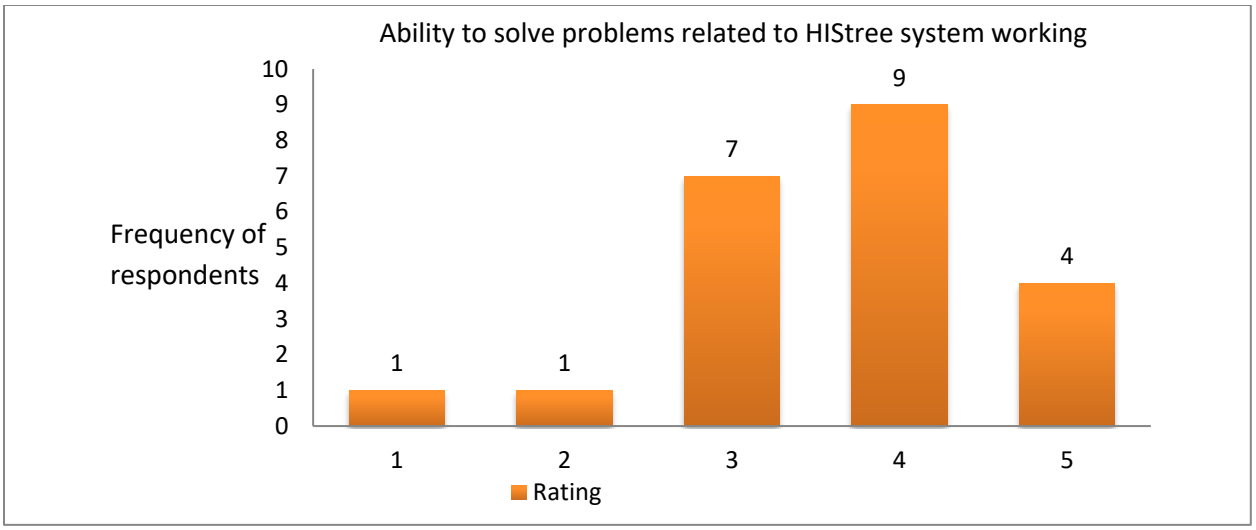

Figure 11: Rating of ability to solve problems

Content appeal

Statistics

Content Appeal Rating

N	Valid	22
	Missing	0

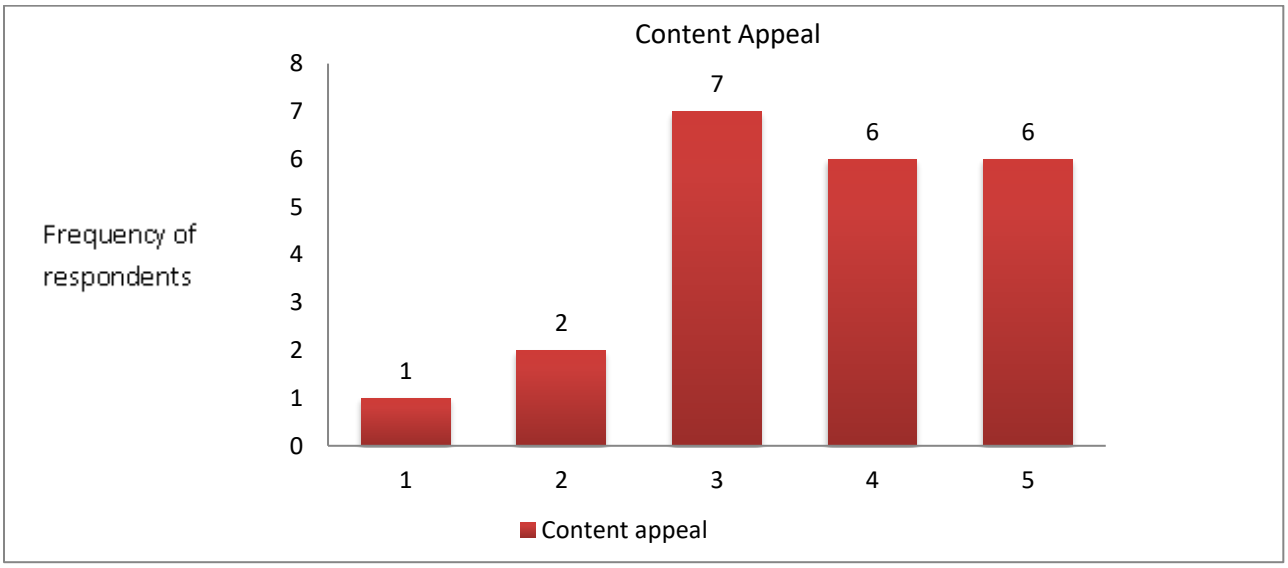

Figure 12: Rating of content appeal

Content appropriateness

Statistics

Content Appropriateness Rating

N	Valid	22
	Missing	0

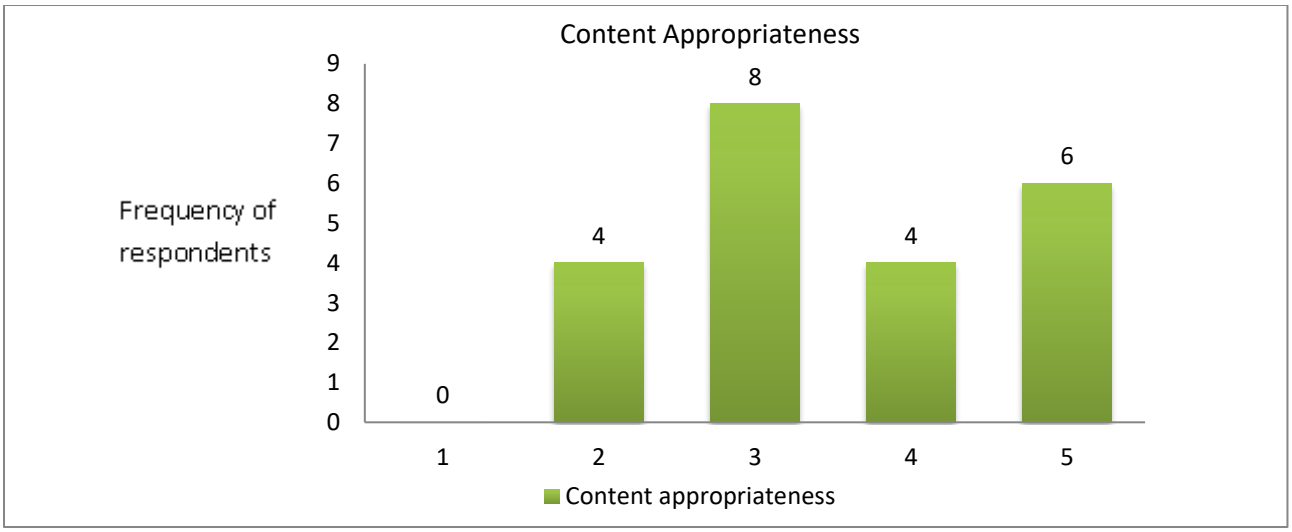

Figure 13: Rating of content appropriateness

Content coverage

Content Coverage Rating

N	Valid	22
	Missing	0

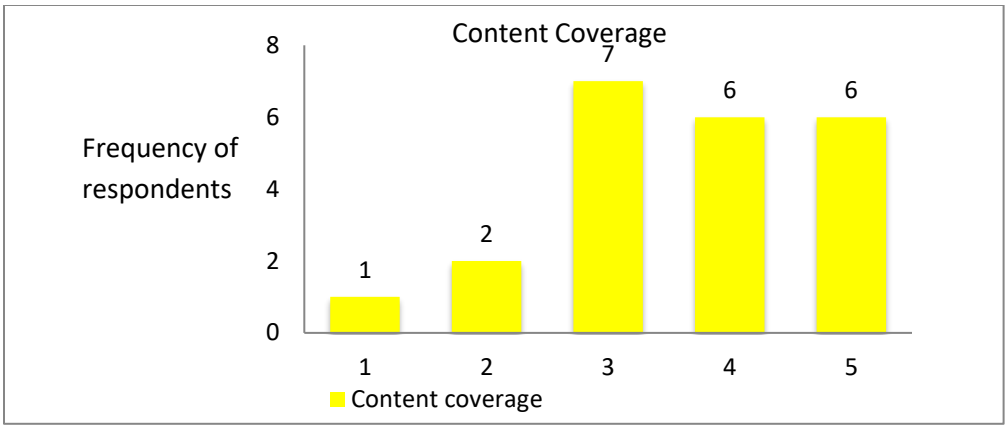

Figure 14: Rating of content coverage

Content understanding

Content Understanding Rating

N	Valid	21
	Missing	1

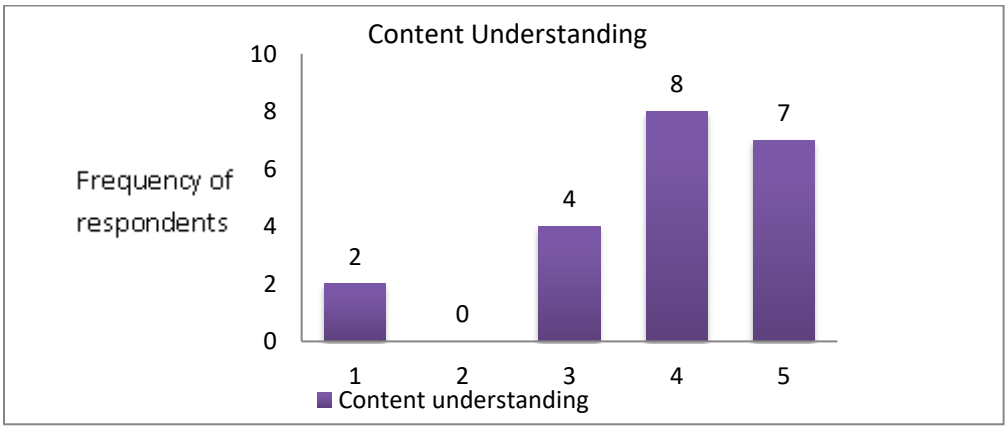

Figure 15: Rating of content understanding

Ease in navigation

Ease of navigation Rating

N	Valid	22
	Missing	0

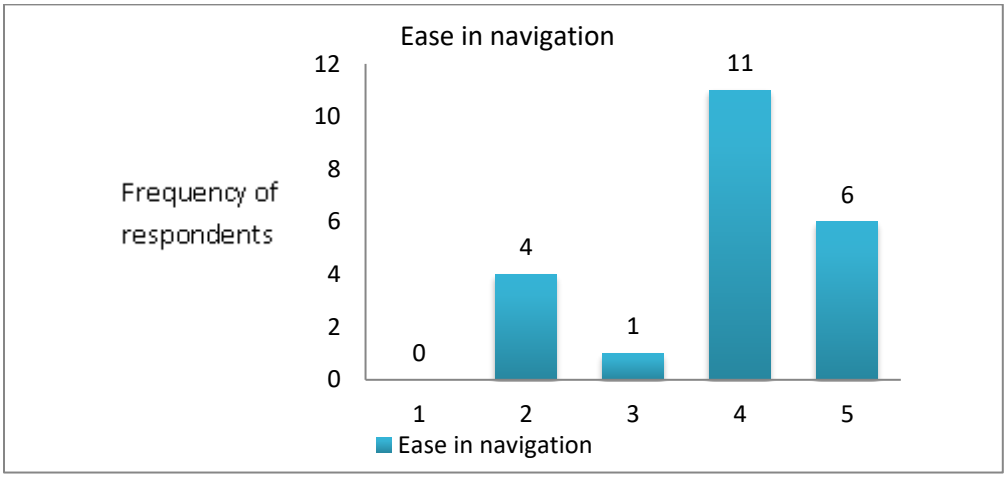

Figure 16: Rating of ease in navigation

Overall experience

Overall experience Rating

N	Valid	22
	Missing	0

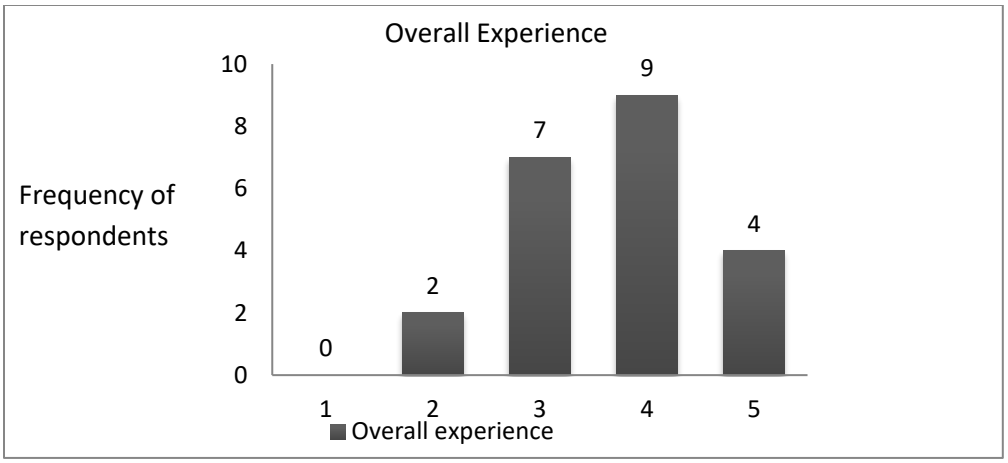

Figure 17: Rating of overall experience

Weak areas of manual?

Weak areas of manual

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Appeal	8	36.4	42.1	42.1
	Content appropriateness	2	9.1	10.5	52.6

	Descriptive	6	27.3	31.6	84.2
	Explanation of software	1	4.5	5.3	89.5
	Other	2	9.1	10.5	100.0
	Total	19	86.4	100.0	
Missing	System	3	13.6		
Total		22	100.0		

Table 13: Percentage of weak areas of manual

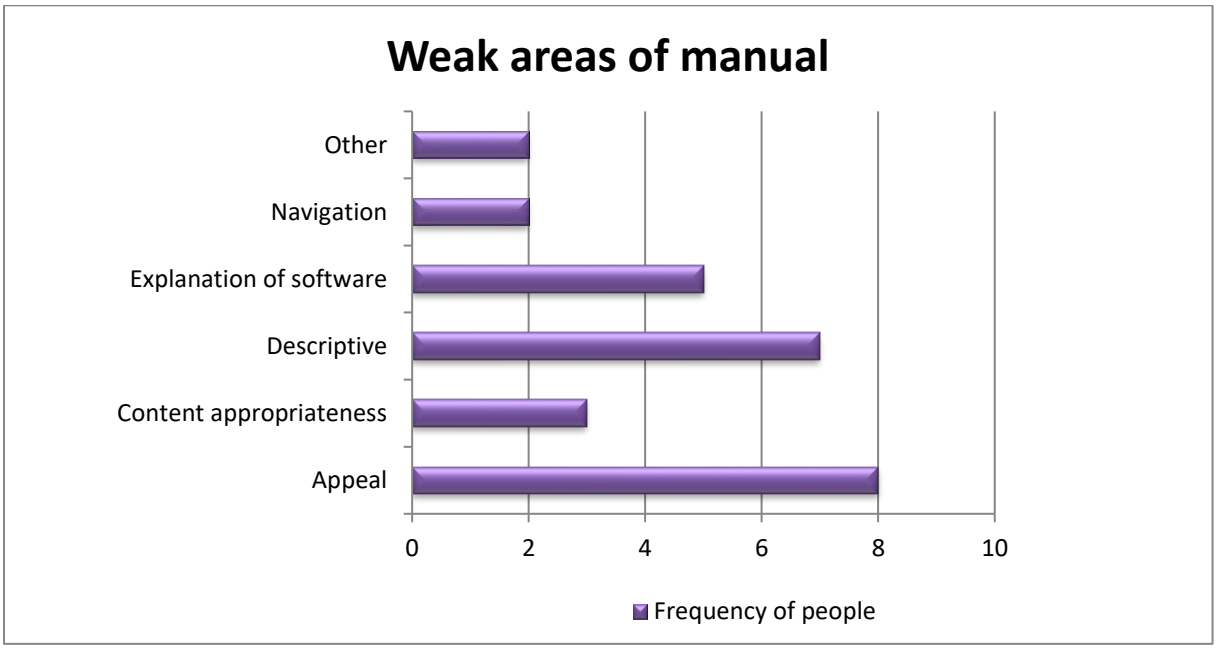

Figure 18: Chart showing weak areas of manual

Strong areas of manual?

Strong areas of manual

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Appeal	7	31.8	31.8	31.8

Content appropriateness	4	18.2	18.2	50.0
Descriptive	3	13.6	13.6	63.6
Explanation of software	3	13.6	13.6	77.3
Navigation	3	13.6	13.6	90.9
Other	2	9.1	9.1	100.0
Total	22	100.0	100.0	

Table 14: Percentage of strong areas of manual

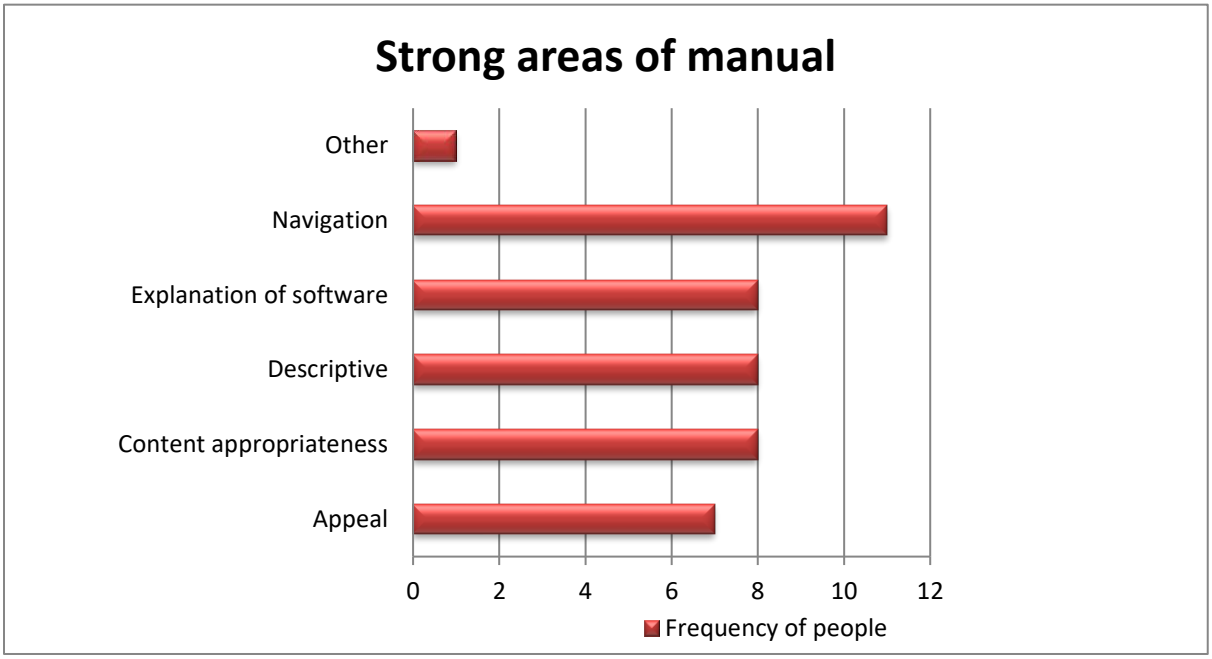

Figure 19: Chart showing strong areas of manual

Rate your confidence level in handling your module after reading the manual.

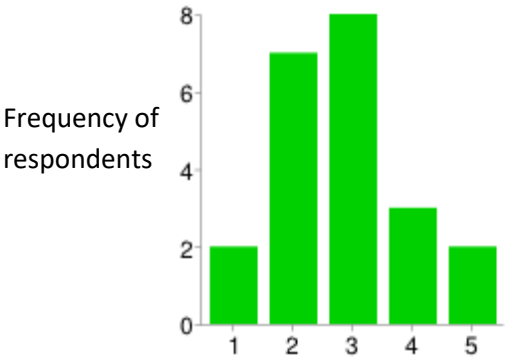

Figure 20: Chart showing confidence level of users after using manual

Confidence Level after using manual

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	9.1	9.1	9.1
	2	7	31.8	31.8	40.9
	3	8	36.4	36.4	77.3
	4	3	13.6	13.6	90.9
	5	2	9.1	9.1	100.0
	Total	22	100.0	100.0	

Table 15: Frequency of confidence level among users after using manual

Number of daily responses

Figure 21: Graph showing daily respondents

Crosstabs

Table 16: Age * Was manual beneficial? Crosstabulation

Count				
		Was manual beneficial?		
		Yes	No	Total
Age	less than 25	6	1	7
	26-30	11	1	12
	31-35	1	0	1
	41-45	1	0	1
	56-60	1	0	1
Total		20	2	22

Table 17: Gender * Was manual beneficial? Crosstabulation

		Was manual beneficial?		
		Yes	No	Total
Gender	Male	10	1	11
	Female	10	1	11
Total		20	2	22

Table 18: Work Experience * Was manual beneficial? Crosstabulation

Count				
		Was manual beneficial?		
		Yes	No	Total
Work Experience	less than 1	5	0	5
	1-3	11	2	13
	4-6	1	0	1
	7-9	1	0	1
	more than 12	1	0	1
	Other	1	0	1
Total		20	2	22

Two people in 22 found manual were not beneficial.

Table 19: Computer skill * Was manual beneficial? Crosstabulation

Count		Was manual beneficial?		
		Yes	No	Total
Computer skill	2	2	0	2
	3	4	1	5
	4	13	1	14
	5	1	0	1
Total		20	2	22

Table 20: Qualification * Was manual beneficial? Crosstabulation

Count				
		Was manual beneficial?		
		Yes	No	Total
Qualification	Undergraduate	2	0	2
	Graduate	2	1	3
	Postgraduate	14	1	15
	Phd	2	0	2
Total		20	2	22

Table 21: Role * Was manual beneficial? Crosstabulation

Count		Was manual beneficial?		
		Yes	No	Total
Role	Doctor	4	1	5
	Front office	2	0	2
	Nurse	2	0	2
	Other	12	1	13
Total		20	2	22

Table 22: Speciality * Was manual beneficial? Crosstabulation

Count				
		Was manual beneficial?		
		Yes	No	Total
Speciality	non doctor	12	1	13
	Dental	2	1	3
	General Surgery	1	0	1
	Physiotherapy	4	0	4
	Other	1	0	1
Total		20	2	22

Did manual solve problem?

Table 23: Age * Did manual solve prob? Crosstabulation

Count				
		Did manual solve prob?		
		Yes	No	Total
Age	less than 25	7	0	7
	26-30	8	4	12
	31-35	1	0	1
	41-45	0	1	1
	56-60	1	0	1
Total		17	5	22

Some of the participants in age group of 26-30 did not find manual to solve their problem.

Table 24: Gender * Did manual solve prob? Crosstabulation

Count				
		Did manual solve prob?		
		Yes	No	Total
Gender	Male	10	1	11
	Female	7	4	11
Total		17	5	22

Some of the female found that manual did not solve the problem.

Table 25: Work Experience * Did manual solve prob? Crosstabulation

Count		Did manual solve prob?		
		Yes	No	Total
Work Experience	less than 1	5	0	5
	1-3	9	4	13
	4-6	1	0	1
	7-9	1	0	1
	more than 12	1	0	1
	Other	0	1	1
Total		17	5	22

Some of participants of work experience found manual not to solve their problem.

Table 26: Computer skill * Did manual solve prob? Crosstabulation

Count				
		Did manual solve prob?		
		Yes	No	Total
Computer skill	2	1	1	2
	3	3	2	5
	4	12	2	14
	5	1	0	1
Total		17	5	22

Table 27: Qualification * Did manual solve prob? Crosstabulation

Count

		Did manual solve prob?		
		Yes	No	Total
Qualification	Undergraduate	2	0	2
	Graduate	3	0	3
	Postgraduate	10	5	15
	Phd	2	0	2
Total		17	5	22

Few of the postgraduates did not find the manual to solve their problem.

Table 28: Role * Did manual solve prob? Crosstabulation

Count

		Did manual solve prob?		
		Yes	No	Total
Role	Doctor	3	2	5
	Front office	2	0	2
	Nurse	1	1	2
	Other	11	2	13
Total		17	5	22

Table 28: Speciality * Did manual solve prob? Crosstabulation

Count				
		Did manual solve prob?		
		Yes	No	Total
Speciality	non doctor	12	1	13
	Dental	1	2	3
	General Surgery	0	1	1
	Physiotherapy	4	0	4
	Other	0	1	1
Total		17	5	22

Was the manual used only in troubleshooting?

Table 29: Age * Was the manual used only in troubleshooting Crosstabulation

Count				
		Was the manual used only in troubleshooting		
		Yes	No	Total
Age	less than 25	2	5	7
	26-30	6	6	12
	31-35	1	0	1
	41-45	1	0	1

56-60	1	0	1
Total	11	11	22

Manual is also being used apart from troubleshoot.

Table 30: Gender * Was the manual used only in troubleshooting Crosstabulation

Count

		Was the manual used only in troubleshooting		
		Yes	No	Total
Gender	Male	7	4	11
	Female	4	7	11
Total		11	11	22

Mixed reaction seen by gender but most of the male used manual in trouble shoot as compared to the females who were just the opposite.

Table 31: Work Experience * Was the manual used only in troubleshooting Crosstabulation

Count

		Was the manual used only in troubleshooting		
		Yes	No	Total
Work Experience	less than 1	1	4	5
	1-3	7	6	13
	4-6	0	1	1
	7-9	1	0	1

	more than 12	1	0	1
	Other	1	0	1
Total		11	11	22

Even the people with lot of work experience used manual in troubleshoot times.

Table 32: Computer skill * Was the manual used only in troubleshooting Crosstabulation

Count

		Was the manual used only in troubleshooting		
		Yes	No	Total
Computer skill	2	2	0	2
	3	1	4	5
	4	7	7	14
	5	1	0	1
Total		11	11	22

Skilled people showed mixed reaction.

Table 33: Qualification * Was the manual used only in troubleshooting Crosstabulation

Count		Was the manual used only in troubleshooting		
		Yes	No	Total
Qualification	Undergraduate	0	2	2
	Graduate	2	1	3
	Postgraduate	8	7	15
	Phd	1	1	2
Total		11	11	22

Table 34: Role * Was the manual used only in troubleshooting Crosstabulation

Count				
		Was the manual used only in troubleshooting		
		Yes	No	Total
Role	Doctor	2	3	5
	Front office	1	1	2
	Nurse	1	1	2
	Other	7	6	13
Total		11	11	22

Table 35: Speciality * Was the manual used only in troubleshooting Cross tabulation

Count				
		Was the manual used only in troubleshooting		
		Yes	No	Total
Speciality	non doctor	8	5	13
	Dental	2	1	3
	General Surgery	1	0	1
	Physiotherapy	0	4	4
	Other	0	1	1
Total		11	11	22

Discussion

- 90% of the survey population found the manual was beneficial.
- 78% of the survey population found manual to solve the problems.
- The manual which was developed had navigation as the strong area and the appeal and description as weak area.
- The manual did well on ability to solve problems, content appeal, content coverage, ease in navigation, content understanding.
- The manual did average on content appropriateness.
- The overall experience for most of them was four or three on likert scale.
- Most of the non-doctor said the manual was only used in troubleshoot time.
- Mixed reaction seen by gender but most of the male used manual in trouble shoot as compared to the females who were just the opposite.
- Males found the manual to solve the problems more than females.
- Even the computer skilled people found manual beneficial.
- Confidence level in using their module after reading the manual was between two and three on likert scale.
- Index was not given in user manual

Conclusion

The user manual developed was beneficial but it lacked in areas like appeal and description. There were many areas of improvement in the user manual given by users like

1. Some features should be there in a front office manual.

2. Manual should be more descriptive.

3. No index of topics/sections in manual.

4. Add hyperlinks to different modules or section. So that section applicable to reader can be directly skipped over to.

5. If possible provide more concise or some sort of cheat sheet for various basic more frequently used functions/features as most users tend to read manual in case of troubleshooting/when some s/w feature is not very apparent.

6. Try to cover all the scenarios of the software.

7. Almost every area should b upgraded a bit.

8. No need of writing menu options again. Simply "say please choose from the options given" will work. Later one can explain.

9. This portal should be more descriptive like into Pre-ADT Registration form all buttons description should be there.

10. List of contents should be added.

11. Appearance of manual can be improved (Although it is user friendly).

12. More steps are explained than needed.

13. Appeal of the manual make it short but sweet, nobody is gonna read this long, make it attractive and fun and easy to read.

14. Some more elaborate the details of physician module.

15. Nothing try to use the easiest way to create the manual so that end user can understand it well brief explanation step by step explanation. Its good should have been more interesting and easy

Lot of improvement is required in the manual developed but manual helped personnel a lot.

Limitations

The study had a sample size of twenty five which was a very small number due to the less time available with the staff of the hospital for drawing any conclusions that are significant. This limited the scope of study and an obstacle in finding a trend and a meaningful relationship. Citing prior research studies took that there were very less studies and information on our research topic which limited to further draw conclusions. Also the way in which data was gathered inhibited the ability to conduct a thorough analysis of the results. There are also limitations associated with the statistical analysis. When examining risk factors or other association, it is often necessary to allow for the effect of important prognostic factors (confounders).The data got further skewed as the study included more of non-users so drawing any inference were difficult. Data findings got further affected by more of other professionals rather than doctors. The software modules could not be evenly divided among people taking up the survey. Due to less budget allocation surveys could only be mailed to people who further constrained the sample response.

Recommendation

1. User manual should be supported by videos as well.
2. Triotree software should have been more modified for users ease.
3. The manual need to be more descriptive.
4. List of contents need to be made in the manual.
5. Repetitions need to be avoided.
6. Hyperlinks need to be added.

Case Study

HIStree Software Feedback

Triotree Technologies have one of their products as HIStree. It has various modules like Front office, Billing, Admission discharge transfer, Physician, Nursing, Operation theater, Diagnostics, Pharmacy etc. The software was developed by using people both from information technology sector and medical sector.

HIStree was implemented in Megacity hospital which is situated in Roorkee by Triotree Technologies. Training for the software was given by the professionals of Triotree who made the software. Since the implementation and training the users like doctors, nurses etc where finding it difficult to adapt to the new changes. There were many problems coming up for the users and they had to seek help of Triotree trainers and technical people. To deal with this problem Triotree thought of conducting a feedback survey to know the problem and devise a good solution.

The feedback survey is attached in the appendix as survey 2. The survey was given to Megacity hospital to twenty five personnel including doctor, nurses and technical people etc. This survey draws out many things. The head of the hospital has the following view:

I have seen, designed and worked with loads of hospital related software. This is an excellent software in terms of Data Capturing and flow and it has been perfectly designed for any Hospital which tends to provides standard or quality services to its staff and customers, but as professional, there are many key areas which needs improvements to mention few:-

1. Software is very Rigid: Although Software should be rigid but not that much rigid, it does not adapt to its user's preferences and thus, in modern era when we wish our software to instantly learn our style and provide us with intelligent solutions, it makes us feel little hard. Although i have seen places where it does have program to improve but then NO TRAINING is provided and NO MANUAL is given.

2. Software fails to capture realistic issues of Market especially for smaller hospitals as it has been designed keeping in view flow of large corporate hospitals.

3. Most modules need further refining.

The users in the survey said user manual will be required for all modules and especially for nursing, inventory and masters. So through this survey the development of user manual was thought of to deliver a better service.

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Annexure

Survey 1

1. **User Manual Effectiveness Survey**

TrioTree Technologies Pvt. Ltd

Thank you for taking timeout to fill up the survey. This questionnaire is to know your experience with the user manual of HIStree product. It will help us to know the strengths and weaknesses of the user manual and thereby working on solutions to overcome the weaknesses. Filling up this form will take 15 mins out of your valuable time. This information will be of great help for our research. We respect your privacy and this information will not be disclosed to any third party.

Demographics

Name

Age (in years)*

-

Gender *

- Male
- Female

Qualification*

- Under graduate
- Graduate
- Post graduate
- PhD

Professional details

Rate yourself on your computer skills?*

	1	2	3	4	5	
No knowledge	○	○	○	○	○	Expert knowledge

Working Experience (in years)*

- ○ less than 1
- ○ 1-3
- ○ 4-6
- ○ 6-8
- ○ 9-11
- ○ more than 11
- ○ Other:

Role*

- ○ Assistant
- ○ Doctor
- ○ Front office
- ○ Nurse
- ○ Pharmacist
- ○ Technician
- ○ Other:

Which module you are using*

- ☐ ADT
- ☐ Front office
- ☐ Nursing
- ☐ Physician

Speciality(applicable for doctor and nurse only)

-

Staff strength of your department?*

- less than 5
- 5-10
- 11-15
- 16-20
- more than 20

Manual assessment

Manual you dealt with?

- ADT
- Front Office
- Nursing
- Physician

Was the user manual beneficial?

- Yes
- No

Was the manual able to solve your problems?

- Yes
- No

Did you require the user manual only in troubleshoot time?

- Yes
- No

Rate the manual on various parameters?

Ability to solve the problems related to HIStree system working

	1	2	3	4	5	
Strongly disliked	○	○	○	○	○	Strongly liked

Content appeal

	1	2	3	4	5	
Strongly disliked	○	○	○	○	○	Strongly liked

Content appropriateness

	1	2	3	4	5	
Strongly disliked	○	○	○	○	○	Strongly liked

Content coverage

	1	2	3	4	5	
Strongly disliked	○	○	○	○	○	Strongly liked

Content understanding

	1	2	3	4	5	
Strongly disliked	○	○	○	○	○	Strongly liked

Ease in navigation

	1	2	3	4	5	
Strongly disliked	○	○	○	○	○	Strongly liked

Overall experience

	1	2	3	4	5	
Strongly disliked	○	○	○	○	○	Strongly liked

Weak areas of manual?

- ☐ Appeal
- ☐ Content appropriateness
- ☐ Descriptive
- ☐ Explanation of software
- ☐ Navigation
- ☐ Other:

Strong areas of manual?

- ☐ Appeal
- ☐ Content appropriateness
- ☐ Descriptive
- ☐ Explanation of software
- ☐ Navigation
- ☐ Other:

What features should be there in a user manual?*

Areas of improvement*

Rate your confidence level in handling your module after reading the manual.

	1	2	3	4	5	
Less confident	○	○	○	○	○	Very confident

Survey 2

1. **Feedback form for Triotree software**

TrioTree Technologies Pvt. Ltd

Thank you for taking timeout to fill up the survey. This questionnaire is to know your experience with the HIStree product. It will help us to know the strengths and weaknesses of the system and thereby working on solutions to overcome the weaknesses. Filling up this form will take 15 mins out of your valuable time. This information will be of great help for our research. We respect your privacy and this information will not be disclosed to any third party.

Demographics

Name

Age (in years)*

Gender*

- Male
- Female

Professional details

Qualification*

- Under graduate
- Graduate
- Post graduate
- PhD

Rate yourself on your computer skills?*

	1	2	3	4	5	
No knowledge						Expert knowledge

Working Experience (in years)*

- less than 1
- 1-4
- 5-7
- 8-10
- more than 10
- Other:

Role*

- Assistant
- Doctor
- Front office
- Nurse
- Pharmacist
- Technician
- Other:

Department*

Speciality(applicable for doctor and nurse only)

Staff strength of your department?*

- less than 5
- 5-10
- 11-15
- 16-20
- more than 20

Software assessment

1. How do you rate HIStree system on scale of 5?*

	1	2	3	4	5	
Strongly disliked	○	○	○	○	○	Strongly liked

2. Do you face any problem working on HIStree system implemented in your hospital?*Required

- ○ Yes
- ○ No

3. What do you like about the system?*

- ☐ Single screen operation (Easy Navigation)
- ☐ Easy to learn and operate
- ☐ Good Support (help given by Vendor)
- ☐ No Technical Errors
- ☐ User Interface (Look and feel of the software)
- ☐ User friendliness (Less clicks to get your work done)
- ☐ Comprehensive (presence of all required features and functionalities)
- ☐ Other:

4. What do you least like about the system?*

- ☐ Navigation (running through screens)
- ☐ Difficult to learn and operate
- ☐ Poor Support (help given by Vendor)
- ☐ Too many technical errors
- ☐ User Interface (look and feel of the software)
- ☐ User friendliness (Too many clicks to complete your work)
- ☐ Not Comprehensive (some function and functionalities not present)
- ☐ Other:

5. Would a user manual be beneficial?

- Yes
- No

6. Select 2 modules for which a user manual would be absolutely required?

- Frontoffice
- OPD
- IPD
- ADT
- Physician
- Nursing
- Pharmacy
- Diagnostic
- Laboratory Administration
- Inventory
- Template
- Masters
- MIS Reports

7. Do you need the workflow of the modules in the user manual?

- Yes
- No

Suggestion for improvement *