

**“Knowledge Transmission and Knowledge
Management with special reference to IT Faculty
members of Colleges under Universtiy of Pune at
Pune Region”**

**A Thesis Submitted to
Tilak Maharashtra Vidyapeeth, Pune**

**For the Degree of
Doctor of Philosophy (Ph.D.)
Under the Faculty of Management**

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March 2016

Declaration by the Candidate

I hereby declare that the thesis entitled “**Knowledge Transmission and Knowledge Management with special reference to IT Faculty members of Colleges under Universtiy of Pune at Pune Region**” completed and written by me has not previously formed the basis for the award of any Degree or other similar title upon me of this or any other University or examining body.

I further declare that the material obtained from other sources has been acknowledged in the thesis.

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This is to certify that the thesis entitled “**Knowledge Transmission and Knowledge Management with special reference to IT Faculty members of Colleges under Universtiy of Pune at Pune Region**” which is being submitted herewith for the award of the Degree of Philosophy (Ph.D.) under the faculty of Management of Tilak Maharashtra Vidyapeeth, Pune, is the result of original research work completed by Mr. Gopal Shriniwas Jahagirdar, under my supervision and guidance.

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IV. Abbreviations

AAHE	American Association for Higher Education
BBCD	Black board, Chalk and Duster
BBCN	Black board Chalk and Duster plus Lecture notes
BCA	Bachelor of Computer Application
BCS	Bachelor of Compute Science
CBI	Computer-Based Instruction
CBT	Computer- Based Training
CD-ROM	Compact Disk-Read Only Memory
DIKW	Data, Information, Knowledge, Wisdom
FBM	Flip board and Marker
FDP	Faculty Development Programme
HEIs	Higher educational institutions
IC	Intellectual capital
ICT	Information and Communication Technology
IT	Information Technology
JIT-KM	Just-In-Time Knowledge Management
KDD	Knowledge Discovery Database
KLC	Knowledge Life Cycle
KMP	Knowledge Management Process
KMS	Knowledge Management System
KMLC	Knowledge Management Life Cycle

LMS	Learning Management System
LN	Lecture notes
M Phil	Masters of Philosophy
M Sc	American Association for Higher Education
MA	Masters in Arts
MBA	Master's degree in Business Administration
MBS	Master's in Business Studies
MCA	Masters in Computer Applications
MCM	Masters in Computer Management
MCS	Master's degree in Computer Science
MDP	Management Development Programs
ME	Masters in Engineering
MMS	Master's degree in Management Science
MPM	Masters in Personnel Management
MTECH	Master's degree in Technology
NASSP	Learning styles are characteristic cognitive, affective, and physiological behaviors
OHP	Over Head Projector
PC	Personal Computer
PGDBM	Post-Graduate Diploma in Business Management
PGDFT	Post-Graduate Diploma in Foreign Trade
Ph D	Philosophical Doctor
PN	Printed Notes
PP	Presentation (slides) Projector
PPLN	Presentation (Slide) Projector plus Lecture Notes

PSP/IQ	Product and Service Performance Model for information quality
QIP	Quality Improvement Programme
QIPs	Quality Improvement Programme
RMN	Readymade notes
VAK/VARK	Visual learners Auditory learners Reading-writing preference learners Kinaesthetic learners or tactile learners
VC	Video Conferencing
WBM	White board Market
WBM	White Board Marker plus Lecture notes
WBT	Web Based Training

“Knowledge Transmission and Knowledge Management with special reference to IT Faculty members of Colleges under University of Pune for Pune Region”

Abstract

In the educational environment, teacher transmits the knowledge to the students. Exploring the knowledge of a teacher helps to understand and learn new and challenging activities. Faculty member refers to the academic staff and may consist of like lecturer, assistant professors, associate professors and professors.

A Faculty member keeps on searching for new opportunities and subjects to be explored. An effective knowledge management system must address both the creation and transfer of explicit as well as tacit knowledge. This research set forth that tacit knowledge must be converted into high quality explicit knowledge through the learning environment and techniques. The success in converting educator’s tacit knowledge into explicit knowledge to be internalized by the learner as tacit knowledge is very much depended on information quality as the medium for the conversion process. Thus, in this thesis, knowledge process cycles concept is examined. It is understood that how faculties convert their knowledge that they have gained or learned and finally when they start teaching the subject to students.

This is to ensure that learners are able to derive quality tacit knowledge from this information. Information quality is always relative and depends on the individual or group of students who are evaluating it. Thus, any standardizing of information quality has to match to a considerable large group of students’ cognitive structures.

This research provides an empirical investigation of the relationship between information quality and student learning outcomes. Data for this study were collected by means of questionnaires through the survey by visiting different Institutes and Colleges in the Pune and Pimpri-Chinchwad area and especially the people were selected from the University of Pune. Data analysis revealed evidence that the knowledge process cycle helps the management in delivering the quality of information. The Knowledge gained by faculty member helps in systematic updating their knowledge which ultimately helps the faculty member and the student communities.

“Knowledge Transmission and Knowledge Management with special reference to IT Faculty members of Colleges under University of Pune for Pune Region”.

(Changed name: Savitribai Phule Pune University)

**CHAPTER 1
INTRODUCTION**

1.1. Introduction of Knowledge Management

Right from the birth, every human being keeps on learning something. We learn many things from our gurus or teachers. Many-a-times, our teacher may be Mother, Father, brothers, sisters, friends and relatives. Self-learning may be a way to learn, provided teacher teaches you the right way. During the education we learn from teachers, eventually the role changes from teachers to faculty members or guru. Every human being needs to have at least one guru or a teacher or a guide. Following the footstep set by these gurus or teachers, we never face any difficulties because students have faith in teachers.

Most of the teachers or faculty members came from different school and colleges, with these challenges in their early life. It is with this perception (directly or indirectly) faculty member teaches the subject. In the past whatever difficulties he/she has faced, tries to smoothen the way of career path. Teachers or faculty members in a way are mentors for students.

In the educational environment, teacher transmits the knowledge to the students. Exploring the knowledge of a teacher helps to understand and learn new and challenging

activities. A Faculty member keeps on searching for new opportunities and subjects to be explored. To know and study the experience shared by these teachers in their day-to-day life, it is understood that they teach these subjects out of zeal and zest.

Generally, the definition of Faculty member refers to the academic staff of a university: senior teachers, lecturers, and/or researchers. Faculty members generally consist of professors of various ranks like assistant professors, associate professors and professors. They make them observe the outcome and ask them to learn from the past for their better future.

The teachers and faculty members need to keep on selecting new avenues and opportunities he/she has gained by reading. It may be in the form of reading or writing. For testing he/she needs to practice on computers, by writing the research papers and presenting them in Seminars, by attending the Seminars, conventions, interacting with other faculty members, attending the Faculty Development Program (FDP), asking questions to one another (i.e. probable questions or queries that might be asked by the students), referring the magazines and bulletins on the issues. The new things happening around, the faculty member plays a vital role in their self-development. Thus, the faculties adapt to the changes and gain knowledge from such activities.

Knowledge keeps on changing as it is transmitted from one generation to another. In Academics, every new idea gives birth to new innovations. It depends on the interest by which a faculty member teaches his/her subject and at the same time takes that particular subject as a challenge. The increasing capability of new methods of learning acts as an important factor for the betterment of subject deliveries.

In higher education, the prevalence of iterated learning acts as a medium of cultural transmission. Repeated teaching in every academic year leads the faculty member gain mastery over the particular subject.

Researcher has made use of the word 'Transmission'. In digital era, the word 'Transmission' works as an act or process of sending electrical signals to the radio, television, computer, etc. In the process of knowledge transmission, a faculty member could be used as a source for knowledge communication or transfer. Transmission is used because a faculty member makes the concept simple and teaches the subject consistently to the students.

Computer Technology has led to certain changes in today's educational system. With the use of innovative concept and new ideas for learning the role of faculty member is changing. The changes in the method of learning gave rise to new innovative ideas because of which many textbooks often have web-based links to websites that include assessments, animations, additional materials, videos, and other materials.

Knowledge transfer or knowledge transmission is often used as a synonym for research activity. This is with respect to the faculty member who keeps on instructing the students. Information should not be messed up with knowledge. Faculty members share their experience and make "transfer" of experiential knowledge to student or colleagues. Every faculty member works in education as a transmitter (his/her own way of transmitting the facts) and can be thought of as an act of data; however, knowledge has to do with flexible and adaptable skills. Faculty members, have a unique ability to exercise and apply information. This study verifies how knowledge has been transferred and mitigates the communication challenges.

The faculty members are concerned with the education and the knowledge they are possessing and with that the students' learnedness and achievements in education have been appreciated. With globalization, new avenues are open. From ancient times, we always look teachers or faculty members as a source of knowledge. Institution, expects their faculty members to do research work in the area they have selected on the media and modes of learning for improved information.

To meet the challenges educational institutions are judging themselves by asking certain questions about the accountability. Educational institutions keep providing different facilities to the faculty members who seek to understand how they can be more effective in collecting, spreading and sharing faculty member's knowledge and understand how to transform that knowledge into effective decision making and actions to ensure improvements.

1.2. Role of Knowledge Management in Education

Educational institutes are committed to accomplish the mission and other number of educational objectives, the role of school, colleges and institution is quite important and this can be achieved primarily by the faculty members. Educational institutions face the challenges on how to share the knowledge among people within the organization. The challenges faced by these faculty members are the central focus of the thesis.

The primary concern of knowledge management is, dispersing the curriculum or syllabus. Unless and until faculty members are committed, the same curriculum cannot be given to the students. Knowledge could be delivered to students by the faculty

members. Thus, knowledge management requires gaining, retaining, accessing (as and when required) and delivering to the students by the faculty members.

Knowledge management shapes upon a human-centered approach with variety of faculty members from the colleges and institutions, facing the challenge of transmission of knowledge.

Knowledge starts as data with raw facts and numbers, which the faculty members teach the students, and thus gain the knowledge. It is concerned with the knowledge or data and expects the students to get Information. This information could be a curriculum that has established and readily captured itself as a Course semester subject.

When curriculum or syllabus is designed, faculty members put their mutual efforts with experience, share well-planned curriculum, capability and judgment, etc. Knowledge of faculty members can be considered with high priority. In order to cope up with the industries, University of Pune is modifying the syllabus. The changes in syllabus are carefully studied by faculty members and ensured that the change has been transmitted to the students.

Faculty members can make use of different delivery techniques and tools to help other members to set standards. Knowledge is shared between teachers and students while conducting the lectures or sessions. Knowledge management in education can be thought of as a framework or an approach. Faculty member enables to take action that improves the quality of service.

In educational institutions, the whole promise of knowledge management lies in faculty member's opportunities for improving student exertions. The ultimate benefit of

this is to the students, educators and the education community as a whole. The critical change in educational institutions is to improve quality of education.

To meet such challenge the practice of knowledge management are particularly helpful. Knowledge management practices are the best option to address the question on how to create and transfer quality knowledge.

Faculty members may put quiz questions to check whether the concept has been understood by the students or not. To understand the student's efforts in knowledge acquisition, the faculty member, assessment of skill is generally used. By testing student performance and by periodically reviewing, colleges / institutes may decide about the performance of faculty member. Frequently, assessment also motivates faculty and administrators to reconsider their policies and practices related to curriculum development conclusions.

An Effort has been made to understand the faculty member's knowledge and Knowledge management practices can also be focused on knowledge process cycle. Researcher feels that, there is a need to have continuous internal assessment rather than completing each session quizzes and conducting tests. It provides timely feedback to the teacher to know whether a student has gained the knowledge or not. Faculty members can find out curriculum and assignments that are most appropriate. To improve students' learning it is suggested and appreciated that faculty members can adapt pedagogy and content. The knowledge is gained and shared amongst other faculty members who allow them to determine different ways to improve student learning. Faculty members may organize students groups and keep track of group performance and accordingly adapt different methods of teaching.

Knowledge management practices help educators and faculty members to collect data and share information, and more preferred by different groups of students in environments. A faculty member needs to maintain consistent teaching styles and help all the students execute within them. Sometimes depending on the requirement, faculty members may revise teaching styles to suit the student's requirements in the class. The knowledge management process promotes participation, interaction and most importantly student knowledge.

Role of a faculty member is vital in the promotion of knowledge management. The practices of knowledge management are particularly promising and appropriate.

The sharing of information encourages people at every level to contribute, to participate, to interact, to grow and finally, to learn. Imparting what one learns and knows to others, especially the students; make a sense of information that are necessary for success as a vital step which is more difficult and rewarding. Faculty members may understand the student's community and sometimes cracks jokes but without aiming at students.

1.3. Impact of knowledge management practices on learning.

Knowledge is the circumstance or situation of knowing something with acquaintance gained through experience or association with educational institute. Knowledge is an idea or understanding which an entity possesses that is used to take effective action to achieve the entity's goal. When there is a need, there is innovation, such innovation expects research and such research is considered as knowledge. Knowledge is specific to the entity that is created or invented.

In education, knowledge transfer takes place from one part of the group to another (or all other) part(s) of the group e.g. Faculties to Students or Lecturer to other colleagues. Knowledge Transfer pursues to organize, create, capture or distribute knowledge and ensure its availability for future users.

Consequences are usually expressed as knowledge, skills, or attitudes which can be developed among students by faculty members.

Knowledge is a dominant feature with distinct elements. Therefore, gaining and understanding different types of knowledge existing within an organization may allow them to socially adapt themselves.

Tacit knowledge is particular to a faculty member and comprehensive understanding of the human mind. Tacit knowledge has limited representation towards learners since it is difficult to articulate and codify in documents. Also educators try hard to apply narration, animation and commentary to represent individual knowledge as effective as possible. A truly effective knowledge management system must address both the creation and transfer of explicit as well as tacit knowledge.

These two guiding research questions present the structure and parameters for the investigation that places an emphasis on the knowledge management practices on the quality of students gained knowledge.

1.4. Purpose of the Study and Research Questions

The study aims at applying knowledge management practices in helping lecturers or faculty member as well as students to gather and share knowledge, and to promote participation, interaction and most importantly, learning. The primary focus of this study is to understand and create quality knowledge through the learning environment which is

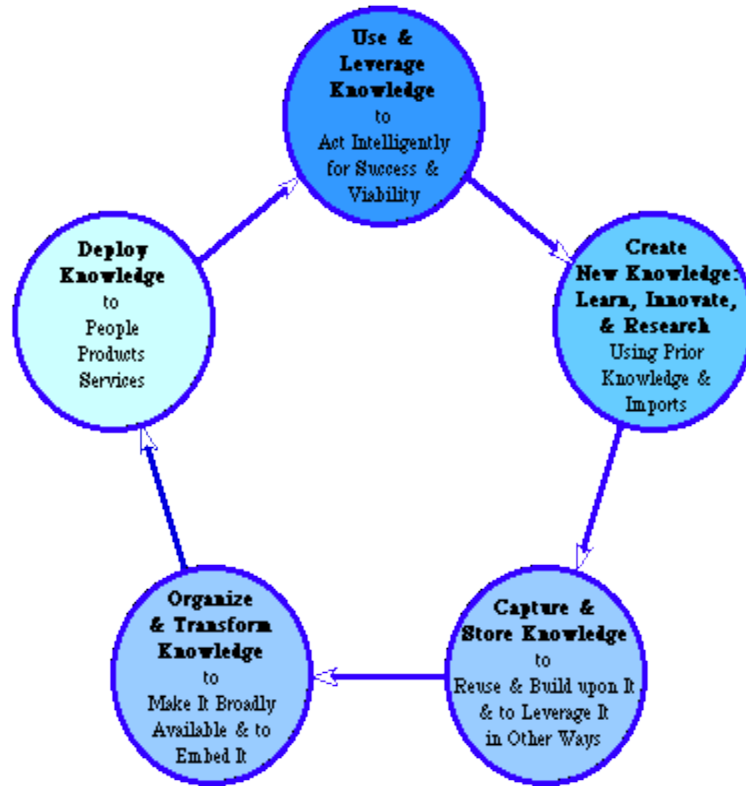
positively related to students' perceptions of their learning knowledge. This includes the investigation of the presumed relationship between the management of information quality and student learning of knowledge. A literature review provided the basis for the development of the research model. The model identified four specific aspects of information quality (soundness, dependability, usefulness, and usability) and the student learning outcomes.

The study would include the analysis of the knowledge of faculty members, which they have gained in the past and how they make aptly use of this knowledge. Some faculty members always get good feedback from the students.

The researcher finds out no research carried out till date regarding the faculty member's knowledge gaining in order to deliver and update knowledge. Researcher seeks to understand the methods used whether to be effective and/or efficient.

Knowledge management practices could be implemented by the faculty members with their focus on the knowledge process cycle. When the knowledge is learned as a student and is stored in the mind, we access it, test it during the practical, review them and apply them during the tests. The educator will come to know students' trend assessment information and helps to maintain feedback from the students and faculty members. Once the faculty members are provided with this information, they can adapt their pedagogy and content in ways that make sense to the students helping them improve their knowledge. If they have access to a collaborative team discussing these issues college-wide, then the knowledge is gained and is shared amongst other educators, which allows them to determine ways to improve student learning outcomes. For educators,

faculty members as well as students, the knowledge management process promotes participation, interaction, and most importantly, student learning.



Knowledge Life Cycle

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Figure 1.1: Knowledge Growth Chart

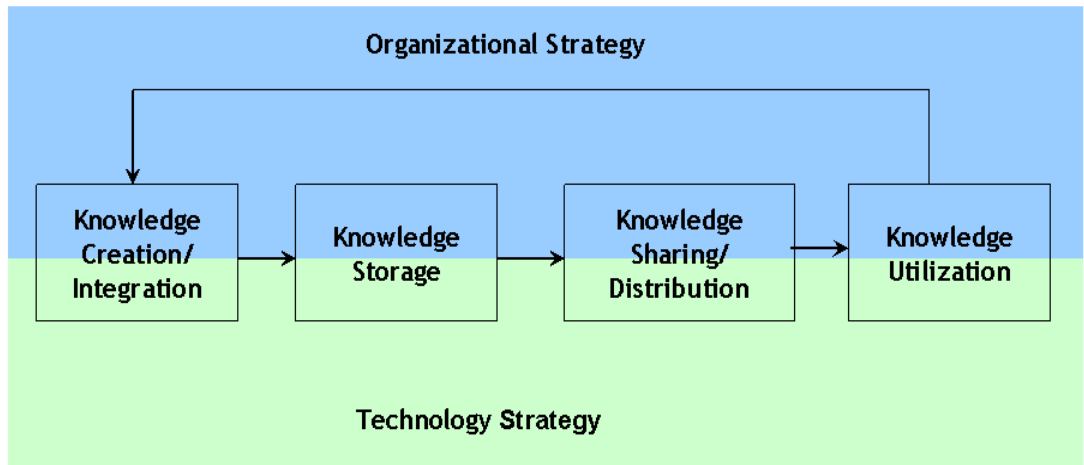


Figure 1.2: Knowledge Utilization System

1.5. Chapter Scheme

The chapter scheme for this thesis is as follows:-

Chapter No.	Name of Chapter
1	Introduction
2	Review of Literature
3	Knowledge Management in Education
4	Impact of Knowledge Management for IT Faculty members
5	Research Methodology
6	Data Analysis and Interpretation
7	Observations and Findings
8	Conclusions
9	Suggestions and Scope for Further Research
	Appendices
	Bibliography

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

The thesis is about the Knowledge transmission and management giving special reference to IT Faculty members of Colleges under University of Pune at Pune Region. The literature review informs us about the work that has been supported out in the past. This review attempts to form a clear framework and enlarge for the thesis of the research study is supported of it.

This chapter presents a literature review related to the field of Knowledge management. Knowledge gaining, storing, retrieving it when needed and transferring it to the students, knowledge quality, transfer of media and the relationship between knowledge qualities can be termed as Knowledge Management. The main attention is on knowledge quality within the knowledge management viewpoint and the students' learning outcomes.

Right from the childhood, we learn different things from different people, like our mother, father, brothers, sisters, friends and relatives and in school from the teachers and faculty members. It is significant to know and study the experience shared by these teachers in their day-to-day life. It is understood that they teach these subjects out of zeal and zest.

Gordon⁶² has highlighted key views that have been put forth about the means of learning and acquiring knowledge. Knowledge transfer is a word used to include wide-ranging activities to provision conjointly advantageous associations among universities, colleges and students. Knowledge transfer requires minimum two people i.e., the giver and the taker for an attempt to transfer skills to one another when people meet each other in order to exchange ideas.

Role of a teacher or a faculty member is to provide knowledge to the students. Whatever has been acquired by faculty member is always good or better; if not, then he/she will try to improve it. Exchange of ideas is applied in our day- to-day life, between the faculties and students which enables them to do something fruitful.

The knowledge that can be shared between the students and the fellow colleagues could be termed as 'transferring the knowledge'. This transfer always helps the students in guiding them in their difficulties and showing them the right path. In other words, a faculty member is a mentor for a student. There are many challenges which a student may come across and utilize the experience of faculty member for the better future. The researcher has reviewed on each and every criterion of knowledge transfer and management.

Knowledge transfer is often used as a substitute for training. In the previous chapter, we have learned about the experiences of knowledge transmission by the faculty member. Knowledge could also be gained in the form of an idea or a thought. In knowledge transfer, a faculty member needs to cultivate a habit of nurturing the knowledge which is a flexible and adaptable skill. In the process of knowledge transmission, students need to develop their acquiring ability with the help of the faculty members. This self-expression of application is a part which differentiates information from knowledge. It is the knowledge that has been built and is derived outcome of process included in curriculum development. Knowledge inclines to be both tacit and personal; the knowledge one person has is difficult to quantify, store and retrieve for someone else to use.

Polanyi's¹, explains that knowing is objective in the sense of creating contact with a hidden reality, is based on three main objectives: true discovery, knowledge is public personal and the knowledge that underlies the explicit knowledge is more fundamental.

Nonaka² developed the terms tacit knowledge and explicit knowledge as the two main forms of human knowledge. The key to creation of knowledge lies in the way it is mobilized and converted through technology.

According to Stephen W. Drape³, teachers must or should be expert in the subject matter being taught and learned. A still more radical view is that learning is helped by peer interaction and no special role for the teacher is needed.

In their article on ‘Constructivist Teaching - an Effective Learning Approach’, Ozlem Yuksel-Sokmen & Rossi Hassad⁴, suggested the course in question which covered basic foundations for algebraic understanding of problem solving. The course materials were definitely textbook sources with the tendency to gradually build on previous covered knowledge.

According to B. F. Skinner⁵, the content and structure of the course in question can be seen as representing type of conditioning of his influential doctrine of operant conditioning. Hergenhahn & Olsen⁶ are of the opinion that subsequently, any response that is followed by a supporting incentive tends to be repeated. Since practice makes man perfect, regular practice of problem solving would help in overcoming the corresponding problems.

According to Cobb, Wood, and Yackel⁷, the stimulus-response theory might help the student to quickly retrieve the memorized material under test conditions, but it may or may not lead to fundamental understanding of the underlying meanings of the problem solving concept. They further argued that written memorization of course materials lead to passive learning. They suggested that lively learning was raised by teaching more problem solving concepts and less theories and recipes.

Cobb, et al, suggested that the presented material should be interesting and pragmatic enough such that it not only motivates the students to construct their own ways of solving problems, but should result in an augmenting discovery of possibilities.

In the view of Inch⁸, the analyzed course's teaching method primarily consisted of knowledge transmission to a broad passive audience through lecture and textbook applications in expository format.

According to Draper⁹, traditional teaching based on the framework of behaviorism is being replaced by inquiry-based teaching and helps in facilitating a constructivist framework of learning.

According to Larochelle & Bednarz¹⁰, a constructivist classroom is rich in conversation. The faculty member infers the learning level and preparation of the student and improves the communication so that the learner is able to derive the meaning, understanding, and knowledge. According to Richardson¹¹, Teacher who holds constructivism rejects the transmission model of teaching.

2.2. Fundamental elements of a teaching model

In the article, 'Knowledge Transfer: Teaching-Learning Process & Curriculum Development', the author Sharma R.K.¹³ and Mangal S.K.¹², were of the opinion that curriculum is nothing but total learning experience, the justification above implies that the root of a curriculum is based on the differently planned and unplanned activities which have been lived or acted upon the learner with the guidance of the teacher. Also in teaching and learning, actions are necessary to accomplish a goal in education.

Nonaka's and Takeuchi's¹⁴ work on KM that allowed us to understand easily and clearly how knowledge may be dealt with transforming tacit knowledge into more explicit forms may be the easiest and the clearest.

K. Dalkir¹⁵ further expresses, Nonaka and Takeuchi KM model focuses on knowledge spirals that explains the transformation of tacit knowledge into explicit knowledge and vice versa as the basis for all forms of (i.e., individual, group, and organizational) innovation and learning.

According to Polanyi and Nonaka, processes of knowledge transformation are derived by the theories of organizational education as proposed by and are based on the conversion of knowledge between tacit and explicit forms. Tacit knowledge is actionable knowledge that is derived from experience of the learner and is pragmatic and valuable. According to Nonaka¹⁶, the key to knowledge creation and conversion of tacit knowledge and explicit knowledge is based on the interaction and communication process which is learnt from the learned; the knowledge can be stored and shared using some technology or media such as documents, videos, audios, images, and multimedia. According to Allen and Ryan¹⁷, demonstrating is a particular pattern by which the trainee imitates through.

According to the authors B.K. Passi, L.C. Singh and D.N. Sabsabwak¹⁸, a perfect teaching consists of guidelines for designing educational activities and environments that could be able to design instructional material in order to guide instructions.

Joyce and Weil¹⁸, are of the opinion that teaching of model is a pattern or plan to select instructional material and to works as a guide a teachers actions.

Kerlinger¹⁹ has a view of teaching by specification of the relation among variables with the purpose of explanation and prediction. Burner²⁰ also defined the theory of teaching as the explanation.

B.O. Smith²¹ suggested that the theory of teaching will interpret events and substances in terms of communication concepts.

Charles Zhao, Christian Gilt, Elizabeth Chang²², expressed that both academic and practical educational institutions are under enormous pressure from the government for students to improve their effectiveness and accountability.

Modern technology in knowledge management can support higher educational knowledge settings by following a long tradition in discovering, preserving, humanizing, conveying and applying knowledge.

In their articles, Parul Sinha, Monika Arora and N.M. Mishra²³, suggested that effective implementation of knowledge management is considered as a progressively important tool in order to facilitate organizations to gain a competitive advantage. Knowledge is now a motivating force for structural change and innovation in institutes for the understanding of importance of Knowledge Management. Educational Institutions are enacting fundamental changes at varying stages of planning and implementing knowledge-based strategies. Educational institutes may find new ideas and improve their competitiveness, productivity, structural effectiveness and better service for tomorrow.

According to Davenport²⁴, considered as a father of knowledge management, Knowledge Management is the process of capturing, distributing, and efficiently using knowledge. Duhon²⁵, knowledge management is a discipline that promotes an integrated approach to identifying, capturing, evaluating, saving, and sharing all of institute's information assets. These assets may include databases curriculum, syllabus, documents, policies, procedure and previously un-captured expertise and experience in individual members.

In their view, the work of Branford, Brown and Cocking²⁶ identified four key characteristics of learning as applied to transfer. These factors, the necessity of initial learning, the importance of abstract and contextual knowledge, the conception of learning as an active and dynamic process; and the notion that all learning is transfer.

2.3. Significance of Literature review in converting knowledge management

The challenge in knowledge management is to make the right knowledge available to the right people at the right point of time. Knowledge management has been developing in both University and Institutes as establishments seek to achieve improved responsibility and effectiveness, reduced product development life cycle, increased profitability, and greater customer satisfaction.

Universities of Pune have been using information management tools for years to upgrade the efficiency of administrative services and the effectiveness of academic programs. The practice of

information management within education has focused primarily on the technical systems that are executed to gather, organize, and disseminate the establishment's quantitative data in such areas as students, finance, accounting, and enrolment planning, etc.

Those institutions that are investing in technology are finding that technology implementation does not necessarily improve outcomes. Funds have been invested in keeping into technology without considering effectively integrates those technologies into shared decision-making processes to improve academics, operations, and planning. To facilitate the sharing of information and knowledge, universities have started to look beyond their technical capabilities and are focusing on their overall information settings.

Knowledge management in education can be thought of a framework or an approach that enables people within an organization to develop or try to develop a set of practices to collect information and share what they know, leading to action that improves services and outcomes. Overall, knowledge management brings together the three core organizational resources, stake holders of academic environments and processes and technologies to enable the organization to use and share information at its best level.

Knowledge Management is not a task, which requires a wide range of policies and practices. Knowledge management can form the values of an educational society. A growing number of universities are dealing intellectual property as an asset; faculty member is concerned as a vital. Efforts of the faculty member are always to be satisfied. Efforts are to be taken if the faculty member creates and manage knowledge. It is now widely supposed in the higher education sector that knowledge management can help to increase administrative effectiveness through the application of useful knowledge.

According Binet²⁷, knowledge transfer is initially viewed as a form of universal spread of capabilities accomplished by training basic mental faculties in the exercise of suitable subjects.

In 20th century, Thorndike²⁸, Guthrie²⁹, Hull³⁰, and Skinner³¹, Thorndike³², attacked the formal discipline empirically and theoretically and introduced the theory of identical elements, which is probably still today the most influential conception about transfer (Thorndike,³⁴; Thorndike & Woodworth³⁵).

Thorndike's belief that transfer of learning happens when learning source and learning target share shared inducement-answer elements prompted calls for a ranked curricular structure in education. Gagné³⁶, small-to-large learning has been prevalent with theories of learning hierarchies:

In the study, Dr. Ferenc Farkas, Agnes Kinray³⁷, the definition of knowledge-based services to graduate institutions is ranging from lively student participation in higher education to the methods and tools appropriate for knowledge investigation, caring and developing at university.

The authors, Parul Sinha, Monika Arora, N.M. Mishra³⁸, expressed Knowledge Management creativities are both expensive and dangerous proposals. Financial resources put a limitation on what can be expended on knowledge activities. So necessitates a re-look at knowledge management initiatives in Educational Institutions, which can be considered to be knowledge intensive organization.

Knowledge management practices at an institution of higher learning author, Judith Mavodza and Patrick Ngulube³⁹, highlights the fact that the society is becoming more and more knowledge-based, and the establishments that can identify, value, create and evolve their knowledge assets are likely to be more successful than those.

In the study on Knowledge Management, Dr. Ferenc Farkas, Agnes Kinray⁴⁰, apply the definition of knowledge-based services to graduate or post-graduate education institutions in order to discover various aspects of the role of the university as a site of knowledge management.

2.4. The prospects and conditions of transfer are crucial educational issues.

2.4.1. Transfer Defined. There are two methods, viz. positive and negative transfer. Positive transfer occurs when learning in one context improves performance, after learning one subject or language, second language becomes easier. Negative transfer occurs when learning in one context impacts negatively on performance in another.

2.4.2. Prospects of Transfer. According to E. L. Thorndike⁴¹, formulating people for better performance in other subject matters. Thorndike and Woodworth⁴² required, and generally failed to find, positive impact of one sort of learning on another and concluded that transfer depended on identical elements in two performances. In terms of the rough near-far distinction, near transfer is much more likely than far transfer.

2.4.3. Transfer and Local Knowledge. Brown et al. 1989⁴⁴, Lave 1988⁴⁵, near transfer to have much better prospects than far transfer, play a rather weak role; some investigators have urged that learning is highly situated.

2.4.4. Conditions of Transfer. Positive findings of transfer, near and far, one needs to ask under what conditions transfer appears.

2.4.5. Mechanisms of Transfer. There are certain encourage transfer, can best come from an examination of the mechanisms of transfer, the psychological paths by which transfer occurs.

2.4.6. Teaching for Transfer. Mechanism clarifies and establishing conditions of learning that encourage transfer, where the conditions of impulsive transfer are met more or less automatically, e.g., instruction in reading normally involves extensive practice with varied materials to the point of considerable automaticity.

2.5. Need Importance and Significance of the study.

The challenge in knowledge management is to make the right knowledge available to the right people at the right time. Knowledge management has been increasing in both group and open sector as organizations seek to achieve improved accountability and efficiency, reduced product development life cycle, increased productivity, and greater customer satisfaction.

Universities have been using information management tools for years to recover the efficiency of administrative services and the effectiveness of academic programs. The practice of information management within education has focused primarily on the technical systems that are implemented to collect, organize, and disseminate the organization's quantitative data in such areas as finance, accounting, and enrolment planning, to name just a few. Those institutions that are investing in technology are finding that technological implementation does not essentially recover the outcomes.

Colleges or institutions share a common objective – determining, developing, conserving and transferring knowledge. Colleges or institutions have significant opportunities to apply knowledge management practices to support every part of their mission.

The main goal of knowledge management is to raise the value of the College / Institute with the application of the existing knowledge and intellectual capital within the organization. The basic assumption of knowledge management is that the enhancement of knowledge base can support the organization in gaining a better position in competition. In the field of knowledge management it is an accepted assumption for approximately two decades that knowledge means much more than the sum of data and information as it includes the ability of application and utilization of information as well.

Higher education institutions have great opportunities in the field of practicing knowledge management tools. There is innovative interpretation of the process of knowledge management,

according to which knowledge is not applied to organizational knowledge; this study examines the knowledge transfer between the higher education institutions and the students. Students represent such networks the elements of which are capable of knowledge sharing and knowledge distribution among each other. A new view of transfer in the context of educational practice shows little need to distinguish between the general and specific prototypes, recognizing the role of both identical elements and metacognition.

According to Bransford, Brown and Cocking⁴⁶, KM practice are an appropriate mix of 1) Integrated technical infrastructure, 2) An organizational culture that supports learning, sharing and use of knowledge, 3) Motivation and commitment of users including incentives and training and 4) Senior management support related to resource allocation, leadership and providing training.

Knowledge Management System is now acknowledged by most of the Colleges and Institutes as a key for better decision-making and gaining competitive advantages. The Academic community has considerable opportunities to apply Knowledge Management practices. Knowledge Management System could improve the efficiency, effectiveness, and quality of graduates who can satisfy the employers' need in the entry level of employability in their future.

2.6. Knowledge Management Life Cycle

In the article written by R Krishnaveni and C S Senthil Raja⁴⁷, Knowledge Management life cycle activities identified were: acquire, organize, store, access, share, apply and create.

2.6.1. The KM Life Cycle Model.

According to the authors the model begins from gaining new knowledge, knowledge needs to be stockpiled in depositories. The acquired knowledge needs to be applied in the organizational practices; while delivering lectures; during the tests, processes and procedures to do the work and tasks in an efficient way to create new knowledge that helps the society in the long run, for teaching new

technologies and studies, new subjects that has been revised in the university syllabus from time to time. Knowledge Management Life Cycle model as shown in following figure: (Figure 2.1)

2.6.2. Organizational Benefits.

Specified Knowledge Management efficiency is viewed at three levels: individual, group and organization or institute. Knowledge flows, which may be facilitated by the knowledge management procedures and tools supporting them, are important because they provide integrative ability of knowledge, from individual to group, and from group to the administrative level.

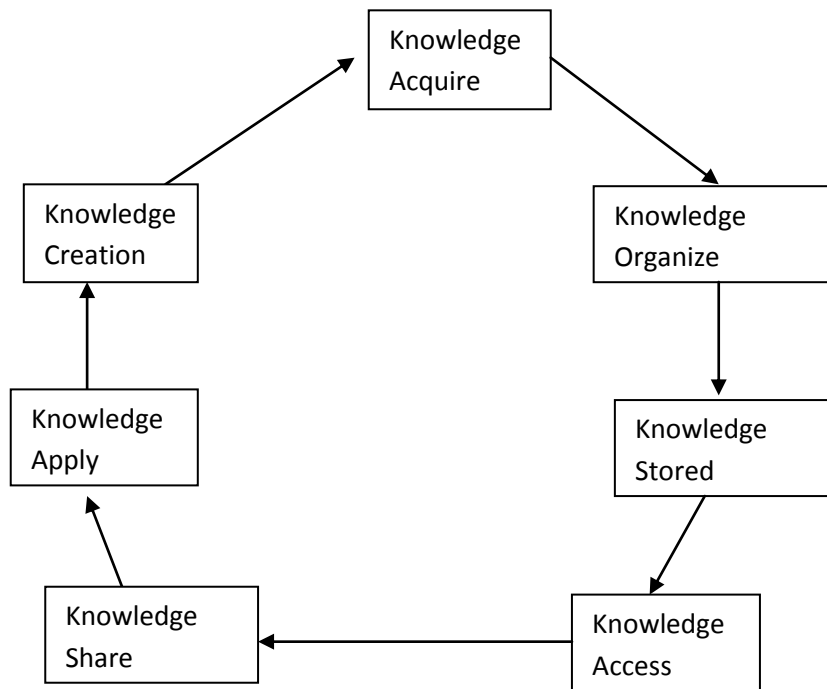


Figure 2.1: KM Life Cycle model

Cohen and Levinthal⁴⁸ and Fiol⁴⁹ propose, in the change from the individual to the group, shared believes develop through the synthesis of individual's knowledge. Apparent effectiveness of knowledge management at the individual level may be expected to facilitate perceived effectiveness of knowledge management at the group level.

Probst et al.⁵⁰ suggested that the growth of knowledge from the individual to the group continues further to the administrative level. This progression taken place through the mixture of individual knowledge via social interaction, meetings, faculty development programs, as well as, with the help of beliefs shared across group to create organizational or institutional routines. Hurley⁵¹, furthermore mentioned, individual learning has been proved to impact the organization through the infusion of new ideas

Brown and Duguid⁵²; Boland and Tenkasi⁵³ and Storck and Hill⁵⁴ agreed that organizational knowledge arises from both group knowledge and from the individual knowledge, as is also indicated by the recent literature on communities of practice.

According to Argote & Ingram⁵⁵, knowledge transfer is the progression through which one unit e.g., group, department, or division is affected by the experience of another. The transfer of administrative knowledge practices can be detected through changes in the knowledge or enactment of recipient units. The transfer of administrative knowledge may be the best practices.

According to Greenhalgh et al⁵⁶, three related concepts are -knowledge utilization, research utilization and implementation, which are used in the health disciplines to describe the process of getting innovative idea, practice or technology into consistent and appropriate use in a clinical setting.

Harman C. & Brelade S.⁵⁷, expresses that Knowledge transfer within societies and between nations also raises moral considerations particularly where there is an imbalance in power relationships e.g. employer and employee or in the levels of relative need or dependence on one another for knowledge resources e.g. developed and developing worlds.

Knowledge transfer includes Technology transfer, according to Blackler⁵⁸ expands on a classification of knowledge types that were suggested by Collins⁵⁹, being: embrained, embodied, encultured, embedded and encoded. It is very necessary to note that these knowledge types could be indicative of any society, not just those that are knowledge-based heavy.

2.7. Effects of teaching by modeling

Bandura and Walters⁶⁰ mention three kinds of effects in teaching by modeling: a modeling effect, an inhibitory and dishibitory effects and an eliciting effects.

2.7.1. Merits of modeling in teaching:

The following advantages can be observed:

- It is natural way of teaching and learning.
- It plays an important role in developing the imagination power of the students.
- Modeling in teaching helps in the developments of power of reasoning the students.
- It helps the students to analyze challenge situation systematically.
- It keeps students actively involved in the classroom activity.

2.7.2. Limitation:

There are some limitations of teaching in modeling:

- It makes high demands on the students along with the teachers.
- All the students of the class may not be in a condition to participate in the teaching-learning process.
- Some students, on account of their shyness, fail to derive the requisite advantage of this model.

In the article on ‘Understanding the difference between Information Management and Knowledge Management’, Jose Claudio Terra & Terezinha Angeloni⁶¹, suggest that the significant dissimilarities between Information Management and Knowledge Management. Tacit and explicit knowledge are not the same information in a different state. Information Management hasn’t explained how people learn, create, authenticate, organize, share knowledge and make decisions. It has been focusing on the manipulation of data and information. Equally, Knowledge Management, as a more recent discipline, has a much broader determination.

2.8. The concept of Just-In-Time Knowledge Management (JIT-KM)

Researchers wrote an article where he mentions, the ‘just-in-time’ concept originated with Toyota in its drive to improve its manufacturing processes, the concept may also be applied to the timely delivery of information. Researcher referred many articles, on Demand Presentations, on demand notes, References and e-books of inter-related current trends that impact our study of JIT-KM.

2.9. Other models of Knowledge Management.

2.9. 1. David Kolb's model of experiential learning theory⁶³.

According to Kolb's model, as described in his book ‘Experiential Learning’, the suitable learning process engages all four viz., Concrete Experience, Abstract Conceptualization, Reflective Observation and Active Experimentation, these modes according to the situational demands.

Further Kolb explains that in order to learn to be effective, all four of these approaches must be integrated. As individuals do an effort to use all four approaches, this tends to develop strengths in one experience-grasping approach and one experience-transforming approach. The resulting knowledge acquiring methods are combinations of the individual's preferred approaches.

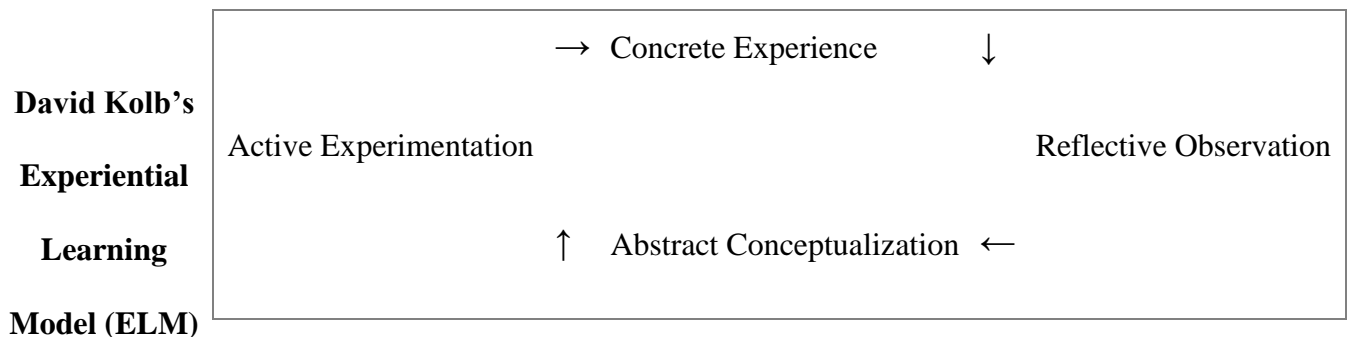


Figure 2.2: David Kolb's Experiential Learning Model (ELM)

These learning methods are as follows:

- 1. Accommodators: Concrete Experience + Active Experiment:** This method of learning includes Hands-on and concrete, wants to do, encounter method sets objectives/schedules, asks questions fearlessly, challenges theories, adaptable, obtain information from others and gut feeling rather than logic.
- 2. Converger: Abstract Conceptualization + Active Experiment:** This style of learning includes Hands-on and theory, Analogies, specific problems, tests hypothesis, best answer, works alone, problem solving, and technical over interpersonal.
- 3. Diverger: Concrete Experience + Reflective Observation:** This method of learning includes real life experience and discussion, imaginative, multiple possible solutions, brainstorming and groupwork, observing rather than performing alternatives and background information.
- 4. Assimilator: Abstract Conceptualization + Reflective Observation:** This style of learning includes theories and facts, theoretical models – graphs, talks about basis rather than doing it, lectures, numbers, defines problems and Logical Formats.

Kolb's model resulted to the Learning Style Inventory. An individual may show a preference for one of the four methods—accommodating, converging, diverging and assimilating—based on their approach to learn via the experiential learning theory model.

2.9. 2. Learning Modalities

Dunn, Beaudry and Klavas⁶⁴, mentioned that Sensory preferences impact the methods in which students learn. They pointed out that there are three Learning Modalities adapted from Visualizing style, Auditory method and Tactile (Kinesthetic) method.

Descriptions of Learning Modalities:

Visual	Kinesthetic	Auditory
Picture	Gestures	Listening
Shape	Body Movements	Rhythms
Sculpture	Object Manipulation	Tone
Paintings	Positioning	Chants

Figure 2.3: Descriptions of Learning Modalities

Learning modalities can occur independent or combined, changing over time, and becoming assimilated with age.

2.9.3. Peter Honey and Alan Mumford's model⁶⁶

Peter Honey and Alan Mumford's model has modified two editions were made to Kolb's experiential model; mainly the phases in the cycle were renamed to unite with managerial experiences of decision making/problem solving. The Honey & Mumford mentioned stages are: Activist, Reflector, Theorist and Pragmatist.

2.9.4. Anthony Gregorc's model⁶⁷

Maria Bagby converses the work of Anthony F. Gregorc & Kathleen A. Butler in there article entitled 'Learning Style Difference vs. Learning Difficulty'. Both of them worked to organize a model describing different learning methods engrained in the way individuals acquire and process information differently. This model is based on the presence of discernment in turn are the foundation of our specific learning strengths, or learning styles.

Maria Bagby in her model explained that there are two perception based qualities concrete and abstract; and two assembling abilities random and sequential. Concrete discernments involve recording information through the five senses, while abstract discernments involve the understanding of ideas,

qualities, and concepts which cannot be seen. In regard to the two assembling abilities, sequential ability includes the group of information in a linear, logical way and random includes the group of information in chunks and in an unspecific order. Both of the perception based qualities and both of the assembling abilities are present in each individual, but some qualities and assembling abilities are more prevailing within certain individuals.

There are four combinations of perception based qualities and assembling abilities based on prevalence:

Concrete Sequential; Abstract Random; Abstract Sequential; and Concrete Random. Individuals with varied permutations learn in different ways—they possess unlike strengths, unlike things make sense to them, unlike things are difficult for them, and they probe different questions throughout the learning course.

2.9.5. Neil Fleming's VAK/VARK model⁶⁸.

Neil Fleming's has put across one of the most common and widely used classifications of the different types of learning methods: visual learners; auditory learners; reading-writing preference learners.

Fleming appealed that visual learners have an inclination for sighted learning. Auditory learner's best learn through listening. Tactile/kinesthetic learners support learning via experience—moving, touching, and doing. Its use in instruction enables faculties to prepare classes that address each of these areas. Students could also use the model to recognize their preferred learning methods and maximize their educational experience by aiming on what welfares them the most.

2.9.6. “Cognitive approach to learning styles”

According to Anthony Grasha and Sheryl Reichmann⁶⁹, new learning method and has been developed to analyze the assertiveness of students and how they approach learning. The test was originally intended for university students, the concepts of various learning styles are as follows: avoidant, participative, competitive, collaborative, dependent and independent. According to them, the model was to deliver teachers with vision on how to approach instructional plans.

2.9.7. Evidence-based model of learning

Chris J Jackson's⁷⁰ neuropsychological hybrid model of learning in temperament argues sensation in quest of providing a core biological drive of curiosity, learning and exploration. A high drive to explore leads to dysfunctional learning significances unless cognitions such as goal orientation, thoroughness, deep learning and emotional intellect re-expresses it in more composite ways to achieve functional consequences such as high work performance. The wide applicability of the model and its strong foundation in the academic writings suggest that this evidence based model of learning has much prospective.

2.9.8. NASSP Learning Style Model⁷¹

NASSP Learning Style Model, there are three broad categories of learning style characteristics: cognitive methods are preferred ways of awareness, organization and retention, affective methods represent the motivational magnitudes of the learning character; each learner has a personal motivational approach, and physiological methods are qualities deriving from a person's gender, health and nutrition, and reaction to school's physical surroundings, such as preferences for levels of light, sound, and temperature. Keefe expresses that styles are theoretical constructs that help to explain the learning course. Learning method tells us how a student learns and prefers to learn. Keefe says that Learning methods are distinctive, reasoning, affecting, and physiological behaviors that serve as

relatively stable pointers of how learners observe, work together with, and react to the learning environment.

2.9.9. Assessment methods: Learning Style Inventory⁷²

Felder and Silverman, the Learning Style Inventory (LSI) assesses individual's preferences and needs regarding the learning process. A totally different Learning Styles Inventory is linked with a binary splitting up of learning methods. Learning methods are a balance between four pairs of prodigality: Active/Reflective, Sensing/Intuitive, Verbal-Visual and Sequential/ Global. Students obtain four scores labeling these balances.

2.9.10. Learning styles in the classroom⁷³

According to Dr. Rita Dunn and Dr. Kenneth Dunn, changes include classroom redesigning, the advancement of small-group systems, and the development of Contract Activity Packages. Redesigning the classroom involves locating partitions that can be used to position the room creatively, clearing the floor area, and integrating the student thoughts and ideas into the design of the classroom.

Another scholar Marilee Sprenger⁷⁴ in 'Differentiation through Learning Styles and Memory', origins her work on three premises:

- 1) Teachers can be learners, and learner's teachers or both.
- 2) Everyone can learn under the suitable environments.
- 3) Learning is enjoyable! Make it tempting.

Sprenger says various ways of teaching, visual, auditory, or tactile/kinesthetic. Methods for pictorial learners include guaranteeing that students can see words written, using pictures, and drawing time lines for events. Methods for auditory learners include repeating words audibly, small-group discussion, and debates, listening to books on tape, oral information, and oral interpretation. Methods for tactile/kinesthetic learners include practical activities, projects, and frequent breaks to allow movement, visual aids, role play, and field trips. By using a variety of training methods from each of

these classes, teachers overprotect different learning methods at once, and improve learning by challenging students to learn in different means.

James W. Keefe and John M. Jenkins⁷⁵ have combined learning methods valuation as a rudimentary component in their ‘Personalized Instruction’ model of schooling. Six basic elements constitute the culture and context of personalized instruction -establish the foundation of personalization and guarantee that the school prizes a caring and collaborative environment. The circumstantial factors—interactivity, flexible arrangement, and reliable valuation—establish the configuration of personalization.

Spoon & Schell⁸⁵ mentions that learning style in their study varied by demography, specifically by age, suggesting a change in learning style as one gets older and acquires more experience.

2.9.11. Nine Principles of Good Practice for Assessing Student Learning.

According to American Association for Higher Education (AAHE)⁷⁶, has come with some recommendations of ‘Good Practice for Assessing Student Learning’ requires:

1. The valuation of student learning begins with educational values.
2. Valuation is most effective when it reflects an understanding of knowledge as multidimensional, combined, and open in performance over time.
3. Valuation works best when the programs it seeks to progress have clear, clearly stated purposes.
4. Valuation requires consideration to outcomes but also and correspondingly to the experiences that lead to those consequences.
5. Valuation works best when it is ongoing not irregular.
6. Valuation nurtures wider improvement when representatives from through the educational community are involved.
7. Valuation makes a difference when it begins with issues of use and lights questions that people actually care about.

8. Valuation is most likely to lead to development when it is part of a larger set of conditions that promote change.
9. Through assessment, mentors meet responsibilities to students and to the public.

2.9.12. Seven Principles for Good Practice in Undergraduate Education.

According to Arthur W. Chickering and Zelda F. Gamson⁷⁷, expresses that uninterested students, illiterate graduates, hopeless teaching, and impersonal campuses criticism of higher education. They have come up with Seven principles are proposed as guidelines for faculty members, students, and administrators. To advance teaching and learning, while each practice can stand alone on its own, when all are present their effects multiply.

The researcher identifies the same and has been mentioned as part of the theses. They employ six powerful forces in education: activity, opportunities, support, interface, multiplicity and obligation.

Good practice in undergraduate education:

1. encourages contact between students and faculty,
2. develops reciprocity and cooperation among students,
3. encourages active learning,
4. gives prompt feedback,
5. emphasizes time on task,
6. communicates high expectations, and
7. Respects diverse talents and ways of learning.

As faculty members, academic administrators, and student personnel staff, researcher have spent most of our working lives trying to understand students, colleagues, institutions.

2.10. Model of the empirical research.

The process of knowledge consists of two cycles – an internal and an external one. When the education is done for self, it is considered as internal and when the learning is done to others or colleagues, it is external.

Interpretation of the internal cycle to knowledge management in universities is the following:

- ❖ **Knowledge Identification:** In this phase the identification and review of information and knowledge processes and sources after determination of knowledge goals can be done.
- ❖ **Knowledge Acquisition:** We need to aspire to obtain the missing knowledge and there by processes with the mission that students and civic engagement of students, faculty and staff with each other and with institutions as well.
- ❖ **Knowledge Development:** It is not enough to collect knowledge to have real competitive advantage individual or collective creativity is high.
- ❖ **Knowledge Sharing:** The aim of knowledge sharing or knowledge dissemination is to enhance the knowledge. Knowledge transfer has two main aspects: the transmission part and the absorption part by a certain individual or group. Electronic technology is the part of the infrastructure of implicit knowledge transfer.
- ❖ **Knowledge Storing:** This phase includes the media or instrument and assurance of the identified, acquainted or developed, distributed or utilized knowledge in order to be available in the future again. According to researchers media that will represent significant differences in the efficiency of methods and techniques of knowledge saving.
- ❖ **Knowledge Application:** Knowledge application has to ensure that knowledge is used productively. This is the purpose of knowledge management is to utilize knowledge.
- ❖ **Knowledge Goals:** In practice definition of knowledge goals is a difficult task as knowledge management is the lack of common language may hinder the determination of goals.

- ❖ **Knowledge Assessment:** The based on experience what cannot be measured seems to have no importance. Measuring knowledge revises the achievement of goals and the transparency of changes in organizational knowledge.

2.11. **Knowledge management practices at an institution of higher learning**

According to Judith Mavodza and Patrick Ngulube⁷⁸ article highlights the fact that people is becoming more and more knowledge-based, and that the organizations that can identify, value, create and evolve their knowledge assets are likely to be more successful than those that do not. Knowledge management (KM) is about refining the use of organizational knowledge through sound practices of KM and organizational knowledge.

2.12. **Implementing Knowledge Management in Higher Educational Institutions in India:**

Mamta Bhusry and Jayanti Ranjan⁷⁹ in their article on ‘a conceptual framework’ mention that higher educational institutions create and apply knowledge during their processes and activities. The development in the number of higher education institution in India in the last span has increased race and the burdens for better execution. This has forced the organizations to be aware of the need for knowledge management initiatives which is a key advantage.

2.13. **Knowledge Management Cases in a University in Asia/Applying Knowledge Management in Career Resources for Higher Education Institution in Asia**

Knowledge Management Cases in a University in Asia⁸⁰, specifies how KM is executed. KM policies, administrative culture and KM metrics are considered to inspect the operations in dealing with career resources in a higher educational organization in Asia. However, enhancement in KM presentation can be seen as for having limited structural KM system embodied in the institution. It is suggested that the organization can enhance their knowledge management by using different KM strategies and tools together with interactive features, with the intention of reinforcing existing stands for better collaboration and more rapid sharing of career resources.

2.14. KM in Higher Education.

According to Bridgstock⁸¹, the application of KM to the career center of the university can enhance and facilitate the employability in tertiary students because the self-management and career establishment skills can be transmitted to the graduates effectively if the KM is well implemented to the occupational center.

2.15. Application of Knowledge Management

The presentation of Knowledge Management to Dalkir's⁸² integrated KM cycle model suggests that, the KM processes should include creation, capture, sharing and dissemination, and acquisition and application. Advancing the development of Knowledge Management training and culture in a career advising department, developing KM strategies and relevant metrics will be the prior tasks to achieve better knowledge sharing. The improvement of knowledge allocation platform and Knowledge Management style increases the department to practice Knowledge Management.

2.16. Knowledge Collaboration in Higher Educational Institutions in India:

In the article, Mamta Bhusri and Jayanti Ranjan⁸³, Knowledge management is a crucial deliberation in higher educational institutes to confirm that knowledge there is an efficient flow between the people and processes. An essential aspect of Knowledge Management in higher educational institutions that hasn't been addressed sufficiently is the formless nature of knowledge management and the fluctuating amounts of conformance to Knowledge Management mechanisms in the functional realms.

2.17. Framework for a Knowledge Management Platform in Higher Education Institutions

In the opinion of Parul Sinha, Monika Arora, N.M. Mishra⁸⁴ that active implementation of Knowledge Management is considered as a progressively important tool enabling organizations to gain a competitive benefit. Educational Institutes have realized that Knowledge is now a motive force for an institutional change and innovation. Educational institutes are performing radical changes in

scheduling and executing knowledge-based strategies for the improvement of their competitiveness, productivity, organizational efficiency and improved service to the country by producing skilled leaders for tomorrow.

The lack of support for Knowledge Management, the downward trend of KM mechanisms in Higher Educational Institutes may be attributed to the reasons namely -

1. Lack of interest and confidence in using others 'knowledge
2. Fear of losing importance by dispensing with one's knowledge
3. Silos mentality and lack of co-operation among employees
4. Lack of time
5. Lack of infrastructure (push and pull mechanisms)
6. Lack of organizational strategy for knowledge management
7. Lack of incentives to participate/collaborate for knowledge sharing

The researcher has divided the literature review in to two parts: Knowledge management in Education and knowledge transfer the ways and means in the further chapter.

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CHAPTER 3

KNOWLEDGE MANAGEMENT IN EDUCATION

3.1. Knowledge Management

According to Webster's¹ Dictionary, knowledge is the fact or condition knowing something with familiarity gained through experience or association. There are many definition of knowledge. Knowledge is the ideas or understanding with which can take effective actions to achieve its goals. The Knowledge is an idea created or innovated and is considered as branch or streams. There are two sides of knowledge, in any mode of communication faculty members are provider and the students are receivers or takers.

Knowledge Management can be considered as a practice of conversion of knowledge learned during the past and using the same presently used in the organization or Institution to create, capture, collect, transfer and apply.

3.2. Concept of Knowledge to Faculty/ Teacher

In North American English, faculty is the academic staff of a university: senior teachers, lecturers, and/or researchers, Professor. A teacher or faculty member is a person who provides education to the students. The role of a teacher is often formally carried out at a school or colleges and other places of formal teaching. A person who would to become a faculty member must first obtain specified professional qualifications from a university or college. Faculty member may have to continue their education even after joining with Institute or college as a faculty and understand the process of continuing professional development.

Faculty member is an academic staff who teaches different subjects and includes professors of various ranks: lecturers, assistant professors, associate professors, and professors. Faculty member

professional duties may be extended outside the classroom. Beyond class room teaching, Faculty member accompanies students during practical's and on field trips, supervise a studies during examinations, help with the organization of school functions, and serves as supervisors for extracurricular activities. The teachers may have responsibility for student discipline.

To sharpen the skills, teachers may plan or make use of a lesson plan in the curriculum. Teachers are often required to obtain specialized education, formal degree and knowledge codes of ethics and internal monitoring.

A teacher or a faculty member is a person who provides education to students. The teacher or a faculty member, who has accepted the job to teach the student, is expected to have certain qualities and interest in the subject. The main focus is a teacher, who is initially a student, after repetitive following the practice and may be able to practice to serves as an academician and can be more knowledgeable. Faculty member from students perspective unless he/she is knowledgeable, he/she will not get a confidence to teach the subject.

3.3. Role of a Faculty member

The role of teacher is often formal and ongoing, carried out in formal education. A person expected to become a faculty member must first obtain specified professional qualifications or credentials from a university or college. The art and science of teaching are a part of professional qualifications which may include the study of pedagogy. Faculty member like other professionals may have to continue their education after they qualify, as they teach many subjects and master in one. Faculty member needs to be innovative and keep trying different pedagogy or teaching methods depending upon the class.

To gain the experience and knowledge, faculty member understand the importance of knowledge, codes of ethics and internal monitoring. A faculty member's professional duty may

extend beyond formal teaching. Outside of the classroom teachers may accompany students on field trips, supervise study halls, help with the organization of school functions, and serve as supervisors for extracurricular activities. In many education systems, teachers may have responsibility for student discipline. There are a variety of bodies designed to impart, preserve and update the knowledge and professional standing of teachers.

Teachers may use a lesson plan to facilitate student learning, providing a course of study which is called the curriculum. The functions of the faculty member include setting out clear standards of practice, providing for the ongoing education of teachers, investigating complaints involving members, conducting hearings into allegations of professional misconduct and taking appropriate disciplinary action and accrediting teacher education programs. A teacher or a faculty would like to work as a mentor.

An Institutions or college may help students in learning:

- It is creating a situation or selecting life-like situation to enhance learning
- To the traditionalist, it is imparting knowledge and skills required to master a subject matter.
- Process of dispensing knowledge to an empty vessel (mind of learner)
- Its showing, telling, giving instruction, making someone understand in order to learn

3.4. Teaching method (Wikipedia²)

Some faculty members are popular and some are not. When researcher tries to find the solution of this, it is observed that the environment and the pedagogy play a dominant role. The choice of teaching method or methods to be used depends largely on the knowledge and information or skill that is being taught, and it may also be influenced by the aptitude and passion of the students.

According to Rey³, teaching and transmitting, or more specifically transmitting knowledge. This meaning is the French verb *enseigner*, while the verb *enseigner* (to teach) acquires the meaning “to educate” hereafter meaning “to teach someone”. On the other hand the word “to transmit” (from the Latin *trans + mittere*) has a primary meaning which is “to make something reach someone else”. It originally meant “to give away a right or a material possession” and then later came to mean “to make an object arrive from one place to another”.

Following methods of instruction may be understood as:

3.4.1. Explaining: Explaining, or lecturing, is the process of teaching by giving spoken explanations of the subject that is to be learned, conveyed by visual aids to help students visualize an object or problem. Explaining may meet the needs of auditory or visual learning preferences but often fails to meet the needs of individuals with other learning preferences such as kinesthetic or social learners.

3.4.2. Demonstrating: Demonstrating is the process of teaching through examples or experiments. For example, a faculty member may teach an idea by performing an experiment for students. For programming languages, demonstration is a method popular for initial learning. After demonstration, faculty member may help students in carrying out their practicals. A demonstration may be used as a tool to prove the fact through a combination of visual evidence and associated reasoning.

3.4.3. Collaborating: Collaboration allows students to actively participate in the learning process. This method always follows the demonstration during practical, as it is a personal connection between students and the topic of study and it helps students think in a less personally biased way. Group projects and discussions are examples of collaboration teaching method. Teachers may engage collaboration to assess student's abilities to work as a team, leadership skills, or presentation abilities.

3.4.4. Learning by teaching: In this teaching method, students assume the role of teacher and teach their peers. Students who teach others as a group or as individuals must study and understand a topic well enough to teach it to their peers, gain self-confidence and strengthen their speaking and communication skills.

3.5. Pedagogy and teaching. In education, faculty member or teachers facilitate student learning. The objective is typically accomplished by either an informal or formal approach towards learning. This method helps a course of study and lesson plan that teaches skills, knowledge and/or thinking skills. Faculty member may follow different ways of technique referred to as pedagogy, considering students' background knowledge, environment, and their learning goals and standardized curricula as determined by the relevant authority. The increasing use of technology, specifically the rise of the internet over the past decade, has begun to shape the way teachers approach their roles in the classroom. The teacher may interact with students of different ages, from infants to adults, students with different abilities and students with learning disabilities.

In assessing the educational levels, different pedagogy may be used to meet the needs of all students in the classroom. Faculty member may select the pedagogy that suits the environment.

3.6. Types of Delivery: Lectures may include several types of delivery or pedagogy, depending on the requirements of any circumstances, a lecture is usually delivered in one of four ways:

1. Reading from a typed or written manuscript.
2. Reciting memorized material without the aid of a manuscript.
3. Speaking extemporaneously from an outline.
4. Speaking impromptu or without preparation.

3.6.1. Teaching by Lecture:

The teaching through lecturing is best delivered in an extemporaneous manner. The instructor speaks spontaneously and doesn't read the material which is to be presented. Faculty member express idea which is spontaneous, the lecture is more personalized than one that is read or spoken from memory. The faculty member talks directly to the students and adjustments can be made based on their responses. They have better control of the situation and can adapt each idea to suit the responses of the students.

3.6.2. Use of notes: Faculty member who is thoroughly prepared or who has made the presentation before can usually speak effectively without notes. Lecture notes have been carefully prepared, there should be no real difficulty.

3.6.3. Formal Versus Informal Lectures: The lecture may be conducted in either a formal or an informal manner. The informal lecture includes active student participation. Learning is best achieved if students participate actively in a friendly, relaxed atmosphere. Therefore, the use of the informal lecture is encouraged. At the same time, it must be realized that a formal lecture is still to be preferred on some subjects and occasions, such as lectures introducing new subject matter.

3.6.4. Cooperative or Group Learning Method: Cooperative or group learning is an instructional strategy which organizes students into small groups so that they can work together to maximize their own and each other's learning. This is useful when students are doing their project work. In frequent research studies it is observed that it indicates promising possibilities for academic achievement with this strategy. Cooperative learning group tasks tend to have higher test scores, higher self-esteem, improved social skills, and greater comprehension of the subjects they are studying.

3.6.5. Conditions and Controls: Cooperative or group learning is not a remedy for education or training. Success depends on conditions that must be met and certain controls that must be in place.

Initially faculty member needs to begin planning early to determine what the student group is expecting to learn and be able to do on their own. The end result of a curriculum unit or group task may emphasize academic achievement, cognitive abilities, or physical skills, but the instructor must describe in very unambiguous language the specific knowledge and/or abilities the students are to acquire and then demonstrate on their own.

3.6.6. Heterogeneous Groups: Faculty member should form small groups of approximately 3 to 6 members so that students are mixed heterogeneously, considering academic abilities, ethnic backgrounds, race, and gender. Students should not be allowed to form their own groups based on friendship or circles. The main advantages with heterogeneous groups are that students tend to interact and achieve in ways and at levels. They also tend to become tolerant of diverse viewpoints, to consider the thoughts and feelings of others, and to seek more support and clarification of various opinions.

3.6.7. Individual Accountability: A student must be held individually responsible and accountable for doing his or her own share of the work and for learning what needs to be learned. As a result, each student must be formally and individually tested to determine mastery and retention of the targeted learning outcomes or training objectives. In Information Technology, each student is responsible and accountable. Thus performance is measured on the actions and reports generated individually.

3.6.8. Recognition and Rewards for Group Success: Only members of groups who meet established levels for achievement receive the rewards or public recognition. The specific awards must be something valued by the students.

3.6.9. Debrief on Group Efforts: Students should spend time after the group tasks have been completed to systematically reflect upon how they worked together as a team--specifically how well

they achieved their group objectives. Each student comprehends the content, resources, task procedures, used positive behaviors and attitudes to enable each individual and the entire group to be successful in what they need to do in the future to be even more successful.

3.6.10. Guided Discussion Method: In the guided discussion method, as it is true with any group learning effort, the faculty member typically relies on the students to provide ideas, experiences, opinions, and information. Faculty member may use this method during classroom periods, and preflight and post flight briefings. After the students have gained some knowledge and experience, fundamentally, the guided discussion method is almost the opposite of the lecture method. The faculty member's goal is to draw out what the students know, rather than to spend the class period telling them. The faculty members should remember that more intense the discussion and greater the participation, the more effective learning.

3.6.11. Computer-Based Training Method: Many new and innovative training technologies are available today. One of the most significant is computer- based training (CBT) - the use of the personal computer as a training device. CBT is sometimes called computer-based instruction (CBI). The terms CBT and CBI are synonymous and may be used interchangeably. Challenges can help students to come up with some innovative use and application may come up with self-learning tools in near future.

3.7. Some Different Teaching Methods

A good faculty member knows that all students do not learn in the same way. In addition, it is common for a class of students to be at a variety of levels in any particular subject. Faculty member need to use different teaching methods in order to reach all students effectively. A new pedagogy in variety of teaching strategies, knowledge of student levels, and an implementation of

which strategies are best for particular students can help faculty member to know which teaching methods will be most effective for their class.

Informal instruction: As the name suggests, much less formal. Good teachers know their students capacity knowledge gaining and know quite a bit about their interests, ability levels, and learning styles. If the group of students is new to you, you can make a point of asking them, individually or in a group, about their interests and academic strengths. Faculty member need to be innovative in knowing students and generally enjoy talking about themselves as it makes them feel special, as well as directing you in choosing your teaching methods.

Once you have assessed your students, you need to plan for different teaching methods. **Direct instruction** is the most common form of instruction. This is the lecturing method of teaching which helps in covering large amounts of material in short period of time.

Inquiry-based learning is a teaching method which is rapidly gaining popularity in many parts of the world. Based on the scientific method, this teaching method can be used for virtually all subjects. Using this energy and planning but it is often very effective. Most of the websites are going to have frequently asked questions (FAQ), wherein questions were posed with answers.

Cooperative learning is another teaching method; students are put in small groups to work together. The students are then given tasks to accomplish together, faculty member may need to monitor these groups carefully, to make sure that they are staying on task and are also participating. This form of instruction also leads itself well differentiated, because the teacher can assign specific tasks to children at different ability levels.

One more common teaching method is to teach **information processing strategies**. While it is often advisable to have students really understand the teaching methods and not just memorize facts, there are some cases when facts need to be memorized. Facts and concepts may also need to be

grouped or organized in order to facilitate better understanding. Faculty member can use various teaching methods to help students with memorization, or they can use graphic organizers, mind maps, story webs, or other ways to represent information visually.

3.8. Importance of knowledge gaining.

A Teacher or faculty member, need to be introvert while learning and extrovert while keeping on tapping all the opportunities he/she has gained by reading, writing, by writing the research papers and presenting them in Seminars, by attending the Seminars, conventions, interacting with other faculty members, attending the Faculty Development Program (FDP), asking questions to oneself, i.e. probable questions or queries that might be asked by the students, referring the magazines and bulletins on the issues. When some new things are happening, faculty must try and gain the knowledge in detail from such activities.

Faculty member is expected to get wide spectrum of knowledge, and should look out for the new changes and developments happening in and around his/her area of study. Faculty members should be introvert to the knowledge he/she has gained during the childhood, during the graduation, and while studying in post-graduation. This may be a tacit knowledge. By applying the knowledge thus gained should be applied to improve the teaching skills. Faculty members should find out the areas in which he/she is comfortable and then gain the knowledge in those areas, so that he/she never gets frustration. After the post-graduation, i.e. after the master's degree, rather than looking at marks in which highest scores are, subjects shall be that focus in which he/she is interested. Knowledge is the information and skills acquired through experience or education. In other words, knowledge can be awareness or familiarity gained by experience of a fact or situation.

According to Davenport³, Knowledge management is the process of capturing, distributing, and effectively using knowledge. Duhon⁴ definition is widely accepted and according to them

Knowledge management is a discipline that promotes an integrated approach in identifying, capturing, evaluating, retrieving, and sharing all of an enterprise's information assets.

The operational origin of Knowledge Management (KM), arose within the consulting community and from there the principles of KM were rather rapidly spread by the consulting organizations to other disciplines.



Figure 3.1: Introducing Knowledge Management

Knowledge management is essentially about getting the right knowledge to the right person at the right time. This itself may not seem so complex, but it implies a robust in academic area. Understanding of where and in what forms knowledge exists, in creating processes that span organizational functions, and ensuring that initiatives are accepted and supported by Institution members. Knowledge management may also include new knowledge creation, or it may solely focus on knowledge sharing, storage, and refinement.

Knowledge is the ability of a person to understand and act effectively. Mainly all Scientists, Philosophers and thinkers are considered to possess a knowledge because of their ability to abstract, understand, speculate and act on the subject. Faculty member can set the goal to achieve the highest in their goal settings. Besides knowledge, these people have several other skills other than use of principles and theory, application of principles, reasoning and problem solving capability, decision making skills and so on.

In these the knowledge in an educational institute or college, is the ability of people and organizations to understand and act effectively. With globalization of education, the competitive pressures are building, threatening the survival and growth of the educational institute or college. Possessing of data is not enough, faculty member are expected to get the required information, and know-how is now not enough for the institution to meet these challenges. In addition to these, what is now required is knowledge and Intellectual Capital (IC) formally in place and accessible for concerned people and make in use of it is highly desired to have knowledge management systems.

Knowledge is built over a period through formal and systematic methods. When a person joins an organization, he may not be having any knowledge of how the things take place in an organization. But as the time passes, he will learn and understand the activities and increases his/her knowledge by acting or practicing that at work.

The objective of Knowledge Management is to create value and to influence, improve, and refine the institutes competences and knowledge assets to meet organizational goals and targets.

Implementing knowledge management thus has several dimensions including:

- **KM Strategy:** Knowledge management strategy must be dependent on Institutional strategy and to the University they belong. The objective is to manage, share, and create relevant knowledge assets that will help meet tactical and strategic requirements.

- **Organizational Culture:** The organizational culture impacts the way people interact, the context within which knowledge is created, the resistance they will have towards certain changes, and ultimately the way they share knowledge.
- **Organizational Processes:** The right processes, environments, and systems that enable KM to be implemented in the organization.
- **Management & Leadership:** KM requires competent and experienced leadership at all levels. There are a wide variety of KM-related roles that an institution or college may or may not need to implement.
- **Technology:** The systems, tools, and technologies that fit the institution or college requirements - properly designed and implemented.
- **Politics:** The long-term support to implement and sustain initiatives that involve virtually all organizational roles, which may be costly to implement, and which often do not have a directly visible return on investment.

According to Peter Drucker⁵ the coordination and exploitation of organizational knowledge resources in order to create benefit and competitive advantage. Where the disagreement sometimes occurs is in conjunction with the creation of new knowledge.

Wellman⁶ limits the scope of KM to lessons learned and the techniques employed for the management of what is already known and knowledge creation is often perceived as a separate discipline and generally falls under innovation management.

Bukowitz and Williams⁷ link KM directly to tactical and strategic requirements. Its focus is on the use and enhancement of knowledge based assets to enable the firm to respond to these issues. Knowledge management is the systematic management of faculty member's knowledge and organization's knowledge assets for the purpose of creating value and meeting tactical and strategic

requirements; it consists of the initiatives, processes, strategies, and systems that sustain and enhance the storage, assessment, sharing, refinement, and creation of knowledge.

Knowledge management (KM) therefore implies a strong bond to organizational goals and strategy, and it involves the management of knowledge that is useful for some purpose and which creates value for the organization.

A similarly broad definition is presented by Davenport & Prusak⁸, which states that KM is managing the corporation's knowledge through a systematically and organizationally specified process for acquiring, organizing, sustaining, applying, sharing and renewing both the tacit and explicit knowledge of employees to enhance organizational performance and create value.

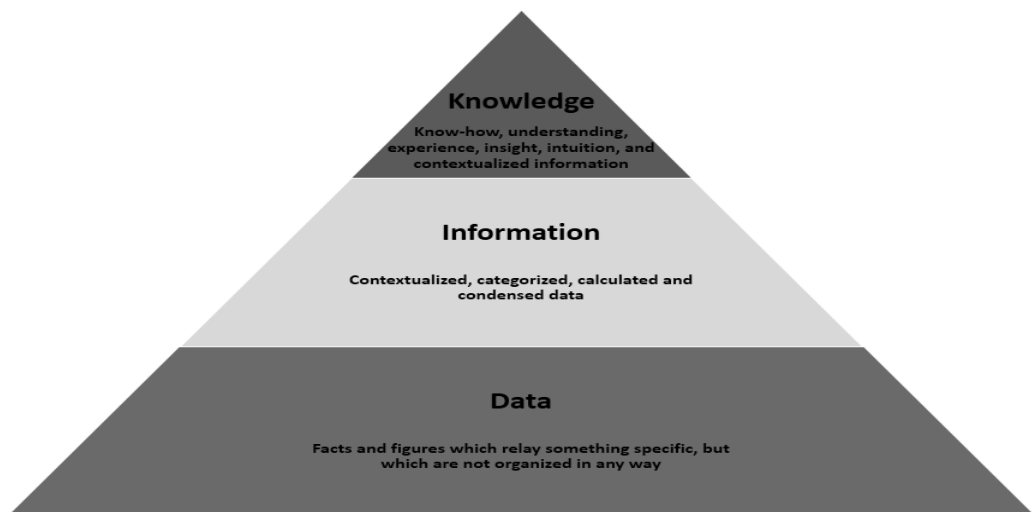


Figure 3.2: Pyramid (Data Processing Knowledge).

Data: Facts and figures which may be used for providing information in the specific context.

Thierauf⁹: "unstructured facts and figures that have the least impact on the typical manager."

Information: Some data to become information need to be contextualized, categorized, calculated and condensed according to Davenport & Prusak¹⁰.

Information thus paints a bigger picture; it is data with relevance and according to the purpose of Bali et al 2009¹¹ Information is processed data.

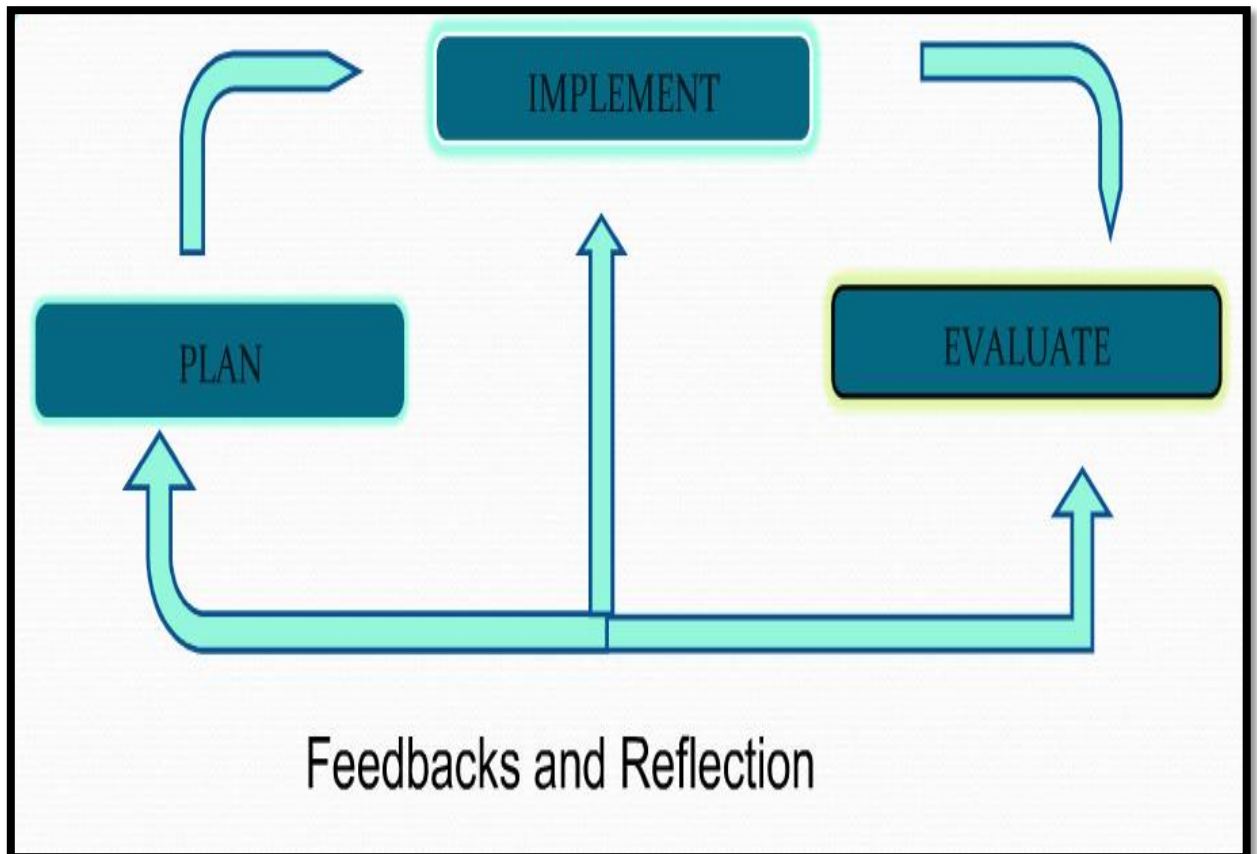


Figure 3.3: Teaching Process

3.9. Teaching Process.

Planning Phase includes decision like:

- The needs of the learner
- The achievable goals and objectives to meet the needs
- Selections of the content to be taught
- Motivation to carry out the goal,
- Strategies most fit to carry out the goals
- Evaluation process to measure learning outcome

In Education domain, curriculum decides the structure and opportunities which a person may gain. There are different knowledge opportunities, during the childhood parents decide the path, in colleges and institution, student can get different knowledge depending on the skills and qualities.

3.10. Types of knowledge

Knowledge transfer is often used as a synonym for research activity. Information should not be confused with knowledge. Knowledge transfer as a part of knowledge management has been considered as an effective way to promote the knowledge ability and the core competence of an organization. Pedagogy can decide knowledge transfer ability in institution or college, and Faculty member are considered as the main source through which student will get certain knowledge. The main factors which affect the knowledge transfer is an index system is set up to evaluate knowledge transfer ability using the methods, questionnaire investigation and statistical analysis as knowledge transmission ability, knowledge receptive ability, interactive ability and organizational supporting ability, etc..

Knowledge transfer in the fields of educational Institutes is the knowledge that can be transferred from faculty member to the students or peer member. Like knowledge management, Knowledge transfer seeks to organize, create, capture or distribute knowledge and ensure its availability for future users.

Peter Drucker¹² rightly said no institution can possibly survive if it needs geniuses or supermen to manage it. It must be organized in such a way as to be able to get along under a leadership composed of average human beings.

In Management Institutes, knowledge is shared between the faculty member by Class room teaching, Faculty Development Programs, Management Development Programs, Workshops, and Seminars, conducting and attending guest lecture etc.

Knowledge transfer is more complex because knowledge resides in faculty members, tools, tasks, and their subnetworks and much knowledge in organizations is tacit or hard to articulate.

Argote & Ingram¹³ define knowledge transfer as the process through which one unit (e.g., group, department, or division) is exaggerated by the experience of another.

Szulanski's¹⁴ doctoral dissertation proposed that knowledge transfer within a firm is inhibited by factors other than a lack of incentive. It is worth noting, that analysis does not apply to scientific theories, where a different set of dynamics and rewards apply. Three related concepts are knowledge utilization, research utilization and implementation, which are used in the health sciences to describe the process of bringing a new idea, practice or technology into consistent and appropriate use in a clinical setting. Faculty member also can make use of this concept and keep transmitting their knowledge to the students and thereby keep applying their knowledge as part of the implementation.

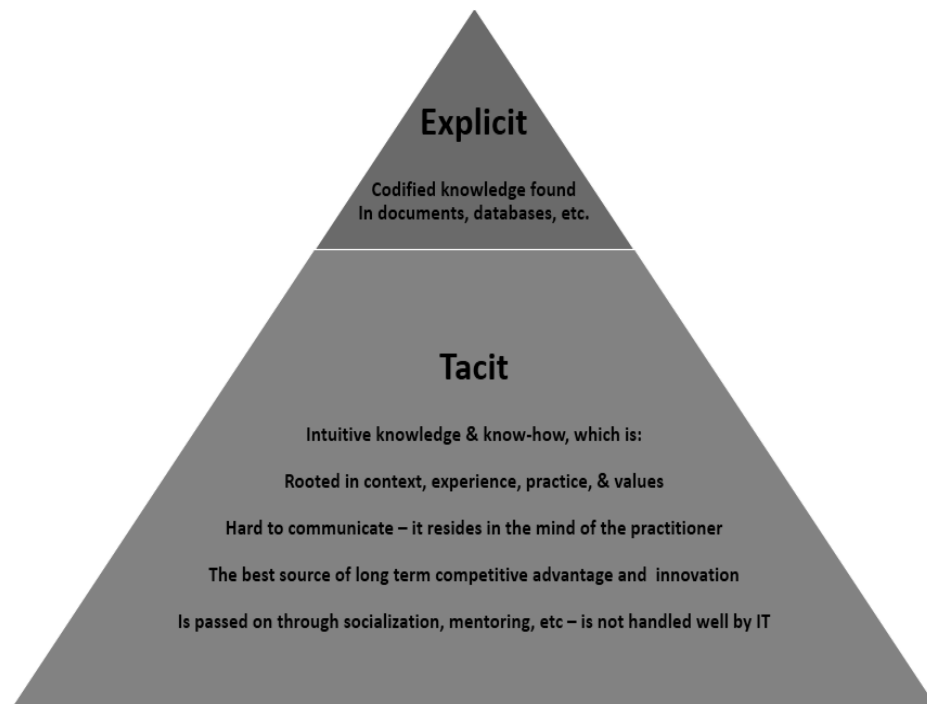


Figure 3.4: Types of Knowledge

3.11. Kinds of knowledge:

Knowledge is a dominant feature is the basis gaining an understanding of what types of knowledge exist within an organization may allow us to foster internal social structures that will facilitate and support learning in all organizational domains. Blackler¹⁶ expands on a categorization of knowledge types that were suggested by Collins¹⁷, viz., embrained, embodied, encultured, embedded and encoded.

a. Embrained knowledge is that which is dependent on conceptual skills and cognitive abilities, we may consider to as be practical, high-level knowledge, where objectives are met through perpetual recognition and revamping. Tacit knowledge may also be embrained and mainly subconscious.

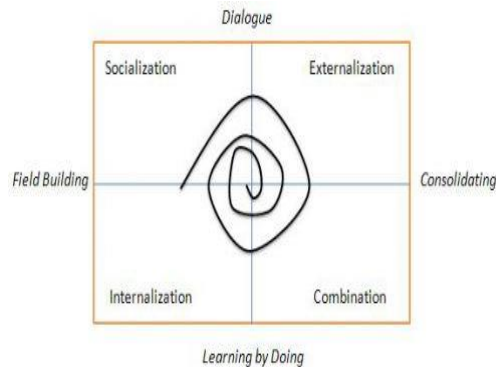
b. Embodied knowledge is action oriented and consists of contextual practices. It is more of a social acquisition, as how individuals interact in and interpret their environment creates this non-explicit type of knowledge.

c. Encultured knowledge is the process of achieving shared understandings through socialization and acculturation. Language and negotiation become the discourse of this type of knowledge in an enterprise.

d. Embedded knowledge is explicit and resides within systematic routines. It relates to the relationships between roles, technologies, formal procedures and emergent routines within a complex system. Controls are the best example of this.

e. Encoded knowledge is information that is conveyed in signs and symbols (books, manuals, data bases, etc.) and decontextualized into codes of practice.

3.12. Nonaka and Takeuchi Knowledge Management Cycle (KMC): Nonaka's and Takeuchi's¹⁸ mentioned about transforming tacit knowledge into more explicit forms. K. Dalkir¹⁹ is of the opinion that the Nonaka and Takeuchi KM model focuses on knowledge spirals that explain the transformation of tacit knowledge into explicit knowledge and then back again as the basis for individual, group, and organizational innovation and learning.



[Source: Nonaka and Takeuchi, 1995]

Figure 3.5: The Nonaka and Takeuchi Knowledge Spiral

First step: Socialization (tacit-to-tacit): Knowledge exists in our mind, perhaps 80%, lies in people's brains. The aim for the knowledge worker is to find ways to collect this tacit knowledge. Socialization consists of sharing knowledge through social interactions. Personal skills may be shared experience directly at work through one-to-one roles: the tutor and the apprentice. *Socialization* is a very effective means of knowledge creation, and is also very difficult and time-consuming to disseminate all knowledge using this mode only.

Second step: Externalization (tacit-to-explicit): The process of *externalization* (tacit-to-explicit) gives a visible form to tacit knowledge and converts it to explicit knowledge. Externalization is a typical knowledge creation process in which tacit knowledge becomes explicit, taking the shapes of metaphors, analogies, concepts, hypotheses, or models. Individuals are able to articulate the knowledge and know-how and, in some cases, the know-why and the care-why.

Third step: Combination (explicit-to-explicit): Combination is the process of recombining discrete pieces of explicit knowledge into a new form. No new knowledge is created at this step. It is rather to improve what we have gathered so far, to make synthesis or a review report, a brief analysis or a new database. The content has been basically organized logically to get more sense, consolidated.

Fourth step: Internalization (explicit-to-tacit): Internalization occurs through diffusing and embedding newly acquired and consolidated knowledge. Internalization is strongly linked to "learning by doing". In this process converts or integrates shared and/or individual experiences and knowledge into individual mental models. Once internalized, new knowledge is then used by employees who broaden it, extend it, and reframe it within their own existing tacit knowledge. The habits have been changed.

3.13. Types of Modern Teaching Models.

In Information processing models refer to the way people handle stimuli from the environment, organize data, sense problem, generate concepts and solution to problems and used verbal and non-verbal symbols.

Social interaction models: Social interaction models stress the relationship of the individual to other person and to society.

Personal models: Personal development models assist the individuals in the development of selfhood; they focus on the emotional life of an individual.

Behavior modification models: Behavior modification models stress changing the external behavior of the learners and describe them in visible behavior rather than underlying behavior.

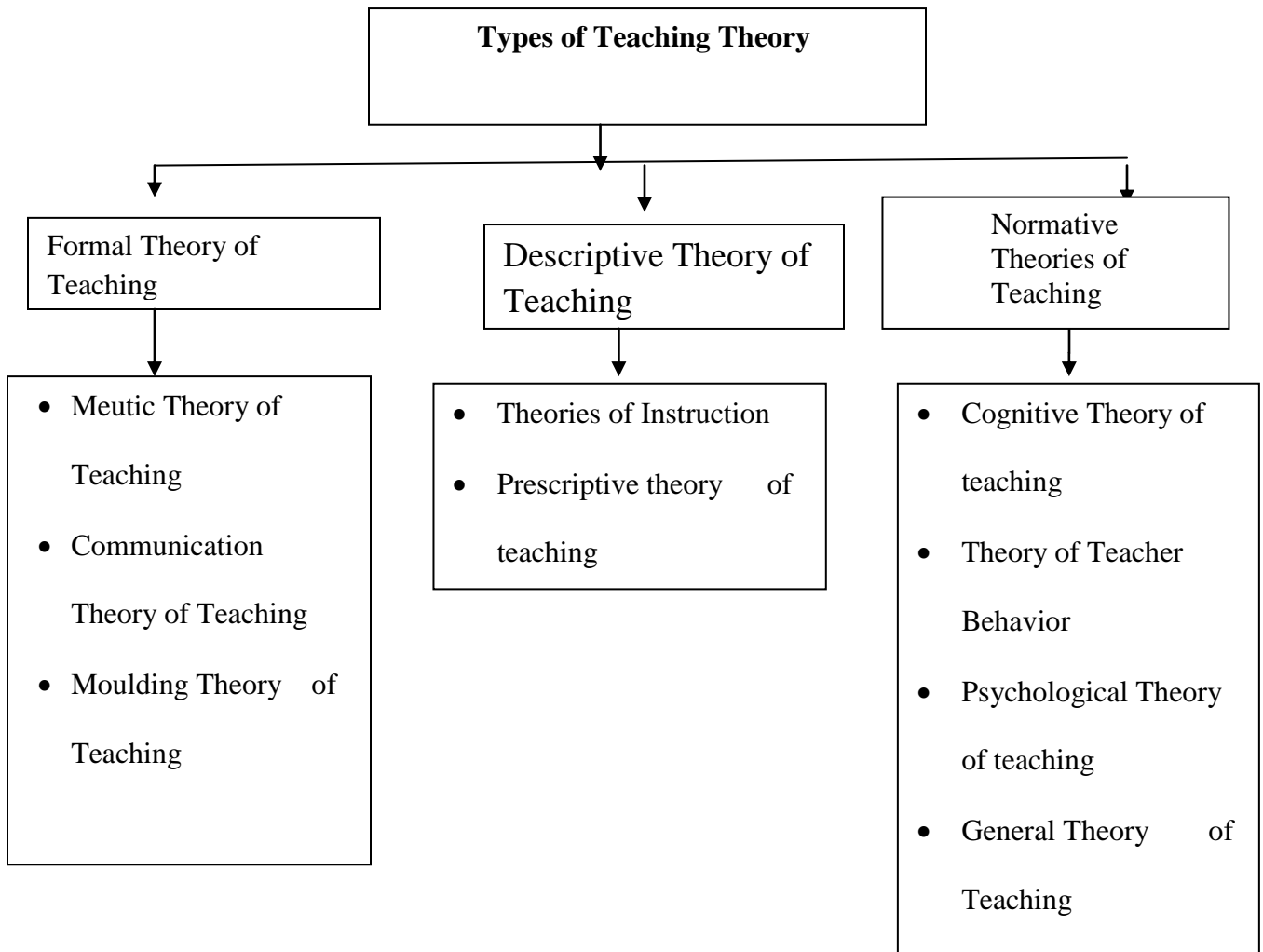


Figure 3.6: Types of Teaching Theory. (Source: Theories of Teaching – Jeen Peter)²⁰

A. Formal Theory of teaching (Philosophical Theory) of teaching: The theory which is based upon certain logic, certain metaphysical, epistemological assumptions and propositions is known as formal theory of teaching.

The following are the four philosophical theories of teaching –

a. Meutic Theory of teaching: This theory conceives that teaching process helps to recollect or unfold that knowledge with questioning techniques. The theory brings his knowledge at conscious

level of this child. The focus of this theory is on self-realization. The Socratic's method is essential for this theory. The heredity plays an important role in teaching process.

b. The communication Theory of Teaching: This theory of teaching based upon assumptions that the teacher possesses all knowledge and information which student does not possess. The most appropriate way of the student is to learn this knowledge that the teacher presents, explains, demonstrates and performs in the classroom. This theory further assumes that the child is like a clean slate the teacher can imprint anything upon it through his mode of communication. Therefore, it is designed as communication practical theory of teaching. This theory of teaching is clearly applicable to research and art. This theory assumes that each individual has the capacity to discover new knowledge with mutual inquiry. It implies that a teacher has a model in his mind to use in specific situation and student himself selects the model for mutual inquiry.

c. The modeling Theory of Teaching: (Theories of Instructions) A theory of instruction consists of a set of propositions stating the relationship between measuring the outcome of education and measuring both the conditions to which the learner is exposed and variables representing characteristics of the learner.

There are three models assigned to the three theories of instructions:

- (i) Gagne's²¹ hierarchical theory of instruction,
- (ii) Atkinson's²² Decision theoretic Analysis for optimizing learning,
- (iii) Bruner's²³ Cognitive Development Theory of Instructions; and
- (iv) The mutual Inquiry Theory of Teaching.

This theory assumes that each individual has a capacity to discover the new knowledge with mutual inquiry. True knowledge is inquiry. This theory of teaching is applicable to research and art.

B. Descriptive Theory of Teaching: The theory which is based upon empirical evidence and observation is called descriptive theory. The purpose of descriptive theory is to predict the relationship and effectiveness of variable of teaching. Gardon and Bruner have formulated such theories of teaching:

- a. Instruction theory of teaching and
- b. Prescriptive theory of teaching.

C. Normative theory of teaching: (The Cognitive Theory of teaching) Types of teacher's activity includes the adviser, counselor, motivator, demonstrator, curriculum planner and evaluator. Types of educationist objectives includes cognitive, affective, and psychomotor. To conclude the methodological teaching has following:

- Teaching theory is prescriptive
- Teacher and pupils are the major variable of teaching theory.
- It is narrow and specific
- It is based upon the learning theory, learning condition and learning components.
- While learning theory are formulated by conducting experiments on animal teaching theory is developed by dealing with human subjects in normal situation.
- It is concerned with effective learning and development of pupils.

3.14. Use Textbooks Wisely:

A textbook is only as good as the teacher who uses it. A textbook is just one tool, perhaps a very important tool, in your teaching collection. As good as they may appear on the surface, textbooks do have some limitations.

The following table lists some of the most common weaknesses of textbooks, along with ways of overcoming those difficulties.

Weakness	Student Difficulty	Ways of Overcoming Problem
The textbook is designed as a the sole source of information.	Students only see one perspective on a concept or issue.	Provide students with lots of information sources such as trade books, CD-ROMS, websites, encyclopedias, etc.
Textbook is old or outdated.	Information shared with students is not current or relevant.	Use textbook sparingly or supplement with other materials.
Textbook questions tend to be low level or fact-based.	Students assume that learning is simply a collection of facts and figures.	Ask higher-level questions and provide creative thinking and problem-solving activities.
Textbook doesn't take students' background knowledge into account.	Teacher does not tailor lessons to the specific attributes and interests of students.	Discover what students know about a topic prior to teaching. Design the lesson based on that knowledge.
Reading level of the textbook is too difficult.	Students cannot read or understand important concepts.	Use lots of supplemental materials such as library books, Internet, CD-ROMs, etc.
The textbook has all the answer to all the questions.	Students tend to see learning as an accumulation of correct answers.	Involve students in problem-solving activities, higher-level thinking questions, and extending activities.

Figure 3.7: Challenges in Teaching

3.15. Elements of a teaching model:

In the article written by Rupinder Kaur on Fundamental elements of a teaching model: ²⁴

1. Allen and Ryan, are of the opinion that Modeling is a particular individual demonstrating pattern which the trainee demonstrate through imitation.
2. B.K.Passi L.C. Singh and D.N.Sabsabwak, A model of teaching consist of guidelines for designing educational activities and environments. A model of teaching is a plan that can also be utilized to shape courses of studies to design instructional material and to guide instructions.

3. Joyce and Weil, Teaching of model is a pattern or plan, which can be a curriculum or courses to select instructional material and to guide a teachers actions.

4. Kerlinger, has defined the terms 'Theory of teaching', A theory of teaching is a set of interrelated constructs, definitions, propositions which presents a systematic view of teaching by specifying the relation among variables with the purpose of explaining and predicting.

5. Burner defines the theory of teaching as the explanation of general methodology of teaching.

6. B.O.Smith gives a statement as a definition of theory of teaching, the teacher who is not theoretically trained will interpret events and objects in terms of communication concepts that have come from the experience of the race permeated without model ideas about human behavior.

3.15.1. Effects of teaching by modeling:

Bandura and Walters mention three kinds of effects in teaching by modeling:

1. A modeling effect
2. Inhibitory and Dishibitory effects
3. An eliciting effect.

3.15.2. Merits of modeling in teaching:

- It is natural way of teaching and learning.
- It is helpful in developing the power of imagination of the students.
- It helps in the developments of reasoning power of the students
- It helps the students to analyze things systematically.
- It keeps students actively engaged in the classroom activity.

3.15.3. Limitation:

- It makes high demands on the students as well as teachers.
- All the students of the class may not be able to participate in the teaching-learning process.
- Some students, on account of their shyness, fail to derive the requisite advantage of this model.

3.16. Standards, Schmandards: A standard is a description of what students should know and be able to do. One of the major movements in Institute is standards-based education. By definition, educational standards let everyone—students, teachers, parents, administrators—know what students are expected to learn. The All India Council for Technical Education (AICTE) is maintaining the standards. The AICTE has laid down some standard and all the Institutes run under the University of Pune need to follow this. Faculty member needs to follow the rules exercised by AICTE and University of Pune.

Educational standards have been developed by AICTE, Dept. of Technical Education (DTE) and University of Pune. Standards are designed to answer four questions:

- What do we want students to know and be able to do?
- How well do we want them to know/do those things?
- How will we know if students know and can do those things?
- How can we redesign schooling to ensure that we get the results we want?
- Ratio of Staff member i.e., Director, Professor, Associate Professor, Assistant Professor, Lecturer?

3.17. Higher and Higher Education: Standards-based education engages students, not only in the learning process, but also in knowing what is expected of them. Students know, before a lesson begins, what they should do to achieve competence. They also know that you, as faculty member, will do whatever it takes to help them achieve the standards of a lesson or unit.

3.18. Accountability Counts in Education: In a standards-based Institute (there by University of Pune), everyone is accountable. Students are responsible for their own learning, parents know what is expected for their children, faculty members provide a positive learning environment, administrators provide the necessary leadership, and community members work to support the learning. Everybody has a role, and everybody is responsible for learning to happen. University of Pune is sponsoring National Level Seminars, Inter-National Conference, Faculty Development Program, Conferences, Quality Improvement Program, Skills Upgradation Program etc. wherein a faculty member can participate. Students can also participate and can write an article along with faculty member. Some program is meant for faculty members of University of Pune. Some Institutes are conducting International Certification for both faculty member and students as well.

3.19. Innovative Ideas. Standards-based teaching is different from some of the more traditional forms of teaching with which you may be familiar. It is a sequential and developmental process in which academic standards become the focus, or pillars, around which all instruction revolves. An institute support Faculty members to make use of standard tools to make the session interactive. New innovative tools are exercised by faculty members in imparting quality sessions.

Tools such as E-learning, CBT, WBT, Pedagogical, video conferencing are to be promoted by faculty members. Faculty members and Institutes prefer usage of traditional tools, since they lack innovative ideas. If the Institutes follow content development and management tools, more and more innovative ideas can be worked out.

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Framework for a Knowledge Management Platform in Higher Education Institutions

CHAPTER 4

KNOWLEDGE TRANSFER: WAY'S AND MEANS

4.1. Knowledge Transfer.

The thesis is about the knowledge transmission and knowledge management with special reference to IT Faculty members of Colleges under University of Pune at Pune Region. This chapter is the review of the literature that endeavors to form a intelligible framework and supplement for the thesis and the research study that is underpinned of it.

This chapter helps you to understand the knowledge transfer in knowledge management, knowledge quality, education results and the relationship between knowledge quality and learning consequences.

Any kind of learning requires a bit of transfer by means of some kind of transfer of knowledge that has been public by one person to another. The faculty member when teaches to student, teaches about line that can be drawn between normal learning and transfer in the process of transferring the knowledge in the educational institute to the students.

4.2. Knowledge and transfer

Learning on own or self-learning, is not part of theses, extra stress has been given on classroom teaching i.e., Faculty member and student transfer. On the other hand, in the education focus has been kept on learning from the faculty member to the students. A present view of transfer in the setting of revealing practice walks little need to differentiate between the general and specific patterns, individualise the role of both equal elements and informative knowledge.

Bransford, Brown and Cocking⁶ identified four key characteristics of learning as applied to transfer.

1. The necessity of initial learning, for transfer specifies that mere exposure or memorization is not learning. Teaching that highlights how to make use of knowledge or improves enthusiasm to enhance transfer of expertise with profound and organized knowledge.
2. The importance of intellectual and related knowledge is inflexible without some level of idea that goes beyond the context.
3. The conception of learning as an active and dynamic process is not a static product. Students can improve transfer by appealing in assessments and extend beyond their current abilities; and
4. The idea that all types of learning are referred to as transfer and new learning shapes on previous learning, which implies that faculty member can facilitate transfer by activating what students know and by making their thinking visible. This includes addressing student misconstructions and recognizing cultural behaviors that students pass to knowledge situations. New knowledge builds on previous knowledge, which suggests that teachers can facilitate transfer by starting from what students know and by making their intelligent visible. This includes addressing student misapprehensions and recognizing cultural behaviors that students bring to learning situations.

Faculty member, who has in-depth knowledge of logic building, like to teach programming language subjects quite comfortably. Same faculty members were told to teach, data structure subjects, have no issues in teaching the students. This is because his/her initial learning is already over. If the same faculty was assigned to a new subject of programing he/she can learn before delivering lecture, teach the subject with comfort. Student infers that teachers can facilitate transfer by activating what students know and make their thinking visible.

4.3. Rational or Intellectual transfer.

The knowledgeable shift in awareness presented a great influence on the development of new and advanced concepts, methods, theories, and experimental data in transmission research, and it had put the study of the wonder. Thought-oriented models reinforced a series of key research outlines to the study of transfer, including building systems, analogical reasoning mental models, plan, heuristics, and meta-cognition. Precisely, research on transmission has profited from three main drivers within the study of human cognition: these are analogy, the computational symbol, and the intensified interests with the nature and quality of mental representations.

Sharma R.K.¹⁶ and Mangal S.K.¹⁷, knowledge transfer in teaching-learning process and curriculum development requires prospectus is nothing but total education experience. The root of a syllabus is the different intentional and unplanned events which have been happened, acted upon or done by the learner with the guidance of the teacher and in teaching and learning are actions necessary to achieve a goal in education. Such experience is used as helps to develop creativity by the faculty member among the student.

4.4. Knowledge Transfer Challenges.

There are many factors including the failure to identify and articulate collected or highly natural competencies tacit knowledge idea; geography or distance, limitations of information and communication technologies, lack of a shared or super ordinate social distinctiveness, linguistic, areas of skill, internal battles, generational differences, union-management relations, incentives, the use of graphic representations to transfer knowledge, problems with distribution beliefs, assumptions, heuristics and traditional norms, previous exposure or experience with something. Further to this, errors, faulty information, organizational culture non-conducive to knowledge sharing, motivational issues, and lack of faith.

Process: Faculty member tries identifying the knowledge holders within the colleges/ institute, motivating them to share, designing a sharing device to facilitate the transfer, executing the transfer plan and measuring to ensure the transfer and applying the means of knowledge transferred.

Practices: Mentorship with guided experience and development or upgradation programs are some of the duties of faculty member. Apart from this finding out the repetition, guided experimentation, work study, paired work, communicates practice, narrative transfer and practices are some of the factors.

Knowledge transfer is frequently used as a substitute for training and information might be thought of as a fact or understood data. Differentiating information from knowledge has to do with flexible and adaptable skills then and only a person's unique ability to exercise and apply information.

Transfer of knowledge occurs when learning in one context or with one set of resources inspirations on performance in another setting or with other related materials. Transfer or transmission is a key concept in teaching and knowledge theory because most formal education aims to transfer. Usually the context of knowledge differs unconditionally from the final contexts of application. Thus, the ends of education are not achieved unless transfer occurs. It is the way faculty member who teaches the students the method they follow. Transfer completely occurs when the more important in prospects and conditions of transfer are vital educational issues.

4.5. Active self-monitoring Transfer for Knowledge

Information colleague has replication on one's thinking procedures which appears to endorse transfer of skills. These contrasts with the exposed concept category above in that thought focuses on the structure of the situation whereas self-monitoring focuses on one's own thinking processes.

Belmont et al.¹⁸ assumed a creation of a number of efforts to teach immature students simple memory guidelines and to test whether the student would apply these in slightly different contexts. The scholars isolated the factor that seemed to account for success. This beginning of self-checking helped the students later to recognize when they might apply the strategy they had learned. Faculty members need to motivate the students in whatever they have achieved.

4.6. Moving mindfulness transfer for Knowledge.

Langer¹⁹ feels mindfulness refers to a complete state of attentiveness to the activities one is involved in and to one's environments behaviors and other replies explain mechanically and stupidly. Faculty members feel very happy when the concept they wish convey properly and transferring has been done correctly or properly. The feeling inspires the faculty member in taking more practical or Transfer for Knowledge oriented examples.

4.7. Spending a symbol or analogy for transfer for Knowledge.

Transfer is enabled when new substantial is deliberate in light of before learned material that serves as an analogy or symbol. Things known about the "old" domain of knowledge can now be transferred to a "new" domain thereby making it better understood and learned. For example, students may initially understand the idea of generating series or the Fibonacci series. Of course, most such analogies are limited and need elaboration and qualification.

4.8. Apparatuses of Transfer of Knowledge.

The devices of transfer, the psychological paths by which transfer occurs e.g., faculty member initially takes example and later on gives similar example if he/she gave for practice.

4.8.1. Abstraction of Knowledge

Study suggests a more composite picture depending on how identical elements figure in the process of transfer. An identity that mediates transfer can sit at a very high level of abstraction.

Wonders such as the branching of programs into modules and that of electrical power networks can evince the same deep principle. Such a degree of abstraction helps to account for far transfer, because highly abstract identical elements can appear in very different contexts.

4.8.2. Transfer by affordances of Knowledge

Greeno et al.²⁰ contend that transmission need not depend on psychological illustrations that apply to the knowledge and goal settings, the student may acquire an action schema receptive to the affordances of the knowledge situation. If the likely handover situation presents similar affordances and the individual recognizes them, the person may apply the same or a somewhat adapted action plan there. External or internal representations may or may not figure in the original learning or the resulting action plan.

4.8.3. High road and low road transfer of knowledge

Salomon and Perkins²¹ made conclusions concerned with transfer by recognizing two distinct but related tools. Little road transfer happens when incentive conditions in the transfer context are adequately similar to those in a prior context of knowledge to trigger strong semi-automatic responses.

In a particular event of transfer, the two infrastructures can work together, some connections can occur automatically while others are required available.

These contract competitions well a number of the points made earlier. It recognizes that sometimes transfer is motivation driven, occurring more or less automatically as a function of much and varied practice. The outline makes room for identical elements in Thorndike's original sense individualities that the creature simply responds but insists on the importance of characteristics discovered and exploited by thorough examination. This analysis along with the views and findings of Luria, Scribner and Cole, Greeno, and others highlights that the conditions for transfer are stringent.

In many learning situations offer exercise only for a thin range of cases and not enough practice to achieve significant automaticity, providing a poor basis for automatic transfer. Attentive transfer requires active idea and exploration of possible networks. Many learning situations do not inspire such mental reserves, although people more motivated to mindfulness or metacognition by definition more likely to make them.

4.9. Teaching for Transfer.

These points about apparatus clarify why transfer does not occur as often as would be wished. They also provide guidelines for establishing conditions of learning that inspire transfer. Class room education can be thought of example as faculty member is ready to deliver the session and students are keen in learning.

In many situations, transfer will indeed take care of situations itself where the conditions of spontaneous transfer are met more or less automatically. Besides, when students face occasions of reading outside of school, newspapers, books, assembly directions, and so on, the printed page provides an obvious inducement to suggest reading skills. In contrast, in many other contexts of education, the states for transfer are less propitious. For example, programing is normally taught with the expectation that IT professional will provide a lens to see modern events.

Perkins and Salomon²² suggest in response to such problems, they define two broad instructional strategies to foster transfer: hugging and bridging. Hugging adventure is spontaneous transfer and recommends that instruction directly engage the beginners in approximations to the performances desired. For example, a teacher might give students trial exams rather than just talking about exam method or a job counselor might engage students in simulated interviews rather than just talking about good interview conduct. The learning experience thus hugs, the target performance, maximizing likelihood later of automatic low road transfer.

In the earlier part, R Krishnaveni and C S Senthil Raja²³, Knowledge Management life cycle actions identified were: acquire, organize, store, access, share, apply and create. The model starts from acquiring new knowledge, the knowledge acquired should be aligned and organized, the organizational knowledge needs to be stored in depositories, this knowledge can be accessed, the knowledge can be shared with various colleagues, members, and students.

The acquired knowledge needs to be applied in the organizational practices, while delivering lectures, during the test processes and procedures to do the work and tasks help in a more efficient way to create new knowledge that helps the organization in the long run, for teaching new technologies, studies and new subjects that has been revised in the university syllabus from time to time. This benefits the faculty member and students in natural way of teaching and learning. It is helpful in developing the power of attention of the students. It helps in the developments of intellectual control of the students. It helps the students to analyze things systematically. It keeps students actively engaged in the laboratory activity.

There are couples of limitations which make high demands on the students as well as faculty members and all the students of the class may not be able to pay in the teaching-learning process. Following are six powerful forces in education: action, opportunities, cooperation, interaction, diversity and responsibility.

A recent practice in education encourages contact between students and faculty member, develops mutuality and cooperation among students, cheers active learning, gives prompt response, emphasizes time on job, communicates high prospects, and respects varied talents and ways of learning.

The Learning Style Inventory (LSI) assesses an individual's preferences and needs regarding the learning process. It allows students to designate in what way they like to learn and designates how

reliable their responses are in learning. It provides live results which show the student's preferred knowledge style and a foundation upon which teachers can build in interacting with students, also provides possible policies for accommodating education styles and for student involvement in the learning course. It provides a lesson summary so students with similar learning styles can be grouped together.

The concepts of various learning styles for faculty members are avoidant, participative, modest, cooperative, dependent, and self-governing. Faculty member has the liberty to decide the methodology that suits the requirements.

Honey and Mumford²⁴ are of the opinion that a self-development tool differs from Kolb's Learning Style inventory by appealing bosses to complete a specification of occupational behaviors without directly asking directors. The stages in the series were renamed to agreement with managerial experiences of decision making or problem solving. The Honey and Mumford stages are: Advanced, Reflector, Truth-seeker and Realist.

Anthony F. Gregory and Kathleen model are two perceptual qualities concrete and abstract; and two ordering abilities random and sequential. There are four combinations of perceptual qualities and ordering abilities based on dominance: Concrete Sequential, Abstract Random, Abstract Sequential and Concrete Random.

Shannon, the telecommunications engineers have used the term of transmission. F. Ducastel²⁵, in a natural way a complete chapter is dedicated to the transmission function: The transmission function corresponds to the isolated transport of the transmission signals. The signals to be transmitted, coming from the local area networks, are initially treated, if an adaptation of the support appears necessary, they are then transmitted, in an electric or optical form, by using a guided or radiated transmission, from a transmitter towards one or more receivers, our translation.

In a transmitter process is meant to receivers and sender to the other side. Transmission is then used in various contexts of the scientific and technical field. The technical conception of the transmission means to pass from one being to another. Faculty members are transferring the knowledge to the students and colleagues of institutions. It is clearly the knowledge transmission, which goes beyond the dissemination of information since it is a question for individuals or/and organizations to acquire and to share already existing knowledge.

The knowledge transmission: in a first approach the application of the Shannon theory shows the existence of a transmitter (the teacher) and of a receiver (the learner).

Pedagogy permits to transmit knowledge, according to the basic following diagram:

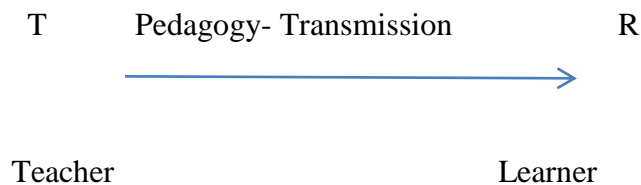


Figure 4.1: Pedagogy – Transmission

Information and Communication Technologies can flavor knowledge transmission and the increasing complexity of pedagogy. Information and Communication Technologies can help knowledge transmission to help the intervention between the teachers and the students but they do not constitute the first factor, or even a reactive principle.

The knowledge transmission is an essential action in terms of negotiation. Those apprehensions are no longer the field of technologies but the social relation: such is the important stake of the knowledge transmission.

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CHAPTER 5

RESEARCH METHODOLOGY

5.1. Introduction.

Assessing the knowledge transfer and implementation of knowledge management on the eminence of IT Faculty members of Colleges under University of Pune is the principle concern in this research. In this section, the approach used to manage the investigation of this study is proposed. This unit describes the proposed plan to outline the investigation which was conducted and the verified theories.

It also defines the research project and sampling project followed by conferences about the methods utilized in the training and data gathering techniques. The tool validation and testing used may consist of statistical examination techniques. The analysis method is then cross-examined to be implemented and to recognize the limitations that are vital in the project having interpretations for successive conclusions.

Prime attention should be on the importance of knowledge management and knowledge transmission applications by faculty members working with Institutes/colleges as lecturers, assistant professors, associate professors, professors and directors.

A Faculty member who possesses certain knowledge checks the recognized and verified framework for knowledge whether transmitted or not. Further, knowledge gained and the methods adopted by the faculty members to gain any such knowledge have been examined. Adaptability to the changes made in the syllabus has been studied by faculty members along with the methods they have adopted whether suits the requirements or not.

5.2 Statement of the Problem.

Knowledge changes from one person to another and from one generation to another. This study aims at applying knowledge possessed by faculty members in carrying out their routine work of transmitting the knowledge to the students.

It is quite oblivious that before disseminating the knowledge to the students, they must try to check the questions that may come from the students regarding the topic under consideration. Before delivering the information, a faculty member must know the ACRUSUCUC concept which is mentioned herewith:

- a. Accurate – Faculty members must conform whether the information is true, provable and truthful. Accurate subject information is based on the practical data and can be official by linking sources or checking for internal reliability.
- b. Current – Faculty members may use the information that can be applicable in the present time. It is generally accepted that career and education information should be revised and restructured at least annually to be current.
- c. Relevant – Faculty members must check that significant information is applied to the benefits of the individuals who use it for the results they are facing.
- d. Specific – Faculty members must be specific for the facts which make real sense. The explanations are often interesting and can provide a background for further analysis, but, specific facts are vital for realistic planning and decision making.
- e. Understandable – Faculty members must understand the genuineness of the information before they deliver it to the students. Data must be analyzed to its maximum extent and then converted into words. A Faculty member while presenting the information should avoid doubts and be informative to the intended students.
- f. Comprehensive – A Faculty member must confirm that the facts include all the important lessons within its scope of coverage.

- g. Unbiased – A Faculty member must take care that the information being created and delivered shall be unbiased, while, the individual or group delivering the facts has no deliberated interest in the decisions or plans of the student.
- h. Comparable – In order to make comparison easier, faculty members may present information of persistent collection, analysis, and gratified format.

Knowledge Process Cycle (KPC) has been adapted by many faculty members. The faculty members who understand KPC concept are always considered as good students by their teaching. Apparently, the faculty members follow the method of adapting the knowledge process cycle, i.e., following sources for knowledge gaining, storing, using them during the class while delivering, updating and applying the knowledge thus gained for future use.

5.3. Importance of the Study.

In the world, India has progressed to become a knowledge determined economy. People in the country will be looked as Knowledge oriented and each faculty member in India is considered to be the guru. From ancient days, teachers or gurus have been transmitting their knowledge to the shishyas or students in schools or gurukuls. When the faculty member takes his/her place as the guru and students as shishyas, the knowledge is always transferred from faculty members to the students. It is the important that knowledge management tools are being transferred from one generation to the other.

There are too many challenges faced by faculty members in the educational environment. Knowledge transfer in the field of education must be considered as a trail to establish, create, capture or distribute knowledge which ensures its availability for future users. It is always considered that the faculty member shall make use of ACRUSUCUC concept. Each part of the IT subject is new and innovative ideas shall be necessarily created in order to develop curiosity in the subject. Therefore, driving force for some new ideas may

come up. Faculty member who has accepted the challenges of teaching IT subject tends to have logical and innovative thinking. Researcher is primarily focused on assessing the knowledge transfer and knowledge management application on the quality of IT Faculty members of Colleges affiliated to University of Pune. A faculty member shall be knowledgeable in order to transmit the knowledge.

Researcher tries and analyzes an approach wherein he can accelerate research for this study. Further, study initiates with replication of the challenges and the research questions that define the realistic design. Based on the research, the following segment describes the hypothetical context in which the research was piloted and offers the hypotheses that were verified. Further it defines research project and sample project monitored by negotiations of the actions taken, the data gathering techniques and the data investigation techniques which include instrument validation. He/she is expected to decide pedagogy depending on the students attending the session. Based on the study, researcher may have drawn consequences for subsequent inferences from the results and data analyses.

Main emphasis stands on the impact of knowledge management and knowledge transmission carry outs on the faculty members working as Lecturers, Assistant Professors, Associate Professors, Professors and Principal or Director of a College or an Institution. The arrangement and factors for the analysis give an emphasis on knowledge gained and transfer the same to the students in the learning environment.

Researcher shall herewith focus the two main focus areas: Knowledge Creation and Knowledge Transmission. In both the cases, an operative knowledge management system must report both formation and transmission which may be considered as tacit knowledge. Researcher has shown how the implicit knowledge of faculty member could be used and converted into explicit knowledge while conveying it to the students. The accomplishment of conversion of educator's tacit knowledge into explicit knowledge should be done from faculty

member to the students. Further, knowledge process cycle concept is examined and it is thereby understood that how faculties convert the knowledge they have gained. Accordingly, they start teaching the said subject to the students (i.e. the conversion process).

5.4 Scope of the Study.

University of Pune conducts different courses under different streams i.e. after HSC from First Year to the Ph. D. The scope of the study is restricted to Colleges and Institutes affiliated to University of Pune conducting IT and computer related courses which are only non- engineering base such as MCA, MCM, MBA (CS), M.Sc. (CS), BCA, BCS, B.Sc. etc. Only the faculty members who are on the payroll of the Institute or College are considered and Visiting Faculty / Adjunct Faculty members are not considered for study purpose. This study is limited to urban colleges though it was given in title as Pune region as majority of colleges come under this area.

5.5. Purpose & Objective of the study.

Purpose and objective of this study is to observe the influence of knowledge management practices and implementation of producing excellent knowledge. This study is based on Information Technology (IT) faculty member and its likely relation towards pupil knowledge by reporting the problems mentioned below:

- a. To study the sources of knowledge acquisition.
- b. To study the knowledge creation, development and utilization by the IT Faculty members.
- c. To understand the skills and motivational factors in retaining the knowledge acquired by the IT faculty members.
- d. To analyze the use of 360⁰ feedback mechanism to get best outcome in teaching adopted by the management institutes.

- e. To understand feedback mechanism adopted by the management institutes/college in maintaining and upgrading the knowledge of IT faculty members on regular basis.
- f. To analyzed problems experienced by the IT Faculty members in acquiring modern information technology to sustain.
- g. To compare the digital learning methods of teaching with traditional one for the IT Faculty members.

University of Pune is providing different ways for promotion of learning and emerging strategies of knowledge. Sponsorship of various programs like Quality Improvement Programme (QIP), Faculty Development Programme (FDP), Skill Development Projects and Refreshers Course/Workshop etc. helps in Information Technology.

5.6. Hypotheses of the Study

The study includes the analysis of the knowledge in IT which has been gained by the faculty members in the past and how exactly and aptly they are applying their work.

H₁: The knowledge acquired by IT faculty members differs from digital and traditional teaching.

H₂: Digital or traditional teaching method doesn't make any difference in the knowledge acquired by the IT Faculty members.

H₃: Performance appraisal system used by management institutes helps in monitoring Quality in IT education.

H₄: The faculty members make use of knowledge process cycle (KPC) for updating their knowledge significantly.

5.7 Research Methods.

5.7.1. Research Design.

Researcher has understood and knows the methods that have been used and determined as different sources of knowledge that were tapped and analyzed. Efforts have been on the focus how knowledge is created and managed by the faculty members. The entire group

could be divided into two: one who seeks knowledge and another who delivers the knowledge.

Various efforts are taken analytically to refer situations, challenges, incidence, facility or programme which may give information about the situations of living of a community or description of approaches leading to an issue which is considered as vivid research. Establishing the efforts to identify, realize or establish the presence of a link or interdependence between two or more characteristics of a condition is considered as Correlational research. Various efforts are taken to explain reasons and the causes between two or more aspects of a situation and are called as Illustrative research.

The researcher has used exploratory study to carry out the research in education. Research is commenced to discover an extent where little is acknowledged or considered to the likelihoods of undertaking a particular study in feasibility study/pilot study and is called exploratory research.

Organized surveys and interviews imply the use of a questionnaire. The most common tool used in data collection is construction of an investigation apparatus which serves as the most significant part of a research project. The conclusion may be based upon the data which researcher has collected and the information collected from the respondents.

A questionnaire includes group of interrogations offered for responses. The respondents read the interrogations, understand the projected and then mark their responses. Questionnaire shall be designed and tested carefully before it is utilized on a large scale. Suitable method for collecting descriptive information is organized surveys using proper lists of questions asked to all the respondents in the same manner.

The researcher has gathered primary data by personally visiting different colleges/institutes and asking them to fill the questionnaire personally or through the head of the department by going on the field work. The said data is appropriately analyzed with the

use of SPSS (Statistical Package for the Social Sciences) package with version 19.0. The researcher has used statistical methods such as averages, percentages, comparison, and cross-tabulation. Over and above, the techniques of hypotheses testing are also used. Essential graphs and charts have also been prepared to upkeep the examination of the data wherever required.

Being a part of the study of social research, survey method has been adopted and a Questionnaire has been designed. For the purpose of this study, Questionnaire has been personally circulated among the faculty members and the data has been collected. The simplifying group is often called the population in the research study. As compared to other streams, IT contains domain subject knowledge and has a higher updating rate. It reflects the dynamic nature of IT syllabus containing technological advantages.

5.7.2. Universe – Population.

Pune is the second largest city in the western region of the state of Maharashtra. Due to centrally located place in India and certain facilities and educational amenities, it is having more than hundred educational institutions and nine universities as well as developing industrial facilities. Pune city is an administrative center and now an important industrial hub with reference to IT Industry. As compared to any other fields, the IT field contains domain specific knowledge and change at a higher rate in the selection of IT fields. Jawaharlal Nehru stated Pune as "The Oxford of the East" due to its reputed academic and research institutions. Pune very peaceful and safe city compared to other educational cities in India and is therefore more preferable option for the foreign students. Pune's economy is determined by its manufacturing industry. However, Information Technology has become increasingly prominent from the last decade.

Table 5.1: List of Colleges and Institutes under University of Pune

District	Colleges	Institutes	Research	B.Ed/ MEd	Law	B Pharm/ M Pharm	Engineering	Architecture	Total
Pune	168	126	135	7	6	28	44	9	583
Ahmednagar	56	16	16	5		6	7	2	132
Nasik	70	26	21	8		13	12		174
*Source: www.unipune.ac.in/affiliated_colleges_and_institution/colleges_list_updated.pdf (Year 2014)									

5.7.3. Sample Selection.

Researcher understands the importance of use of “Knowledge”. The researcher has been associated with many Educational Institutes staying in Pune and has decided to go for the subject. This research offers an experimental examination of the association between information qualities.

District	Colleges	Institutes	Total
Pune	168	126	294
*Source: www.unipune.ac.in/affiliated_colleges_and_institution/colleges_list_updated.pdf (Year 2014)			

Urban	Rural	Total
198*	96	294

*No. of Colleges/Institutes selected.

The researcher after going through the data came to a result that, from the total of 294 Colleges/Institutes, 198 urban colleges/institutes are considered while the remaining numbers of rural colleges aren't taken under consideration. Respondents from 43 Colleges/ Institutes were selected and from them only full-time faculty members' data is considered for the required sample. The above 43 Colleges/Institutes distributed Questionnaires to 700 Faculty members from which 301 Faculty members have been selected. The Questionnaires were distributed among the selected colleges from which 10-15% faculty members were approved based on the available list with the colleges. The data which we have researched in the form of completed Questionnaire has been used for further research.

Being as part of the study of social research, survey has been conducted. The Purposive Sampling Method is used to select required sample. The required list of colleges/ Institutes under Pune and PCMC were obtained through university website. Further, only faculty member working in the Institutes/Colleges under the capacity of teaching or approved faculty member's data will be considered as Lecturers, Assistant Professors, Associate Professors, Professors and Principal/Director of the colleges and institute.

5.7.4. Tools used for selection of Primary Data.

There are different tools that may be used as Primary data. This data is gathered through sources such as personal interviews, questionnaires or surveys with a specific objective on a particular matter, observation and conversation by the researcher. It is a direct and lengthy method where results are used for the purpose for which they were actually planned. Among the different tools, a questionnaire is a research tool. A Questionnaire may be comprised of a series of interrogations and other prompts for the determination of collecting information from the sources (like respondents). Questionnaire is used by the researcher to carry out the designed for statistical investigation of the responses.

Questionnaires (invented by Sir Francis Galton) have an edge over other forms of assessments. Questionnaires are strictly limited by the fact and often have uniform answers that make it easier to collect and assemble the data. In some demographic groups, conducting an assessment by questionnaires may not be substantial.

A questionnaire is an examination tool comprising of a series of interrogations and other prompts for the purpose of collecting information from the respondents. A questionnaire is direct action which was originally planned. Primary data can be considered as data being processed into collected information.

Researcher has designed a Questionnaire and data has been collected in two different forms: a. Personal Information and

b. Research Questionnaire. (Appendix –I).

5.7.5. Secondary Data.

In addition to the Primary data, the Secondary data has been studied by reading various articles and different methods followed by authors used to study the practices. The secondary data is gathered from well-reputed journals and magazines, newspapers, articles, internet websites and other collections. For collecting this data, the investigator has visited numerous libraries and read the articles. Researcher has visited Tilak Maharashtra Vidyapeeth's Library and University of Pune's Jaykar Library, Sinhgad Institute's Library and many articles of the ISSN and ISBN books and has been studied from other colleges' library. It is observed that no research has been carried out in this regard. To understand the difficulties faced by the faculty members, the Researcher attended the Faculty Development Programmes and Workshops organized by the University of Pune. FDP and SDP are considered as Knowledge updating programs. During the course curriculum of Ph.D., the Researcher attended the workshop at Tilak Maharashtra Vidyapeeth, Pune.

5.7.6. Data collection method – Questionnaires.

To check the Questionnaire researcher has done the pilot study by Questionnaire method. A Questionnaire is designed by applying 50 of 150 tools of teaching generally used in colleges/institutes. Researcher has done this by personally visiting the college and asking the individual to fill up the questionnaires. Probabilistic sampling practice helps to send survey reports and additional notices.

Response statistics were gathered from the faculty members from the colleges/institutes to conclude the answering rate. From every college 10-20 questionnaires are given and from them responses received have been used as sample as this method is an unbiased manner to choose the sample and it is judicious to simplify the outcomes from the example back to the population.

After going through the statistics, researcher observed that Questionnaire has most of the questions which were never answered. Some of them left incomplete and some questions were wrongly interpreted. Researcher observed that around 197 questionnaires that were collected didn't come to the conclusion or observations. This has been considered as a failure on researcher's part as most of the questions were open ended.

Researcher once again designed questionnaires and collected the data by personally approaching the faculty members who are on the payroll of the colleges or institutions. The results were positive and very much supportive to the Questionnaire.

5.7.7 Statistical Techniques.

To test the questionnaire, researcher has done the pilot study by Questionnaire method. The results were positive and very much supportive to the Questionnaire. A pilot study has been exercised and the problem area has been identified. The changes have been made and once again a Questionnaire was prepared by the researcher.

Data was collected by personally visiting the Institutes or Colleges and distributing the Questionnaire to the Head of Department or Faculty members. At the end of the survey, the data was stored into a file and then entered into an Excel spread sheet. Researcher's computer was protected from illegal access and additional activities. Data has been backed up from the computer and draft has been sent to Gmail account, Compact Disk and Pen Drive. The data will be kept in possession after the publication of the results of the research.

Gathered data and fed into MS-Excel were examined, defined and evaluated using SPSS (Statistical Package for the Social Sciences) for Windows. A sequence of numerous reversion evaluates were organized to check the key influence hypotheses all by numerous independent variables and a single dependent variable.

Researcher has used statistic methods such as averages, percentages, comparison and cross-tabulation. Further, the methods of hypotheses testing are also used. Essential graphs and charts have also been organized to maintain the analysis of the data wherever necessary.

5.8 Testing of Hypotheses.

Testing of hypothesis guides the direction of the exploration study. It identifies facts that are applicable and inapplicable. The hypothesis has been tested on the basis of various statistical tools and criteria. As a result of the nature of available data, only the criteria norm majority has been used in testing hypothesis.

For hypothesis No. 1 and hypothesis No.4, statistical tools such as Cross-tabs, Z-test statistics etc. have been used with 5% significance level. As the sample sizes are ≥ 30 normal approximations are satisfied. In this case Z-test and one proportion is involved. An alternative hypothesis is in terms "if less than". Therefore, rejection area is exclusively on one side and hence, it is one tail test. The decision rule is that if the calculated value of $z > 1.64$, then it rejects the null hypothesis and if $z < 1.64$, then it accepts the null hypothesis (H_0).

For hypothesis No.2, Chi-square test is applied with 6 degree of freedom at 5% level of significance.

For hypothesis No. 3 statistical tools such as average mean, standard deviation and Z-test statistics etc. have been used with 5% significance level.

For hypothesis No.4, Chi-square test is applied with 6 degree of freedom at 5% level of significance.

5.9. Time Budgeting.

To study the knowledge transmission and knowledge management application on the quality of IT Faculty members of Colleges under University of Pune, the researcher has focused on the study duration from 2009-2010 to 2014-2016. After the pilot study, researcher identified some areas which needed some changes. The changes thus made have been used as the questionnaires as primary data.

5.10. Limitations of the study.

This segment deliberates constraints recognized for the evaluation used in this study. Such constraints have three broad groupings: limitations of survey research, faculty members and the statistical analysis techniques used in this study as well as the problem of casual uncertainty.

5.10.1. Limitations of Survey Research.

Under investigation, the validity of survey research is dependent on the level to which the replies precisely reveal the perceptions of the applicants and the extent to which those perceptions reflect the real-world circumstances. It has checked and mentioned the usage of common day to day tools. Such limitations can be moderated through simple consideration towards the design of the survey tool and the extent of the limitation which can be evaluated by examining the construct validity of the instrument/tool. The method used for this study was developed using accepted practices and majority of the items used in this method have

already been legalized. As the study continues, researches have come across few more tools like m-computing, U-learning etc. Further, tests were conducted to judge the validity of remaining elements as described earlier in this chapter.

5.10.2. Limitations of Faculty Members.

Faculty Members keep on changing their jobs and therefore are a constraint in the survey. During the course of study, the researcher has observed that faculty members were kept on for an academic year. This is a constraint itself since they keep on changing their colleges/institutions considering their mental satisfaction and their monetary benefits.

5.10.3. Limitations of the Statistical Analysis Techniques in this Study.

Researcher has carried down the multiple regression analysis which was experimented as the prime method used in this study. As conversed earlier in this chapter, this method is built on numerous conventions concerning the statistics supporting the theories. As described earlier, each of these conventions was experimented and for extending the viable; data alterations were operating to meet the conventions. In those cases where the assumptions could not be done for such alterations, the statistical power of the analysis was summary and any explanations were restricted accordingly.

Recognized relationships between independent and dependent variables illustrated in Chapter 6 (Data Presentation, Analysis and Interpretation) propose the presence and different magnitudes of the outcome of convinced influences proceeding knowledge transmission and knowledge management of faculty members of Information Technology. It is a challenge analyzing the correlations between variables. The results being inherently uncertain are inevitable.

It is necessary that understandings are complete with cautiousness, full consciousness and acknowledgment of the essential uncertainties. Casual uncertainty or casual approach of the faculty members in the questionnaire makes the judgmental decisions a challenge for the researcher. Positive of the requests shall be discussed in Chapter 7 i.e., “Findings, Suggestions and Scope for Further Research”.

CHAPTER 6

DATA ANALYSIS AND INTERPRETATION

6.1. Introduction

This chapter presents an analysis of the data collected and the findings from this research. A total of 500 faculties were invited to participate in a survey or questionnaire, and 301 responses were received. Data were then prepared, examined, and screened for outliers and missing values. The hypotheses were then tested using a combination of multiple regression analysis, moderated regression analysis, and subgroup analysis. Support was found for all the main-effect hypotheses that were developed to address systematic differences uncovered during the data examination.

6.2. Survey Administration

The variables identified in the research model were operationalized by self-supported questionnaire. The faculty member were contacted personally or through the Head of Dept. and asked them to circulate the Questionnaire among faculty members. Since most of the questions were open-ended, new questionnaire are designed during pilot study. The pilot study has been taken for 30 faculty members. Since the Questionnaire carries the contact number or email id, were contacted and the questions which were left blank during the pilot study has been undertaken. During the survey, 500 questionnaires were distributed and 301 responses have been received. For the purpose of collection of data through the Questionnaire, researcher needs to visit the same Institute 2-3 times.

Researcher found some Management colleges were promoted and supported the researcher for studying a unique topic of understanding and delivery of the knowledge

management. In some Colleges the faculty members were not supportive and reluctant to open up and answer the Questionnaire.

6.3. Data Coding

Responses were collected from the faculty member of Management colleges, for each instance of the survey, and were subsequently downloaded as an Excel spreadsheet. These items were examined and mapped to either one of the existing codes or to a new code as considered appropriate by the researcher. The recoding function allowed some of the reverse-coded items to be recoded and appropriately addressed missing data to ensure the eventual data that were accurate and complete before analysis. Each of the variables used in hypothesis testing was associated with a set of survey items. Following instrument validation the values for these variables were calculated as the statistical mean of the retained items associated with each variable.

6.4. Identify the distribution of respondents.

This section presents a response analysis, reviewing general characteristics of the data set and the respondents. First, the data will be screened for coding errors and unusual patterns. Next, the data will be examined to assess the general characteristics of the respondents.

6.4.1. Data Analysis.

Univariate analysis was conducted on all the variables to ensure proper coding and proper recording of all values and to examine the data for any unusual patterns that could be problematic to the analysis.

This chapter presents an analysis of the data collected and the findings were taken for this research. A total of 301 faculty member were invited to participate in by providing

Questionnaire to almost 700 faculty members. Data were then prepared, examined, and screened for outliers and missing values.

The hypotheses were then tested using a combination of multiple regression analysis, moderated regression analysis, and subgroup analysis. Support was found for all the main-effect hypotheses that were developed to address systematic differences uncovered during the data examination

6.4.2. Survey Analysis

The variables identified in the research model were operational-zed through a Questionnaire. The following data has been captured:

Table 6.1: Position wise Survey Report

Position wise Survey Report	Frequency	Percent
Director	2	.7
Professor	3	1.0
Asso. Professor	7	2.3
Asst. Professor	133	44.2
Lecturer	156	51.8
Total	301	100.0

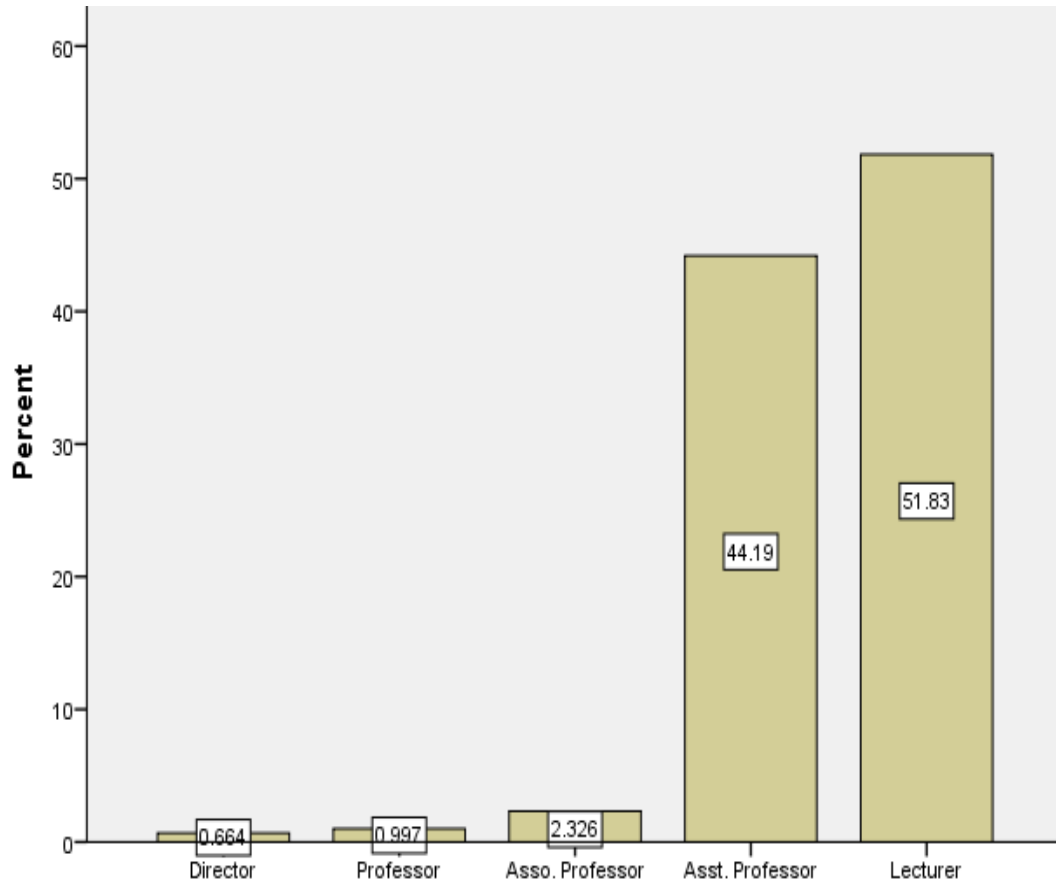


Figure 6.1: Position wise Survey Analysis Report. (Percent wise)

The above frequency table and bar chart shows designation wise classification of respondents 51.83% of the residents where working as Lecturers, 44.19% were Assist professor and very few comprised of Associate professors, Professors, and Directors. Conclusion: most of the respondents of the current study were Lecturers and Assistant professors.

Table 6.2: Highest Qualification

Highest Qualification	Frequency	Percent
BE	4	1.3
MA	1	0.3
MBA	47	15.6
MBS	1	0.3
MCA	124	41.2
MCM	28	9
MCS	9	3
ME	1	0.3
MMS	3	1
MPHIL	16	5.3
MPM	2	0.7
MSC	52	17.3
MTECH	7	2.3
PHD	6	2
Total	301	100

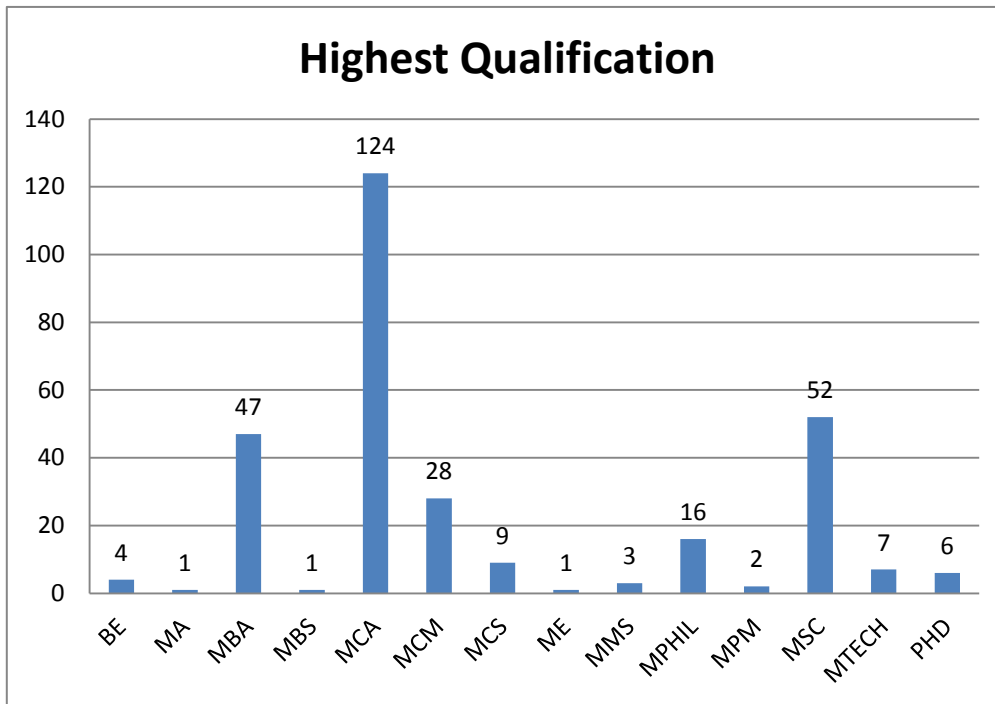


Figure 6.2: Highest Qualification

From Table 6.2, it is observed that most of the faculty members fit in the criterion of teaching to the Post-Graduate courses except BE. According to new rule UGC National Eligibility Test (NET) and State Eligibility Test (SET) is compulsory.

The above frequency table and bar chart shows that 41.2% of the respondents surveyed were MCA qualified, 17.3 were M.Sc graduates, 15.6% had completed Masters of Business Administration, 9% had done MCM,. Remaining faculty members have opted for BE (1.3%), MA (0.3%) , MBS (0.3%), MCS (3%), ME (0.3%), MMS (1%), MPhil (5.3%), MPM (0.7%), MTECH (2.3%), and PhD (2%) where other qualifications reported by the respondents.

Table 6.3: Gender wise distribution of respondents

Gender wise distribution of respondents	Frequency	Percent
Male	91	30.3
Female	210	69.7
Total	301	100.0

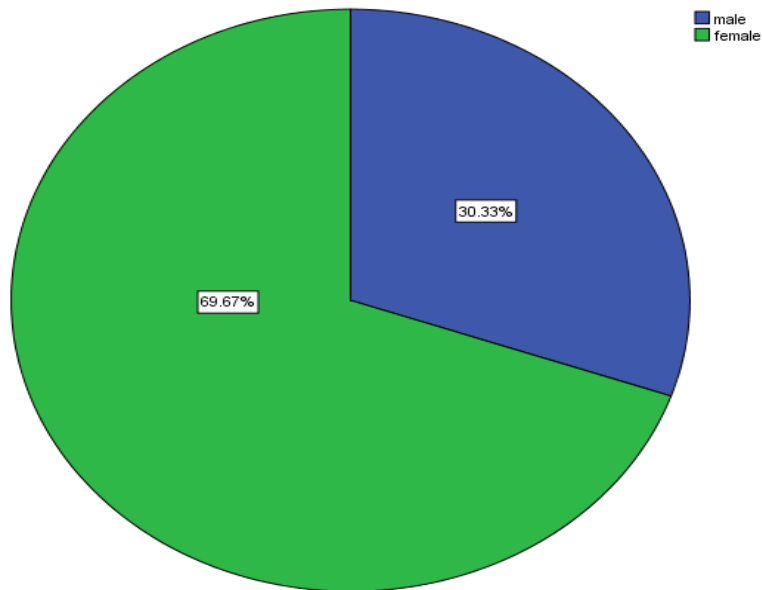


Figure 6.3: Gender wise distribution of respondents

From the above table and graph it can be noted that 91 (approx. 30.33%) Male Participants and 210 (approx. 69.67%) Female participant's opinion has been considered for my study. In the field of computer education most of the women more preferred do their job as compared to men. Women are of the opinion that working with educational institute as a Faculty member is easier.

Descriptive: Age wise distribution of respondents

Table 6.4:Descriptive Statistics

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Age wise distribution of respondents	301	23	78	30.44	5.090

Frequencies

Table 6.5 : Age wise distribution of respondents (Binned)

Age wise distribution of respondents (years wise)	Frequency	Percent
More than 20 and less than 30	187	62.3
More than 30 and less or equal to 40	101	33.3
More than 40 and less than equal to 50	10	3.3
More than 50 and less than equal to 60	2	.7
Age more than 60	1	.3
Total	301	100.0

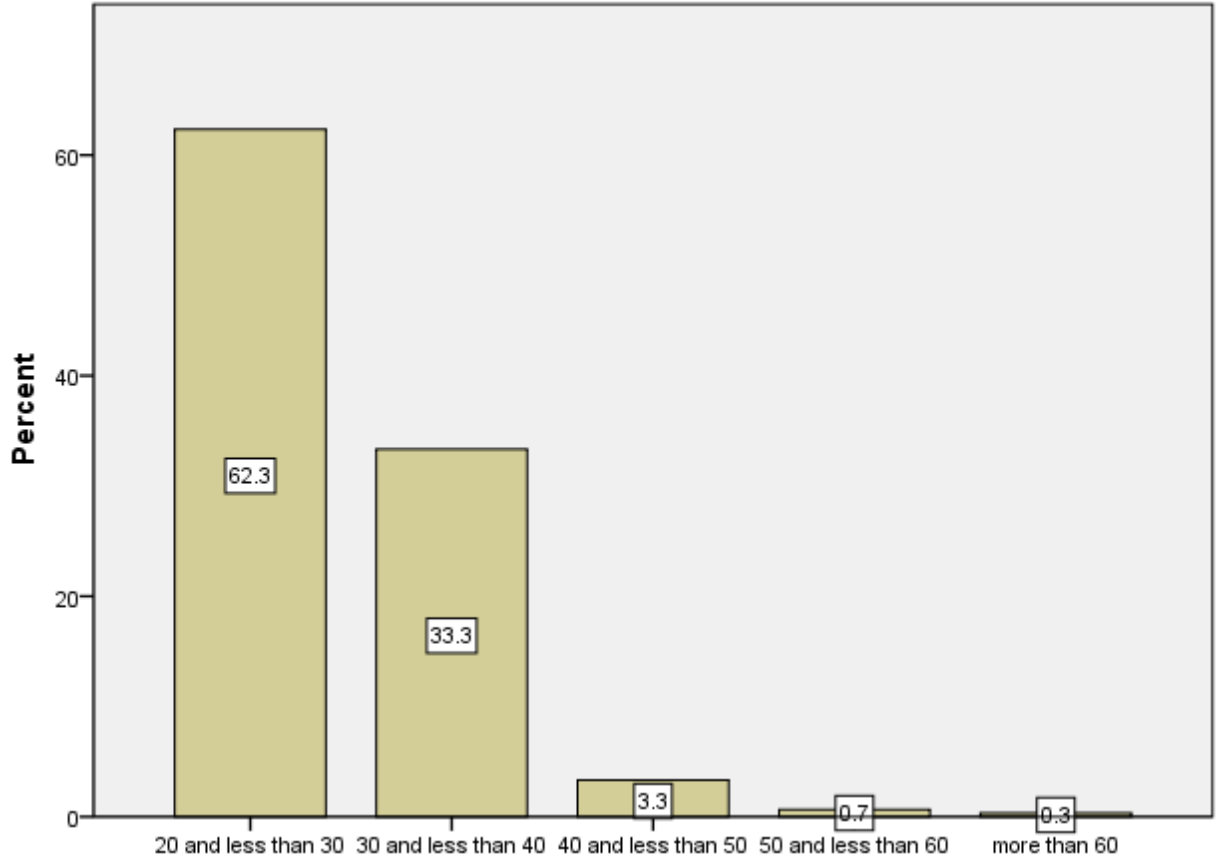


Figure 6.4: Age wise distribution of Respondents (Binned) Age wise.

The above mentioned tables and graphs shows that Faculty members between the age group of 20 years and less than 30 years (i.e.,62.3%), faculty members between the age group of 30 years to 40 years (i.e., 33.3%), faculty members between the age group of 40 years and 50 years (3.3%), faculty members between the age group of 50 yrs to 60 yrs (i.e. 0.7%) and faculty members age group of more than 60 years (i.e., 0.3%) have been considered for the survey.

6.5. ACQUIRING KNOWLEDGE:

Purpose of the study is to find out if there is difference in the tools preferred by faculty members teaching in Institutes in Pune region to acquire knowledge.

Statistics test: Friedman Chi-square test

Variables and measurement: 301 faculty members across institutes in Pune were asked to comment on tools they used to gain knowledge. These faculty members were offered following 8 sources of knowledge rate and comment on. All the eight items were measured using 5-point Likert scale (5 = strongly agree, 4 = somewhat agree, 3 = neither agree nor disagree, 2 = somewhat disagree and 1 = strongly disagree)

1. reading text books
2. attending seminars, conferences, workshops and symposiums
3. Guidance from senior researchers and experts
4. referring to journals and online databases
5. discussions with colleagues
6. reading available software documentation on website
7. attending guest lectures
8. Quality improvement programs and faculty development programs

H₀: There is no difference in the tools preferred by faculty members teaching in institutes in Pune region to acquire Knowledge.

H₁: There is a significant difference in the tools preferred by faculty members teaching in institutes in Pune region to acquire Knowledge.

Level of significance: $\alpha = 0.05$

Table 6.6 : Acquiring Knowledge Test statistics

N	301
Chi-Square	98.815
df	7
Asymp. Sig.	.000

Observation: $X^2(7) = 98.8, P = 0.000, N = 301$

Conclusion: Since the P value (0.000) is less than level of significance (0.05) null hypothesis is rejected, it is therefore concluded that there is significant difference in the tools preferred by faculty members teaching in institutes in Pune region to acquire Knowledge. To identify the importance of these tools we refer to the ranks table.

Table 6.7: Acquiring Knowledge (Ranks)

Acquiring Knowledge	Mean Rank
Reading books suggested by University of Pune	5.22
QIP and FDP	4.73
Reading recognized journal/periodicals	4.46
Discussing with colleagues on the subject	4.43
Repeated & frequent discussing on the subject	4.43
Frequent Interaction with IT Faculty members	4.34
Reading available software document on website	4.31
Attending special lectures	4.08

The ranks taken to show that the most preferred tool for knowledge acquisition is reading text books (mean rank = 5.22), followed by Quality Improvement Program (QIP) and Faculty Development Program (mean rank = 4.73), reading journals (mean rank = 4.46), discussions with colleagues (mean rank = 4.43) frequent interaction with IT faculty members and the least preferred is attending guest lecturers (mean rank = 4.08) and Reading available software documentation, attending special lectures.

From the most preferred to tools by faculties in institutes associated with University of Pune are reading books suggested by University of Pune and attending Quality Improvement Programme (QIPs) and Faculty Development Programme (FDPs).

Table 6.8: Sources of Acquiring Knowledge,

To study the sources of knowledge acquisition	Strongly disagree	Disagree	Neutral	Agree	Strongly-Agree
Reading books suggested by University of Pune	0.33	0.33	2.67	42.33	54.67
Frequent Interaction with IT Faculty members	0.33	1	7.33	57	34.67
Discussing with colleagues on the subject	0.33	1.67	4	59	35.33
Reading recognized journal/periodicals	0	0.33	7.67	55.67	36.67
Repeated & frequent discussing on the subject	0	1.33	6.33	57	35.67
Attending special lectures	0	1.33	6.33	57	31
Available software documentation	0.33	2.33	8.33	54.67	34.67
QIP, FDP. Skill upgradation program	0.33	1.33	4.33	52.67	41.67
Attending QIP,FDP, Skills Upgradation Program	0	0.67	3	48.33	48.33
Change in version facilitates new development by practicing	0.33	2.33	4.67	62	31
Writing new articles in Research Journals	0.33	3	6.67	61	29.33
Digital learning tools like CBT, WBT	0.33	3.67	7	60.33	29
Studying further	0	3	7.33	60	30
Total	2.64	22.32	75.66	727	472.01
Percentage	0.20	1.72	5.82	55.92	36.31

From the sources of knowledge acquisition table, it is observed that are 0.20% Strongly disagreed respondents, 1.72% Disagreed respondents, 5.82% Neutral respondents, 55.92%, Agreed respondents and 36.31% Strongly-Agreed respondents.

Knowledge Acquisition Methods

■ Strongly disagree
 ■ Disagree
 ■ Nutral
 ■ Agree
 ■ Strongly-Agree

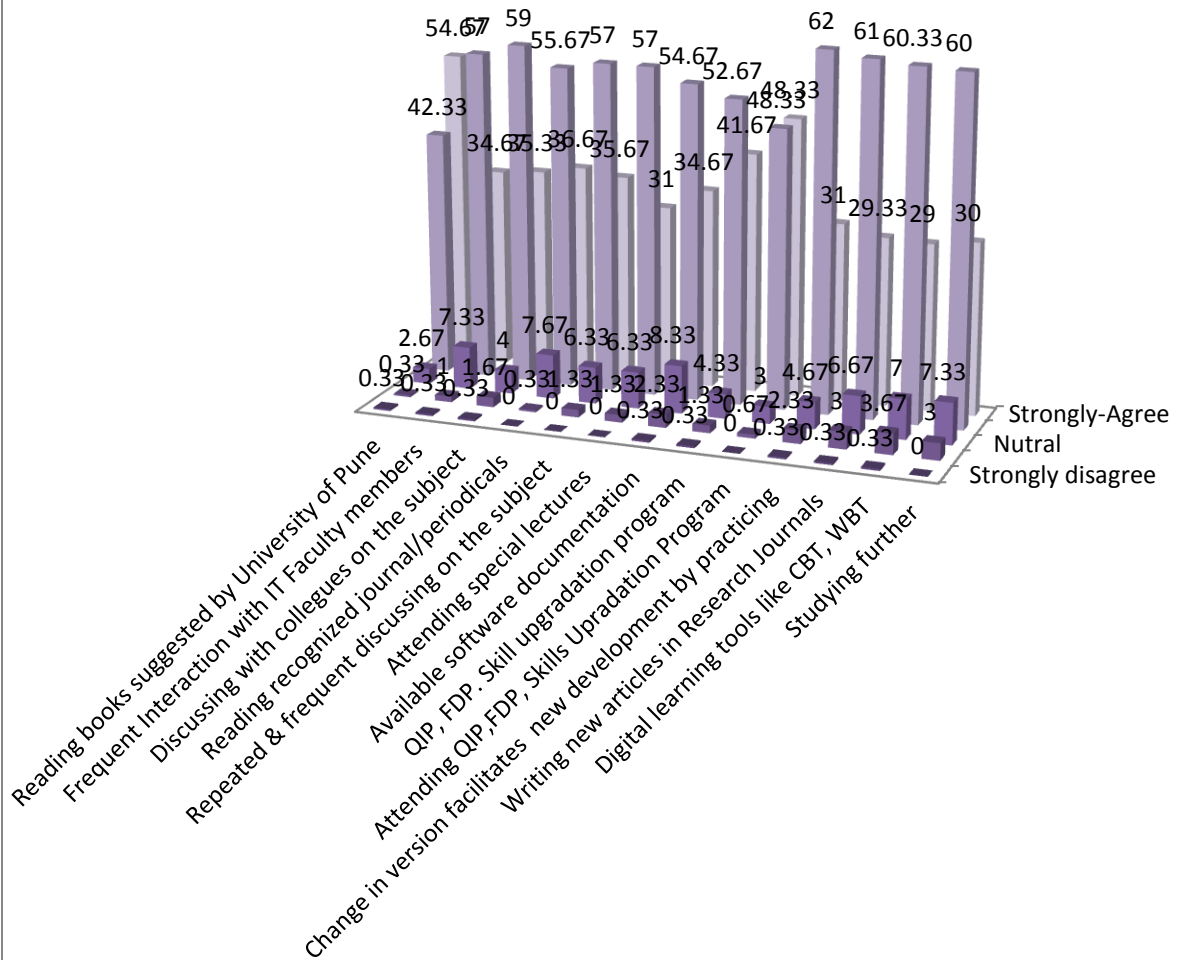


Figure 6.5: Knowledge Acquisition Methods

The Figure 6.5, and Table 6.8, shows that the most preferred tool for knowledge acquisition is reading text books recommended by University of Pune (mean rank = 5.22), followed by Quality Improvement Program (QIP) and Faculty Development Program (mean rank = 4.73), reading journals (mean rank = 4.46), discussions with colleagues (mean rank = 4.43), frequent interaction with IT faculty members the least preferred is attending guest lecturers (mean rank = 4.08) and reading available software documentation and attending special lectures.

The most preferred tools by faculties in institutes associated with University of Pune are reading books suggested by University of Pune, attending Quality Improvement Programme (QIPs) and Faculty Development Programme (FDPs).

The data shows that the most preferred source for knowledge updating is through attending QIPs and FDPs (mean rank = 4.03), followed by updating the changes in version facilities (mean rank = 3.47), continuing with further studies (mean rank = 3.44), using digital learning tools (mean rank = 3.37), attending conferences and seminar (Mean = 3.39), and by publishing research papers in peer reviewed journals (Mean rank = 3.31)

Conclusion: From the above rank table it can be concluded that the most preferred sources of knowledge updating is attending QIPs and FDPs and attending conferences and seminars. It is important for faculties to understand that they need to gear up for publications and start contributing to the body of knowledge.

Table 6.9: Test Statistics Knowledge Gaining

N	301
Chi-Square	78.430
df	5
Asymp. Sig.	.000

Observation: $X^2(5) = 78.43, P = 0.000, N = 301$

Conclusion: Since the P value (0.000) is less than level of significance (0.05) null hypothesis is rejected, it is therefore concluded that there is significant difference in the sources preferred by faculty members teaching in institutes in Pune region to update Knowledge.

6.6. KNOWLEDGE STORAGE:

Purpose is to study to difference in the knowledge storage techniques used by faculty members teaching in institutes in is considered.

Statistics test: Friedman Chi-square test

Variables and measurement: 301 faculty members across institutes in Pune were asked to comment on knowledge storage techniques used by them. These faculty members were offered following 5 sources of knowledge rate and commenting on. All the five items were measured using 5-point Likert scale (5 = strongly agree, 4 = somewhat agree, 3 = neither agree nor disagree, 2 = somewhat disagree and 1 = strongly disagree)

1. Noting down the important points from the note book on the board
2. Slide presentation
3. Lecture plan
4. By referring help level
5. scribble points on piece of paper and use them in class

H₀: There is no difference in the knowledge storage techniques used by faculty members teaching in institutes in Pune region

H₁: There is a significant difference in the knowledge storage techniques used by faculty members teaching in institutes in Pune region.

Level of significance: $\alpha = 0.05$

Table 6.10: Test Statistics Knowledge Storage

N	301
Chi-Square	440.303
df	4
Asymp. Sig.	.000

Observation: $X^2(4) = 440.303, P = 0.000, N = 301$

Conclusion: Since the P value (0.000) is less than level of significance (0.05) null hypothesis is rejected, it is therefore concluded that there is significant difference in the knowledge storage techniques used by faculty members teaching in institutes in Pune region.

To identify the preference of these knowledge storage techniques we refer to the ranks table:

Table 6.11 : Ranks knowledge storage

KNOWLEDGE STORAGE	Mean Rank
Slide presentation	3.48
Lecture plan	3.41
Referring help level	3.28
Noting down points on piece of paper and use them in class	3.04
Noting down the important points from the note book on the board	1.8

The ranks table shows that the most preferred knowledge storage technique is slide presentation (mean rank = 3.48), the second most preferred technique is lecture plan (mean rank = 3.41), followed by referring help level (mean rank = 3.28), noting down points on piece of paper and use them in class (mean rank = 3.04), and Noting important points from note book on the board (Mean = 3.39).

Conclusion: From the above rank table it can be concluded that the most preferred Knowledge storage techniques are slide presentation and lecture plan.

6.7. KNOWLEDGE DISSEMINATION:

Purpose: To study if there is difference in the knowledge dissemination techniques (Delivery Graduate) used by faculty members teaching in institutes in Pune region.

6.7.1. Knowledge Dissemination: (Graduate)

Statistics test: Friedman Chi-square test

Variables and measurement: 96 faculty members across institutes in Pune were asked to comment on knowledge dissemination techniques used by them. These faculty members were offered following 13 knowledge dissemination techniques and were asked to rate and comment on. All the 13 items were measured using 5-point Likert scale (5 = strongly agree, 4 = somewhat agree, 3 = neither agree nor disagree, 2 = somewhat disagree and 1 = strongly disagree)

1. Black board Chalk Duster
2. Flip board marker
3. White board marker
4. Lecture notes
5. Presentation slide
6. Projector
7. Case Study
8. Black board Chalk Duster Lecture notes
9. White Board Marker Lecture notes
10. Presentation Lecture Notes
11. Printed notes
12. Readymade notes
13. Chart based

H₀: There is no difference in the knowledge dissemination techniques used by faculty members teaching in institutes in Pune region

H₁: There is a significant difference in the knowledge dissemination techniques used by faculty members teaching in institutes in Pune region.

Level of significance: $\alpha = 0.05$

Table 6.12: Test Statistics Knowledge Dissemination

N	96
Chi-square	121.001
df	11
Asymp. Sig.	.000

a. Friedman Test

Observation: $X^2(11) = 121.001, P = 0.000, N = 96$

Conclusion: Since the P value (0.000) is less than level of significance (0.05) null hypothesis is rejected, it is therefore concluded that there is significant difference in the knowledge dissemination techniques used by faculty members teaching in institutes in Pune region.

To identify the preference of these knowledge dissemination techniques we refer to the ranks table:

Table 6.13: Ranks Knowledge Dissemination (Graduate)

Knowledge Dissemination	Mean Rank
Black Board, Chalk Duster	8.13
Lecture Notes	7.3
White Board Marker	7.2
Printed Notes	6.97
Black board Chalk Duster Lecture Notes	6.89
Presentation Lecture Notes	6.85
Presentation (slide) projector	6.64
White Board Marker Lecture Notes	6.56
Case Study	6.12
Flip Board Marker	5.52
Ready Made Notes	5.11
Chart Based	4.72

The ranks table (Ref. Table 6.13) shows that the most preferred knowledge dissemination technique are Black Board CD (mean rank = 8.13), Lecture notes (mean rank = 7.30), and White board marker (Mean rank = 7.20), Readymade notes (mean rank = 5.11) and chart based (Mean Rank = 4.72 being the least preferred).

6.7.2. Knowledge Dissemination: (Post-Graduate)

Purpose: To study if there is difference in the knowledge dissemination techniques (Delivery post Graduate) used by faculty members teaching in Colleges / institutes in Pune region.

Table 6.14: Knowledge Dissemination (Post-Graduate) ranks

Q No	Methodology	Strongly-Agree	Agree	Neutral	Disagree	Strongly disagree
IV-1	Black Board, Chalk, Duster	166	104	7	2	5
IV-2	Flip Board Marker	50	121	68	22	6
IV-3	Whiteboard Marker	89	171	6	2	3
IV-4	Lecture Notes	75	187	5	3	0
IV-5	Presentation Projector	70	182	14	3	3
IV-6	Case Study	61	169	29	9	0
IV-7	Black board, Chalk, Duster + Lecture notes	88	159	20	4	1
IV-8	Whiteboard Marker +Lecture notes	69	186	12	2	0
IV-9	Presentation Projector +Lecture notes	71	162	32	5	2
IV-10	Case Study+ printed notes	44	170	41	12	2
IV-11	Readymade notes	50	155	41	12	9
IV-12	CBT based learning	38	148	69	11	3
IV-13	WBT based learning	34	136	89	7	2
IV-14	LMS based learning	27	140	90	9	3
IV-15	Video Conferencing	23	115	107	15	6
IV-16	Wi-Fi based learning	24	100	121	16	5
IV-17	Pedagogical learning	23	93	133	17	3
IV-18	Tablet PC based learning	25	88	127	24	4
IV-19	e-learning	41	132	83	9	3
IV-20	Audio-Video based learning	27	168	65	7	1
IV-21	Project Based learning	61	157	45	5	3
IV-22	Question Paper Solving	47	158	53	10	0
IV-23	Role play & Mock training	30	141	62	35	1
IV-24	Showing charts	22	100	69	67	8
IV-25	Study tour & Industrial visit	33	107	60	65	4
IV-26	Kinesthetic	42	131	53	40	3
IV-27	collaboration Students	67	147	40	12	3
IV-28	Experiential Learning	79	155	31	3	3
IV-29	Forming Students group	94	134	31	9	0
IV-30	Maps, Transparencies, Flash cards	74	79	37	68	9

The method adopted for Graduate and Post-Graduate are different while delivering or dissemination of the class. These methods are listed in Table 6.14.

From the total of 301 faculty members, 286 faculty members are teaching to Post graduate only.

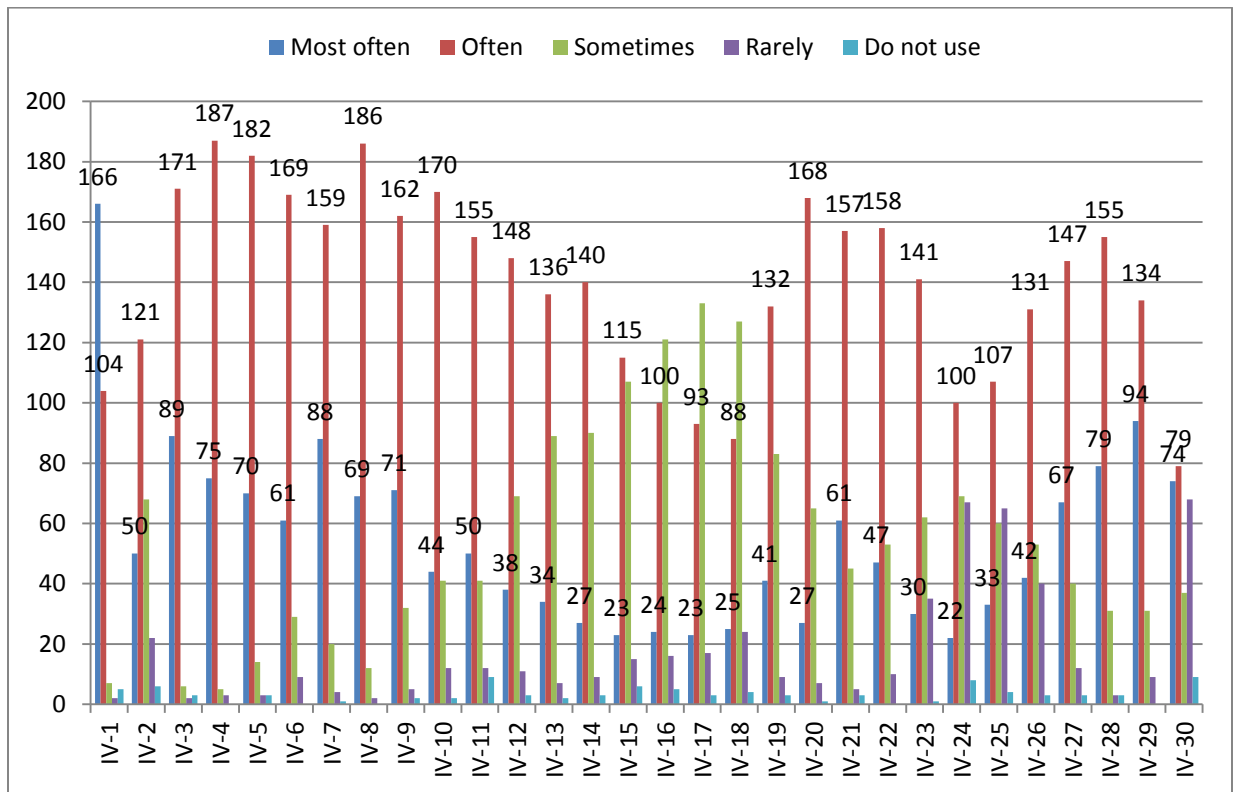


Figure 6.6: Methods and Tools used by Faculty Members for Post-Graduate

Table 6.15: List of Methods adopted for Dissemination (Post-Graduate)

IV-1	Black Board,Chalk,Duster
IV-2	Flip Board Marker
IV-3	Whiteboard Marker
IV-4	Lecture Notes
IV-5	Presentation Projector
IV-6	Case Study
IV-7	Black board,ChalkDuster,Lecture notes
IV-8	Whiteboard Marker+Lecture notes
IV-9	Presentation Projector+Lecture notes
IV-10	Case Study+ printed notes
IV-11	Readymade notes
IV-12	CBT based learning
IV-13	WBT based learning
IV-14	LMS based learning
IV-15	Video Conferencing
IV-16	Wi-Fi based learning
IV-17	Pedagogical learning
IV-18	Tablet PC based learning
IV-19	e-learning
IV-20	Audio-Video based learning
IV-21	Project Based learning
IV-22	Question Paper Solving
IV-23	Role play & Mock training
IV-24	Showing charts
IV-25	Study tour & Industrial visit
IV-26	Kinesthetic
IV-27	collaboration Students
IV-28	Experiential Learning
IV-29	Forming Students group
IV-30	Maps, Transparencies, Flash cards

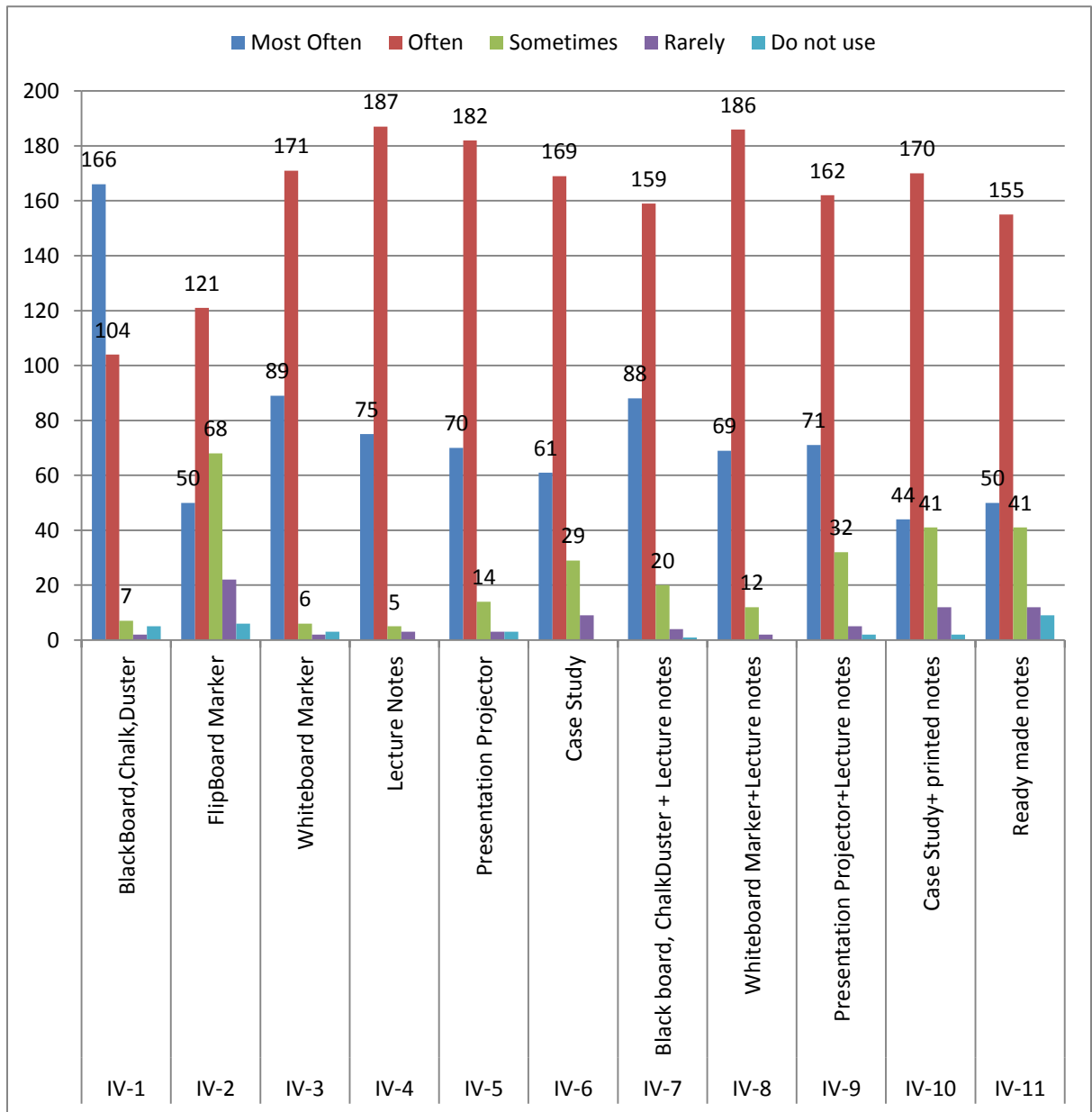


Figure 6.7: Traditional Methodology

Faculty members who make use of traditional methods of teaching is mentioned in Figure 6.7

Faculty member who makes use of digital methods and their preferences is shown in

Figure 6.8.

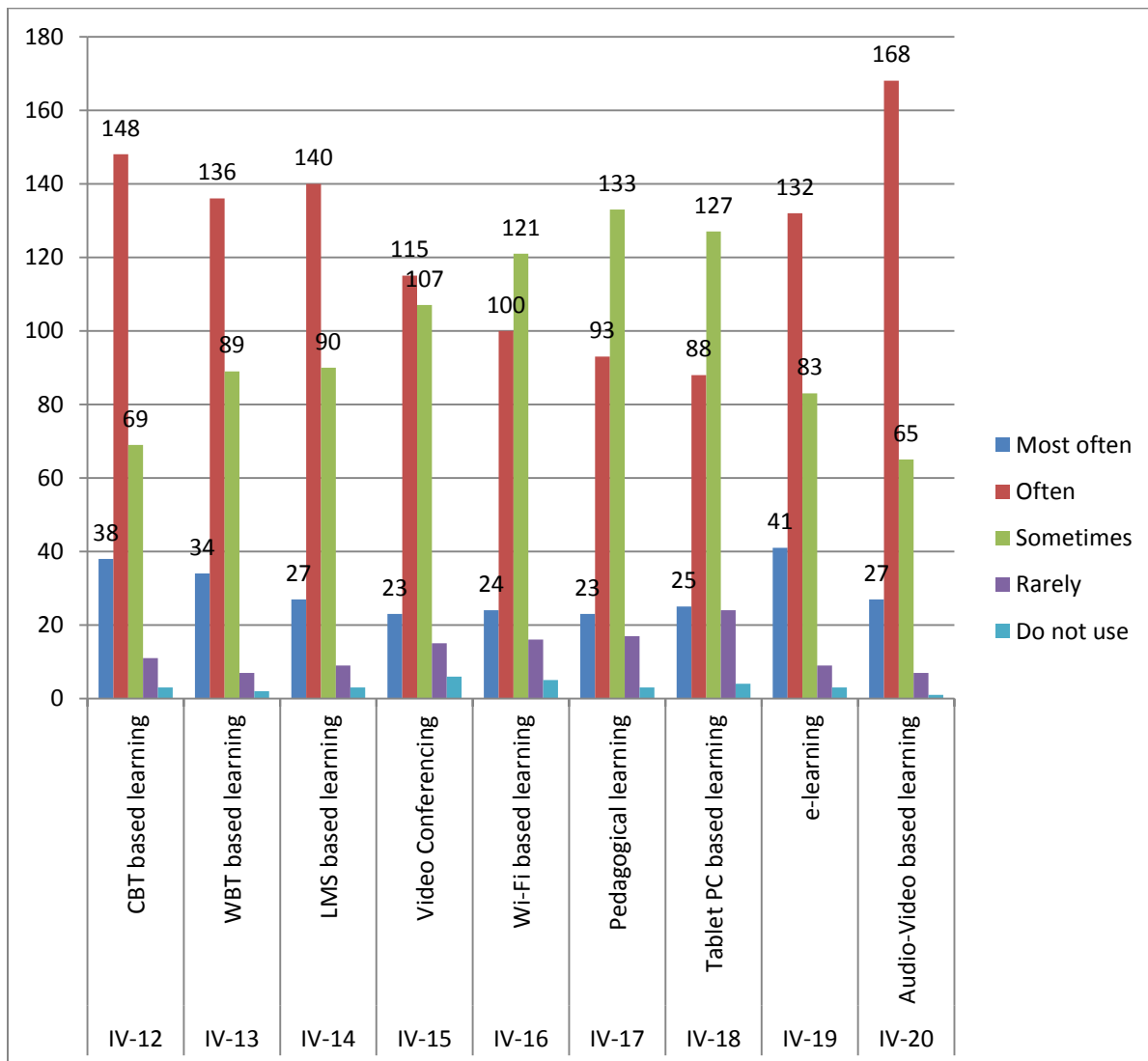


Figure 6.8: Digital Learning Tools

Faculty members who make use of other methods and their preferences are shown in

Figure 6.9.

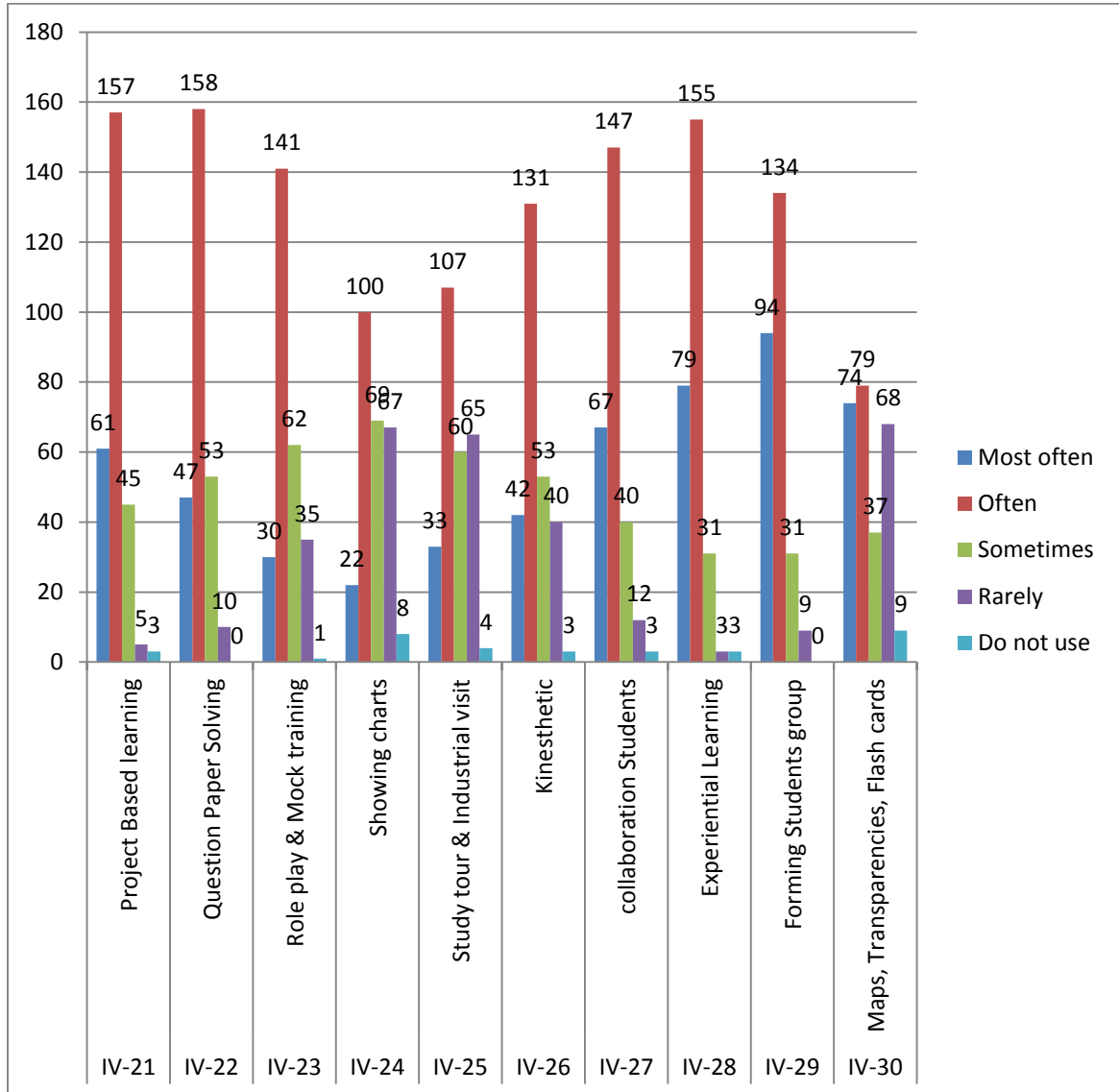


Figure 6.9: Other methods of Training.

6.8. KNOWLEDGE UPDATE :

Purpose: To study if there is difference in the sources preferred by faculty members teaching in Institutes in Pune region to update knowledge.

Statistics test: Friedman Chi-square test

Variables and measurement: 301 faculty members across institutes in Pune were asked to comment on tools they used to gain knowledge. These faculty members were offered following 6 sources of knowledge rate and comment on. All the six items were measured using 5-point Likert scale (5 = strongly agree, 4 = somewhat agree, 3 = neither agree nor disagree, 2 = somewhat disagree and 1 = strongly disagree)

1. attending QIPs and FDPs
2. updating change in version facilities
3. by attending conferences and workshops
4. by publishing articles in peer reviewed journals
5. by using digital learning tools
6. by studying further

H₀: There is no difference in the sources preferred by faculty members teaching in institutes in Pune region to update Knowledge.

H₁: There is a significant difference in the sources preferred by faculty members teaching in institutes in Pune region to update Knowledge.

Level of significance: $\alpha = 0.05$

Table 6.16: Test Statistics Knowledge Updating

N	301
Chi-Square	78.430
df	5
Asymp. Sig.	.000

Observation: $X^2(5) = 78.43, P = 0.000, N = 301$

Conclusion: Since the P value (0.000) is less than level of significance (0.05) null hypothesis is rejected, it is therefore concluded that there is significant difference in the sources preferred by faculty members teaching in institutes in Pune region to update Knowledge.

To identify the preference of these sources we refer to the ranks table:

Table 6.17: Ranks Knowledge Updating

Knowledge Updating	Mean Rank
By attending QIP, FDP, Skills updating program	4.03
Updating the change in version facilities	3.47
BY studying further	3.44
By attending conferences and seminars	3.39
By using digital learning tools like CBT, WBT, referring to websites and documentation	3.37
By publishing articles in journals	3.31

The ranks take to show that the most preferred source for knowledge updating is through attending QIPs and FDPs (mean rank = 4.03), followed by updating the changes in version facilities (mean rank = 3.47), continuing with further studies (mean rank = 3.44), using digital learning tools (mean rank = 3.37), attending conferences and seminar (Mean = 3.39), and by publishing research papers in peer reviewed journals (Mean rank = 3.31)

Conclusion: From the above rank table it can be concluded that the most preferred sources of knowledge updating is attending QIPs and FDPs and attending conferences and seminars. It is important for faculties to understand that they need to gear up for publications and start contributing to the body of knowledge.

Purpose: One of the objectives of the study is to explore the methods and techniques preferred by Faculty members for knowledge updating.

Respondents were presented with six commonly used methods for knowledge updating. A binominal test was conducted to ascertain the proportion of respondents using these techniques is difference from the claimed proportion ($P = 0.75$ as revealed by pilots study).

Statistical Test: Binominal Test:

Variables and measurements

Respondents were presented with following six methods of knowledge updates:

- a. Attending QIP, FDP, skill updating program, faculties updating knowledge.
- b. Change in version facilitation new developments, faculties learn it and practice it on computers.
- c. By attending conferences, seminars IT faculties updates their knowledge
- d. By writing new articles in Research Journals, IT Faculties updates new knowledge.
- e. IT faculties updates their knowledge by using the digital learning tools like CBT, WBT, referring web sites and documentation
- f. By studying further

Each method was assessed on 5 points scale (5 – Strongly agree, 4-Agree, 3- Neutral, 2-Disagree and 1 – Strongly disagree).

Level of significance:

$$\alpha = 0.05$$

Justification for the claimed proportion $P = 0.75$

A pilot study revealed that approx. 75% respondents agreed to use each of the six knowledge updating methods. Thus, 0.75 is taken as test proportion:

$$H_0: p = 0.75$$

$$H_1: p \neq 0.75$$

Table 6.18: Shows Binominal Distribution Test and Observations are on Table 6.19.

Conclusion:

Since P value is 0.000 is less than 0.05 for all the six knowledge updating methods, null hypothesis is rejected. Based on the observed proportions for each knowledge updating technique, it can be concluded that more than 75% of the respondents use each (list provided below) of these techniques for updating knowledge.

- a. Attending QIP, FDP, Skills updating program
- b. Upgrading the change in version facilities
- c. Attending conferences and seminars
- d. Publishing articles in journals
- e. Using digital learning tools like CBT, WBT, referring to websites and documentation
- f. Studying further.

Hence it can be concluded that the above methods are largely used for knowledge updating.

Table 6.18 : Binomial Test

Binomial Test		Category	N	Observed Prop.
By attending QIP, FDP, Skills updating program	Group 1	Yes	290	0.97
	Group 2	No	11	0.03
	Total		301	1
Updating the change in version facilities	Group 1	Yes	279	0.93
	Group 2	No	22	0.07
	Total		301	1
Attending conferences and seminars	Group 1	No	29	0.1
	Group 2	Yes	272	0.9
	Total		301	1
Publishing articles in journals	Group 1	No	32	0.11
	Group 2	Yes	269	0.89
	Total		301	1
Using digital learning tools like CBT, WBT, referring to websites and documentation	Group 1	No	33	0.11
	Group 2	Yes	268	0.89
	Total		301	1
Studying further	Group 1	No	31	0.1
	Group 2	Yes	270	0.9
	Total		301	1

Table 6.19: Observation

	Obtained Proportion	Test Proportion	P Value
Attending QIP, FDP, Skills updating program	0.97	0.75	0.000
Upgrading the change in version facilities	0.93	0.75	0.000
Attending conferences and seminars	0.90	0.75	0.000
Publishing articles in journals	0.89	0.75	0.000
Using digital learning tools like CBT, WBT, referring to websites and documentation	0.89	0.75	0.000
Studying further	0.90	0.75	0.000

The following table and pie shows frequency distribution for various knowledge updating methods used by faculty member associated with IT institutes in Pune

Table 6.20 : Statistics Knowledge Updating

Knowledge Updating	Updating the change in version facilities	Attending conferences and seminars	Publishing articles in journals	Using digital learning tools like CBT, WBT, referring to websites and documentation	Studying further
Yes	301	301	301	301	301
No	0	0	0	0	0

Frequency Table

Figure 6.20, shows that Faculty members were asked about the methods and all of them show that they do make use of one of the method mentioned in the above figure.

Faculty members were asked through the Questionnaire about the changes in version when new software comes to the market. As per the norm specified by University of Pune the faculty members strictly follow the same. Those members who do not get the knowledge by FDP, QIP, Skill upgradation will miss the knowledge gaining opportunity.

Table 6.21: Updating the change in version facilities

Updating the change in version facilities	Frequency	Percent
No	22	7.3
Yes	279	92.7
Total	301	100.0

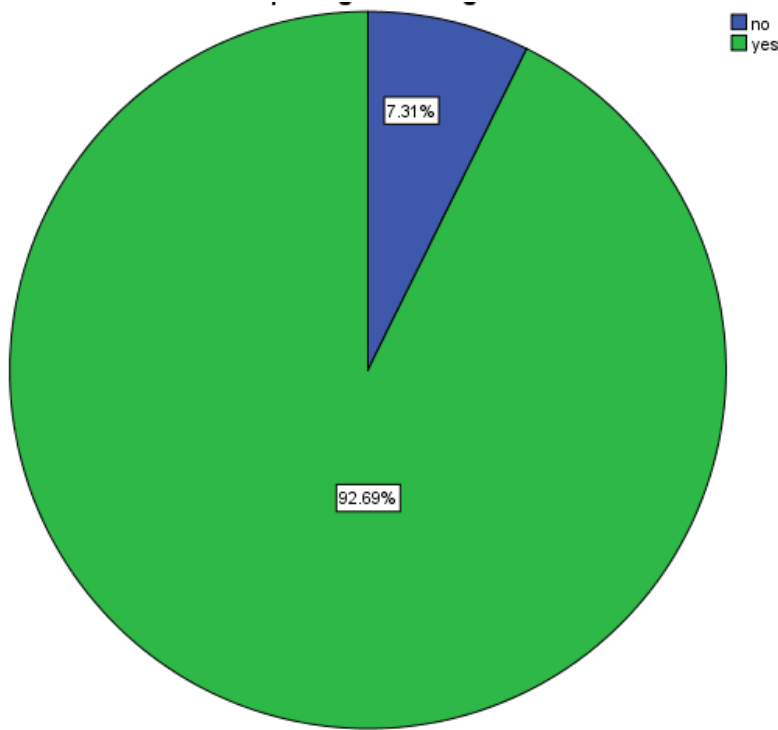


Figure: 6.10: UPDATING THE CHANGE IN VERSION FACILITIES.

The above table and the graph show that from the total of 301 faculty members 279 (approximately 93%) are ready to upgrade their knowledge by referring to the latest version available to them. It is recommended that Institutes make arrangements to use license software

for the development of faculty members. It is suggested that Faculty members make use of Academic Edition of Software that comes from by the vendor at discounted price.

Table 6.22: ATTENDING CONFERENCES AND SEMINARS.

Conferences and Seminars	Frequency	Percent
No	28	9.3
Yes	273	90.7
Total	301	100.0

Faculty members were asked for the updating of their knowledge, most of them agreed and gave preferred has given positive response. By attending the Seminars and Conferences, faculty member do feel that their knowledge is improved, as these conferences and seminars have theme and all the papers read were belonging to the new concepts and usability of the same (.Table 6.22 and Figure 6.11)

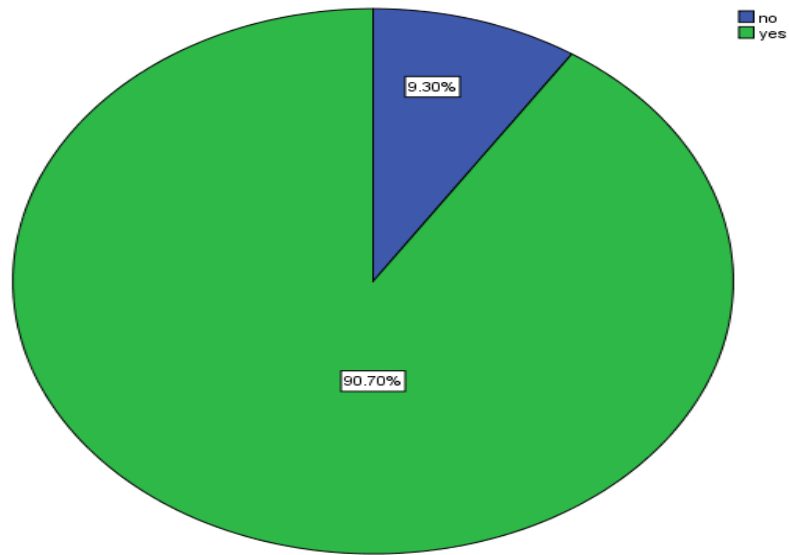


Figure 6.11: Attending conferences and seminars.

From the above table and graph statistics shows that out of 301 members, 273 (Approx.90.7%) prefer to attend seminars and conferences for upgrading their knowledge and others prefer any other forms. There is a need to have transparencies in working and also Institutes need to provide opportunities to faculty members who want to upgrade their knowledge.

Faculty members were asked in the Questionnaire that one of way for updating the knowledge is not only attending conferences and seminars but presenting the at the conference. Faculty members came to know different things of different authors. After doing the research they can make some innovative changes. For writing articles it is expected that faculty member need to refer few articles and then innovate and experiment the ideas.

Table 6.23: PUBLISHING ARTICLES IN JOURNALS		
PUBLISHING ARTICLES IN JOURNALS	Frequency	Percent
No	31	10.3
Yes	270	89.7
Total	301	100.0

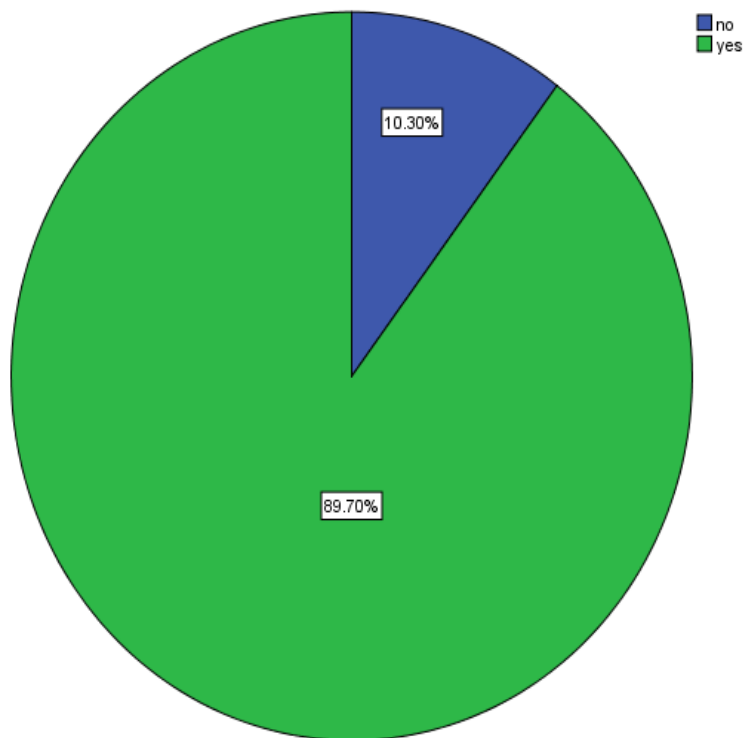


Figure: 6.12: Publishing articles in journals.

From the total of 301 members, 270 faculty members (approx. 90%) feels that by publishing articles in the journal they can share their knowledge with others. It is suggested that faculty member needs the support to write the articles and provide certain guidelines for publishing these articles.

Faculty members were asked in the Questionnaire that one of way for updating the knowledge is using the digital learning tools (e.g. CD, Charts etc.) and referring to different website for documentation.

Table 6.24 : Using digital learning tools & referring to websites documentation

Digital Learning Tools & Referring To Websites Documentation	Frequency	Percent
No	32	10.6
Yes	269	89.4
Total	301	100.0

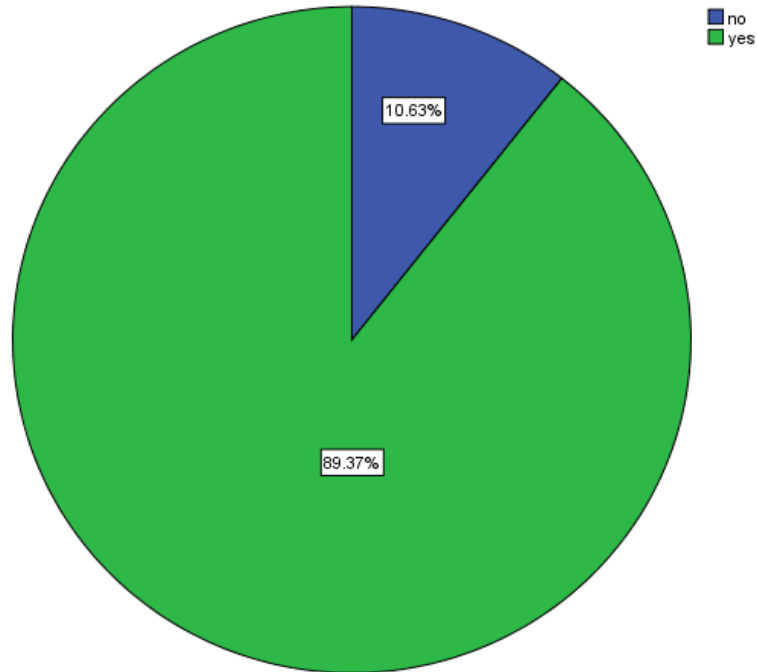


Figure 6.13: The digital learning tools and refereeing website documentation.

The above Table (Table 6.24) and graph (Figure 6.13) show that 269 faculty members (approx, 89.37%) feels that they were recommended by referring to the digital learning tools and website documentation in order to upgrade their knowledge. It is suggested that more and more digital learning avenues will be made available to faculty members to improve their knowledge.

Faculty members were asked in the Questionnaire that one of way for updating the knowledge. Faculty member who agreed to kept on learning new degrees or post-graduate courses, diploma and certificate courses.

Table 6.25: Studying Further

Studying Further	Frequency	Percent
No	30	10.0
Yes	271	90.0
Total	301	100.0

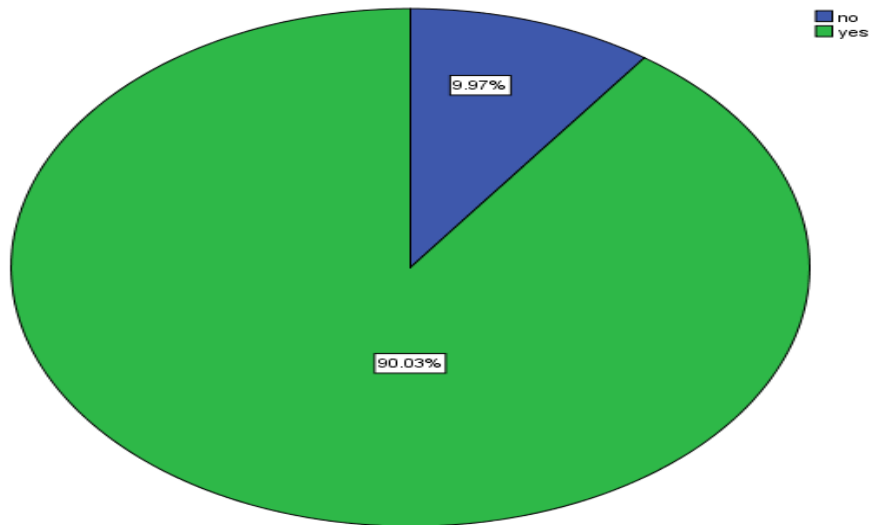


Figure: 6.14: Studying further.

From the table 8.25 and the figure 6.14, shows the Faculty member are of the opinion that those who are continuously searching for the new avenues need to divert towards their study further, Most of the need to undergoes doctoral degree by studying further.

6.9. PUBLISHING AN ARTICLE:

The main purpose is to identify the number of respondents presenting the paper at National or International Journals. Below mentioned table shows that out of 301 respondents only 84 faculty members were presented the papers at International Journals and 255 faculty members published their papers at National Seminars.

Table 6.26 :International Publications

Presented the Paper	84
Not Presented the Paper	216

Table 6.27 : National Publications

Presented the Article	255
Not Presented the Paper	45

Table 6.28 : No of papers presented at National Seminars		
No of papers presented at National Seminars	Frequency	Percent
1	81	27.0
2	80	26.7
3	47	15.7
4	32	10.7
5	9	3.0
6	4	1.3
10	1	.3
22	1	.3
Total	255	85.0
Not Participated	45	15.0
Total	301	100.0

From the above table it can be seen that 81 faculty member (27%) presented the paper for the first time, 80 faculty members (26.7%) published & presented the paper twice, 47 faculty members (15.7%) published and presented thrice, 32 faculty members (10.7%) published & presented the paper four times, 9 faculty members (3%) published & presented Five times, 4 faculty members (1.3%) published & presented six times, where as 1 faculty

member (0.3%) published & presented ten times, and another member (0.3%) published & presented twenty-two times. From the total of 301 faculty members only 255 faculty members published and presented their articles at the National Conference/Seminars. Institution need to motivate the members to write and publish more and more papers and allow them to participate at the National conference/ seminars.

Table 6.29 : Papers published by faculty member

Papers published by faculty member	Frequency	Percent
1	2	.7
2	4	1.3
3	2	.7
4	3	1.0
5	1	.3
6	1	.3
Total	13	4.3
Not Presented	287	95.7
Total	301	100.0

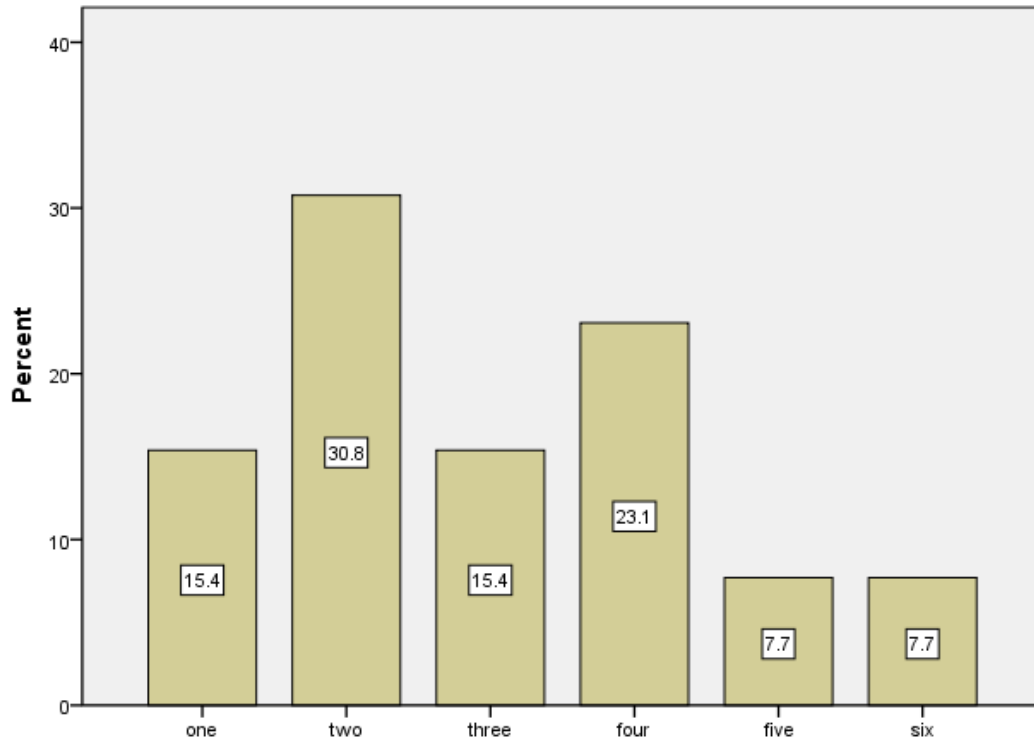


Figure 6.15: Papers Presented by Faculty members at National Conference (percent)

The above mentioned graph shows that faculty members who are between the age group of 30 years to 32 years teaches IT Subjects (minimum age is 23 years and maximum age is 78 years). After completion of their post-graduation, faculty member joins at the junior level (Assistant Professor or Lecturer position). This shows that faculty member who joined at junior level in the Institute or College as a Faculty member can stay with the Institute/ College till retirement.

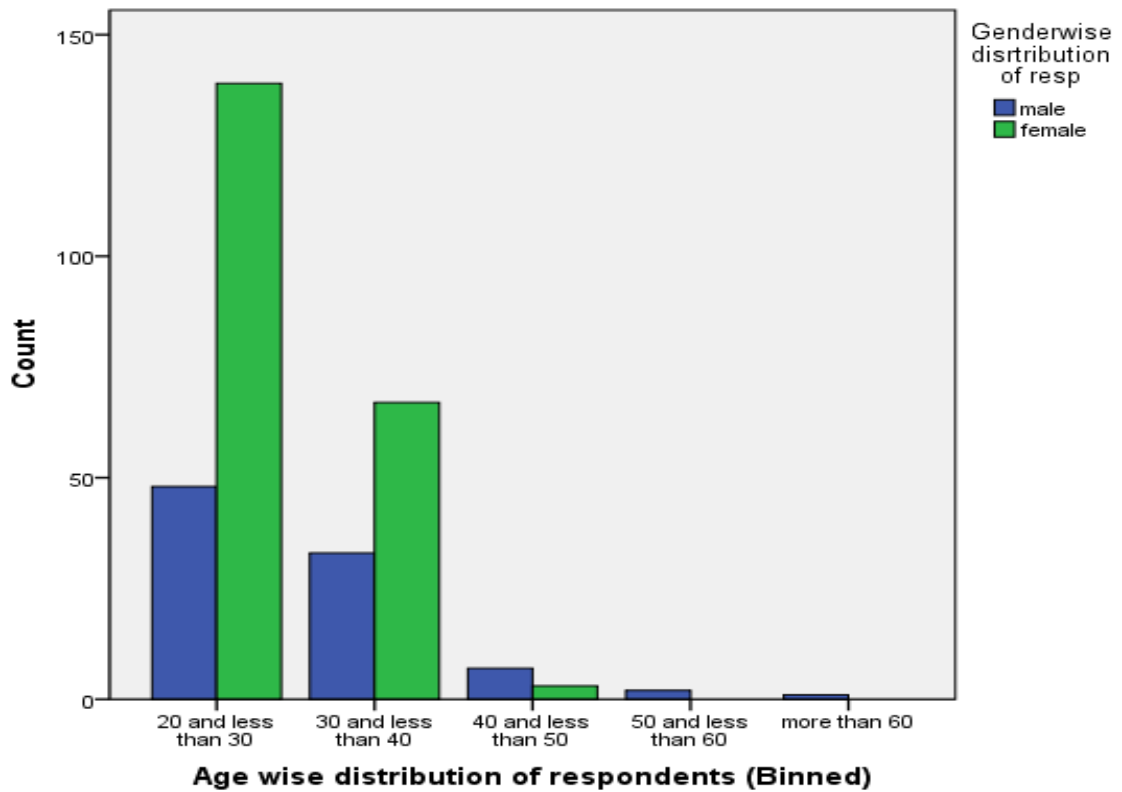


Figure 6.16: Gender wise distribution of respondents (National Seminar)

From the table 6.29 and the graph (Figure 6.16), papers presented by Faculty members gender wise i.e. Male and Female wise shows that presented during the early state is more. As the age increases the passion for writing the papers is decline. Faculty members need to be motivated and devote more time to produce new research outcomes. It is recommended that Institutes need to support and give incentives for producing good and qualitative reports.

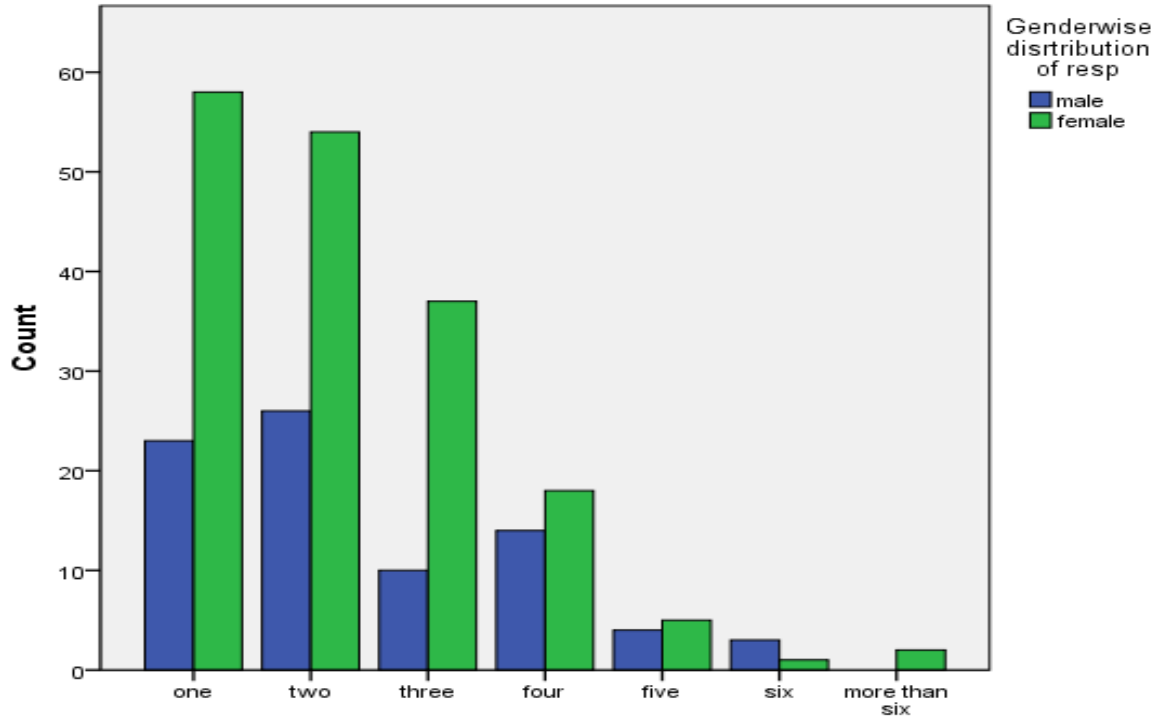


Figure 6.17: Gender wise distribution of respondents (International Seminars)

Distribution of papers presented at National and International Seminar is 611 and 231 respectively. Calculation shows that International Level is 27.43% and National Level is 72.57%. Faculty members need to be encouraged and devote more time to produce new research outcomes. It is recommended that Institutes need to support and need to give incentives for producing good and qualitative reports. Distribution of papers presented at National and International Seminar is 611 and 231 respectively which is International Level is 27.43% and National Level is 72.57%. Faculty members need to be encouraged and dedicate more time to produce new research outcomes. It is recommended that Institutes need to support and need to give incentives for producing good and qualitative reports.

Table 6.30 :International Publications

International Publications	Frequency	Percent
One	26	8.7
Two	25	8.3
Three	7	2.3
Four	11	3.7
Five	8	2.7
Six	3	1.0
Seven	1	.3
Eight	3	1.0
Total	84	28.0
No Paper published	217	72.0
Total	301	100.0

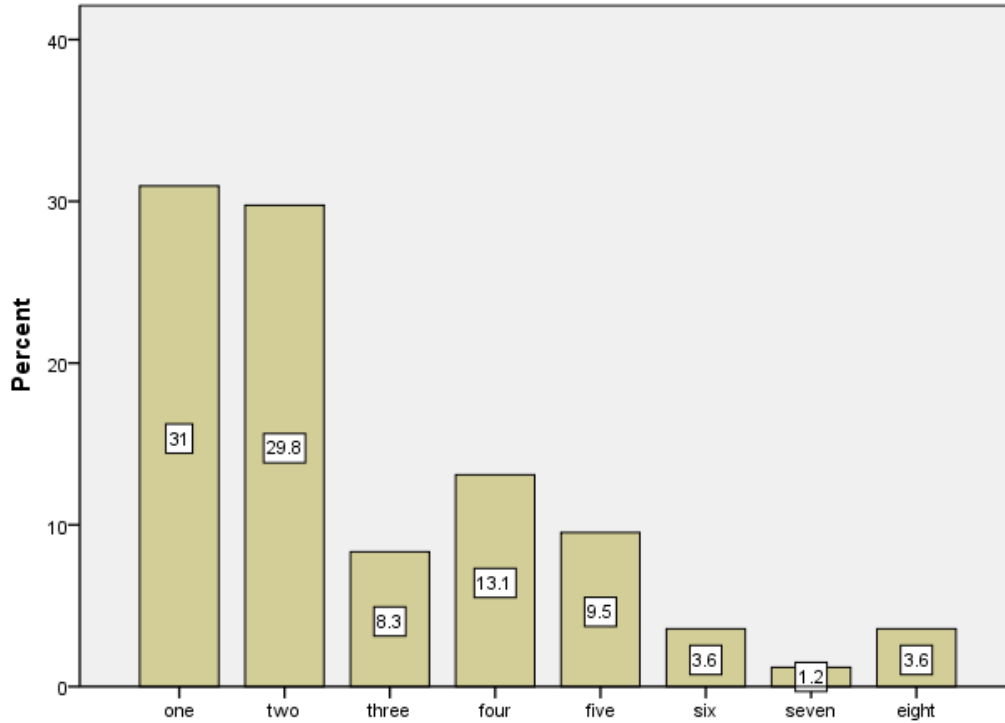


Figure 6.18 Articles Published at the International Journal.

From above graph it has been observed 62.3% i.e., 178 Faculty members are in the range of 20 years to 30 years is 178 that is 62.3% , frequency of 30 and less than 40 is 100 (33.3%), 40 and less than 50 is 10 (33.3%), 50 and less than 60 is 2 (0.7%) , and more than 60 is 1 (0.3%.) respectively. As the age increases due to responsibility faculty members do not spend time on articles and it is suggested that more motivation is needed to be given to faculty members.

Table 6.31 : Publications

Publications	Frequency	Percent
International publications	231	27.4
National publications	611	72.6
Total	842	100.0

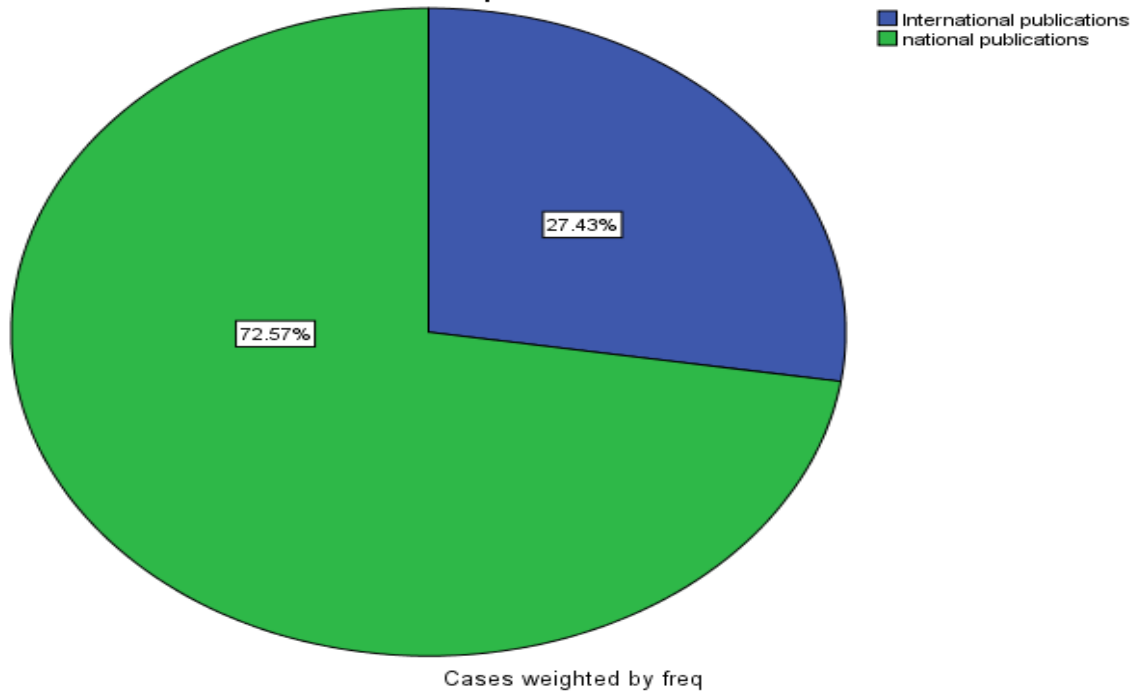


Figure 6.19 : Publication

From the table 6.31 and graph (Figure 6.19) suggests that 231 faculty members have written the articles at International publication (approx 28 %) and for national publication 611 (approx. 72%) has been published. It is suggested that more and more conferences need to be organized and more time has been allocated for the faculty members for writing and publishing their articles.

6.10. CHALLENGES FACED BY FACULTY MEMBERS:

The Purpose of the study is to find out the difference in the regularity of teaching career challenges faced by faculty members teaching in institutes in Pune region.

Statistics test: Friedman Chi-square test

Variables and measurement: 301 faculty members across institutes in Pune were asked to comment on challenges faced by them. These faculty members were offered following five commonly encountered teaching related challenges. All the 5 challenges were measured using 5-point Likert scale (3 – Always, 2- Sometimes and 1 – Never). A list of these challenges is mentioned below:

- Library books availability
- Internet connection
- Sponsorship for conferences, seminars
- Sponsorship for QIP, FDP, MDP
- Availability of media in class (LCD projector)

H₀: There is no difference in the regularity of teaching career challenges faced by faculty members teaching in institutes in Pune region.

H₁: There is a significant difference in the regularity of teaching career challenges faced by faculty members teaching in institutes in Pune region.

Level of significance: $\alpha = 0.05$

Friedman Test

Table 6.32: Ranks (Challenges faced by faculty member)

CHALLENGES FACED BY FACULTY MEMBER	Mean Rank
Library books availability	3.41
Internet connection	3.09
Sponsorship for conferences, seminars	2.88
Sponsorship for QIP, FDP, MDP	2.82
Availability of media in class (LCD projector)	2.79

Table 6.33: Test Statistics

N	301
Chi-square	74.173
df	4
Asymp. Sig.	.000

a. Friedman Test

Observation: $X^2(4) = 74.17, P = 0.000, N = 301$

Conclusion: Since the P value (0.000) is less than level of significance (0.05) null hypothesis is rejected, it is therefore concluded that there is significant difference in the regularity of teaching career challenges faced by faculty members teaching in institutes in Pune region.

To identify the irregularities in challenges faced we refer to the ranks table: (Table 6.32: Rank)

Library books availability and internet facilities are the regularly faced challenges by faculty member in Pune.

Conclusion: Faculty members do face certain issues during their working in the Institutions such as the problems faced due to availability of Library books, availability of Internet connection, and Sponsorship for conferences and seminars. Faculty members are required to go through the standard books recommended by University of Pune that to, limited number of copies that are usually circulated to the students, so alternately they need to refer the locally published books or notes during the teaching. Second challenge the faculty members are facing is the availability of internet connection. It is observed that in most of the cases either internet connection is down or given to specific person in the Institutes, many a times the same connection is usually used by all the faculty members. Institutes where the internet connection is given to all the faculty member, their interaction with colleagues and other members is more. They can go to the sites and upgrade their knowledge and devote some time for article writing and usually get more opportunities for presenting their papers.

Another challenge faced by faculty members is that some organizations do provide sponsorship for conferences and seminars, but in the other case faculty members need to pay for registration and fees. Chances are there that due to this reason faculty members write the articles jointly or by three or more members.

University of Pune does conduct QIP, FDP, and MDP and has been nominated by faculty members teaching the subject and availability of media in classroom has been give as the least rating. Due to the non-availability of internet connection or due to daily work assignment faculty members sometimes miss the opportunity to attend the same.

CHAPTER 7

OBSERATIONS AND FINDINGS

7.1. Introduction.

In the previous chapter we have seen graphical representation and data interpretation. Researcher had identified some facts which have been explained in this chapter. In the questionnaire individuals have been asked to rate the teaching tools and methods using Lickers' scale and the observations are explained in details in this chapter.

7.2. Objective of the Study

The objective behind this study is to analyze and find out the knowledge teacher has gained and how the same knowledge faculty member is delivering it to the students.

This study is to understand different sources of transmitting the knowledge and to understand how effective and efficient these tools are in knowledge:

7.2.1. THE SOURCES OF KNOWLEDGE ACQUISITION.

- Reading text books suggested by University books help in gaining the knowledge of the subject.

From a total of 301 faculty members, 164 Faculty members strongly agree to the point that books recommended by University of Pune helps the faculty members in gaining knowledge.

From a total of 301 faculty members, 127 faculty members have agreed the concept that means along with books recommended by University of Pune books, faculty member must carry some additional books. Only 8 members did not comment on this, and one faculty member have disagreed and strongly disagreed the source of knowledge gaining.

Researcher recommends considering the group, reading the books recommended by University of Pune as a major source for knowledge gaining.

- Frequent interaction with the IT Faculty members

From a total of 301 faculty members, 104 members strongly agreed frequent interaction with the IT Faculty members and 107 members agreed to the fact that interaction with faculty member helps to improve the knowledge gaining. In the concept as a major source for knowledge gaining, 22 members did not comment for this and 3 members disagreed and one member strongly disagreed.

Considering the group, the researcher agreed to the fact that frequent interaction with the IT Faculty members help members to gain the knowledge.

- Learning from attending the seminar attending Seminars and Conferences

From a total of 301 faculty members, 106 members have strongly agreed to the fact that attending Seminars and conferences helps to know and gets different point of view on the subject. By attending seminars and conferences, 177 members have agreed saying that it helps in knowledge gaining. Only, 12 members have not made any comment, 5 members don't agree and one member strongly disagrees.

It is recommended that members need to attend Seminars and conferences for gaining the knowledge.

- Attending lectures of other faculties on the same subject.

From a total of 301 faculty members, 110 members strongly agreed to the fact that attending lectures of the other faculty member helps to gain some knowledge and 167 members have agreed. From the group 23 members did not get any comment and one member did not agree the concept as one of the major source for knowledge gaining.

Researcher observes that due to ego hassles' people did not attend the lectures of other faculty members..

- Discussing with colleagues/ Researchers on the subject helps me to gain the knowledge.

From a total of 301 faculty members, 107 members strongly agreed and 171 members have agreed to the fact that discussing with colleagues and researcher going to help faculty member to gain some knowledge. Productive and interactive discussion never happens so 19 members did not commented and 4 members disagreed as a sources of knowledge gaining.

Researcher observes that discussing with colleagues/ Researchers on the subject help the faculty member to gain the knowledge, but the only thing is discussion needs to be productive.

- Reading recognized journals/ periodicals and constant reviewing web sites on the subject to get the knowledge.

From a total of 301 faculty members, 93 members strongly agreed to the concept and 171 members agreed to the fact that by reading recognized journal and periodicals and constant reviews on the subject matter helps the knowledge gaining. From the group, 26 members did not comment and 11 members did not agree to the concept as a source of knowledge gaining.

Researcher recommends that faculty members need to constantly review the journals / periodical and read/publish articles on the subject.

- Repeated and frequent discussion teachings help to get additional knowledge.

From a total of 301 faculty members, 104 members strongly agreed and 164 members have agreed the concept that repeated and frequent discussing with faculty members helps to get additional knowledge. Other faculty member, 25 members did not commented, 7 members did not agree and one member strongly disagreed the concept of a source for knowledge gaining.

Researcher feels the need for strong and frequent interaction on the subject and more precisely groups for discussion to get additional knowledge. Blogs need to be created and used for knowledge gaining.

- Reading available software documentation on website is one of the best method

From a total of 301 faculty members, 125 members strongly agreed and 158 members have agreed to the fact that reading available software documentation on the web site definitely helps the faculty member to get good knowledge. From the group, 13 members did not comment, 4 members did not agree and one member strongly disagreed as a source for knowledge gaining.

Researcher recommends that authentically published articles need to be read by the members. So it is suggested to read software documentation from the source itself to help the authorized sources for knowledge gaining.

7.2.2. Attending and participating special Programs:

Special lecture to gain knowledge Quality Improvement Program (QIP), Faculty Development Program (FDP), Skill Upgradation program and any other faculties acquire new knowledge

From a total of 301 faculty members, 145 members strongly agree and 145 members agreed by attending and participating in QIP, FDP, and skill upgradation program helps the faculty members as a major source for knowledge gaining. From the group, 9 members did not agree and two members strongly disagreed.

Researcher recommends that objectives need to be made clear to the member as a major source of knowledge gaining. It is observed that last minutes or adjustments are not going to

help. Moreover, asking the same faculty members to participate in QIP, FDP, and skill development program is not going to help or rather demotivates other faculty members.

- Change in version facilitates new development by practising

From a total of 301 faculty members, 93 members strongly agrees and 186 members have agreed the concept that change in version facilitates new development by practice is going to help the faculty members in knowledge gaining. From the group, 14 members did not commented, 7 members did not agree and one member strongly disagrees to the concept for knowledge gaining.

Researcher recommends as Practice makes man perfect, when faculty member tries to use in his/ her daily life it and this helps in knowledge gaining. At the same time, Institutes, Colleges and University change and provide latest version.

- Attending Conferences/ Seminars updation

From a total of 301 faculty members, 88 members strongly agreed to the concept of knowledge gaining and 183 members agreed by attending conference and seminars. From the other faculty members, 20 members did not comment, 9 members have disagreed and one member strongly disagreed for knowledge gaining.

Researcher strongly feels that since the colleges never give sponsorship to faculty members, either faculty member needs to give sponsorship or reduce the fees for participation.

- Writing new articles in Research Journals

From a total of 301 faculty members, 87 members strongly agreed to the fact that is one of the sources for knowledge gaining and 181 members agreed that by writing new articles in the research journal the knowledge is gained. From the group, 21 members did not comment, 11 members strongly disagreed and one member disagreed for gaining knowledge.

Researcher strongly feels that since the colleges never sponsor faculty members, either faculty members need to sponsor or reduce the fees for participation and can be used as assets of the College or Institute.

- Digital learning tools like CBT, WBT

From a total of 301 faculty members, 90 members strongly agreed and 180 members agreed the fact that digital learning tools help faculty members in gaining knowledge. From other members, 22 members did not commented and 9 members strongly disagreed to the concept of knowledge gaining.

Researcher observed that most of Institute or College did not support digital learning tools such as CBT or Web Based Tools. Researcher further recommends that making use of digital library (fully operational) is going to help faculty members to gain some knowledge.

- By studying further

From a total of 301 faculty members, 98 members strongly agreed to the concept of knowledge gaining and 174 members have agreed to the fact that faculty members shall learn. From the other group members, 22 members did not comment and 7 members did not agree.

Researcher recommends that faculty members always learn new things and Institutes or Colleges need to recommend complete disbursement of fees. The complete sponsorship or disbursement of fees, need to help both Faculty members and Institution or college to look into this as a major source the for knowledge gaining.

7.2.3 The Knowledge Creation, Development and Utilization

In the Questionnaire the researcher has asked to rate the sources they think using Likert rule with 5 point scale as (5 –Most Often, 4 – Often, 3 –Sometimes, 2 – Rarely, 1 – do not use) for graduate the faculty member are expected to deliver the lecture to a large group of students the choices like:

Table 7.1: Knowledge Dissemination Methods of Teaching (Graduates)

Ranks	BBCD	FBM	WBM	LN	PP	CS	BBCN	WBM	PPLN	PN	RMN	Chart
5	51	13	25	27	21	22	26	17	20	27	9	9
4	32	55	63	63	63	51	61	67	68	50	55	49
3	7	18	6	5	9	16	5	12	8	13	18	20
2	3	9	3	1	3	7	1	1	0	5	6	14
1	4	2	0	1	1	1	4	0	1	2	9	5
Total	97	97	97	97	97	97	97	97	97	97	97	97

- **Black board, Chalk and Duster**

From a group of 97 faculty members, 51 members most often make use of black board , chalk and duster and 32 members often make use of black board, chalk and duster. Faculty members who use sometimes belongs to 7, rare usage is 3 and who do not use black board chalk and duster was 4.

Researcher observed that Black board, chalk and duster is a regular method of teaching and in some cases College or Institution is providing them other means so they hardly depend on black board, chalk and duster.

(Most Often =51, Often =32, Sometimes =7, Rarely =3, do not use =4)

- **Flip board and Marker**

Faculty members from the group of 97 were asked the usability of Flip board and Marker, 13 members of most often and 55 members often make use of this devise. Faculty members who use sometimes is 18, rarely and who do make use of flip board and marker goes to 9 and 2 respectively.

Researchers has observed that different colleges have different regular or pedagogy that this is not regularly used methods. (Most Often =13, Often =55, Sometimes =18, Rarely = 9, do not use =2)

- **White board and Marker**

Faculty members were asked for usage of white board and marker, 25 members preferred it and 63 members often make use of white board and marker. Only 9 members who make use of white board and market, i.e., 6 regularly and 3 rarely using members.

Researcher observed that this is mainly used in laboratory where dust has been protected. This is the second largest devise used by faculties after black board chalk and duster.

(Most Often =25, Often =63, Sometimes =6, Rarely = 3, do not use =0)

- **Lecture notes**

Faculty members are used to lecture notes as supplementary to Black / White board chalk / marker. In this category, 27 members most often and 63 members often provides notes and hardly 6 members i.e., 5 sometimes and 1 in both rarely and who do not use respectively.

Researcher observed lecture notes as an addition to the black board and white board and this a possible supplementary.

(Most Often =27, Often =63, Sometimes =5, Rarely =1, do not use =1)

- **Presentation (slides) Projector**

Faculty members were asked to rate presentation on projector, 21 members most often and 63 members often make use of this tool. 9 members who sometime makes used of projector, 3 members rarely and a member who does use of device or tool.

Researcher observed that when the diagrammatic things are to be explained or wanted in complete large amount of syllabus in an hour this tool is preferred.

(Most Often =21, Often =63, Sometimes =9, Rarely =3, do not use =1)

- **Case Study**

Faculty members were asked to rate case study as tool, 22 members most often and 51 members often make use of this tool. 16 members sometime makes used of case study, 7 members rarely and a member who does make make use of this devise or tool.

Researcher observed that case study is a tool which can be given to participants to know till what extend they have understood the concept and to express their views on the subject.

(Most Often =22, Often =51, Sometimes = 16, Rarely =7, do not use =1)

- **Black board, Chalk and Duster plus Lecture notes**

Faculty members from the group of 97 were asked the usability of Black board, Chalk and Duster plus Lecture notes, 26 members most often and 61 members use this tool often. Faculty member who sometimes makes use of these goes to 5, a member rarely makes used of this tool and 4 members do not make use of this tools.

Researcher observed that Black board, Chalk and Duster plus Lecture notes are preliminarily used as a tool supplement to each other. After explaining the concept to students, faculty member use this tool help each other. (Most Often =26, Often = 61 Sometimes =5, Rarely =1, do not use =4)

- **White board and Marker plus Lecture notes**

Faculty members from the group of 97 were asked the usability of White board and Marker plus Lecture notes, 17 members most often and 67 members use this tool often. Faculty member who sometimes make use of these tools goes to 12, only one member rarely makes use of this tool.

Researcher observed that White board and Marker plus Lecture notes are preliminarily used as a tool supplement to each other. After explaining the concept to students, faculty member use this tool help each other. (Most Often =17, Often =67, Sometimes =12, Rarely =1, do not use =0)

- **Presentation (slides) Projector plus Lecture notes**

Faculty members from the group of 97 were asked the usability of Presentation (slides) Projector plus Lecture notes, 20 members most often and 68 members use this tool often. Faculty members who sometimes make use of goes to 8, a member who do make used this tool.

Researcher observed that Presentation (slides) Projector plus Lecture notes are preliminarily used as a tool supplement to each other. After explaining the concept to students, faculty member use this tool help each other.

(Most Often =20, Often =68, Sometimes =8, Rarely =0, do not use =1)

- **Printed notes**

Faculty members were asked to rate printed notes as tool, 27 members most often and 50 members often make use of this tool. 13 members sometime makes used of case study, 5 members rarely and two members who do use of this devise or tool.

Researcher observed that Printed notes as tool, does vary according to the subject under consideration. Printed notes depend on the faculty who promotes his/her ideas to the student.

Most often, if the faculty suggest to purchase books from the market student follow his/ her instruction. Students feel that if all notes are available in one book, they prefer the same. (Most Often =27, Often =50, Sometimes =13, Rarely =5, do not use =2)

- **Readymade notes**

Faculty members from the group of 97 were asked the usability of readymade notes, 9 members most often and 55 members often make use of this tool. 18 members sometime makes used of case study, 6 members rarely and nine members who does not use this tool in teaching.

Researcher observed that readymade notes as tool, does vary according to the subject under consideration. Readymade notes depend on the faculty who promotes his/her ideas to the student. During the examination times, unless prescribed, students purchase this, researcher feels that how fast one will gets notes depends on the availability of notes from the market.

(Most Often =9, Often =55, Sometimes =18, Rarely =6, do not use =9)

- **Chart based**

Faculty members from the group of 97 were asked the usability of chart based teaching, 9 members most often and 49 members often make use of this tool. 20 members sometime make used of charts, 14 members rarely and 5 members who does not use this tool in teaching.

Researcher observed that chart based teaching is nowadays a very rare tool, for a small group, this is accepted but for large group it does not serve the purpose. So this tool is very rarely used by the faculty member.

(Most Often =9, Often =49, Sometimes =20, Rarely =14, do not use = 5)

Researcher has conducted a survey of Faculty member teaching to Post-graduate students i.e., MCA (Management, Science, Commerce), MCM, MBA, M Sc (IT/ Computer), and

other post-graduate courses with different teaching methodology or aids they used during the dissemination or delivery of lectures were asked to rate on a Liker's scale.

For the post-graduate classes faculty member were asked to rate their choices on a 5 point scale for: (5 –Most Often, 4 – Often, 3 –Sometimes, 2 – Rarely, 1 – do not use)

Table 7.2: Knowledge Dissemination Methods of Teaching (Post Graduates)

Ranks	BBCD	FBM	WBM	LN	PP	CS	BCDLN	WMLN	LPLN	CSPN	RMN
5	166	53	93	80	77	70	92	74	77	49	52
4	104	126	176	193	186	174	163	189	168	172	158
3	8	75	12	11	17	32	24	17	33	44	48
2	2	24	4	2	5	9	3	4	5	16	16
1	5	7	0	0	0	0	3	1	2	4	11
	285	285	285	285	285	285	285	285	285	285	285

- **The Black board, Chalk and Duster**

From a group of 285 faculty members, 166 members most often make use of black board , chalk and duster and 104 members often make use of black board, chalk and duster. Faculty members who make use of this as a tool sometimes belong to 8, rarely usage is 2 and who do not use black board chalk and duster was 5.

Researcher observed that Black board, chalk and duster is a regular method of teaching and in some cases College or Institution is providing them.

(Most Often =166, Often =104, Sometimes = 8, Rarely =2, do not use =5)

- **Flip board and Marker**

Faculty members from the group of 285 were asked the usability of Flip board and Marker, 53 members most often and 126 members often make use of this devise. Faculty

members who sometimes use is 75, rarely and who do make use of flip board and marker goes to 24 and 0 respectively.

Researchers have observed that after visiting different colleges that this is not regularly used methods. (Most Often =53, Often =126, Sometimes =75, Rarely =24, do not use =7)

- **White board Marker**

Faculty members were asked for usage of white board and marker, 25 members preferred and 63 members often make use of white board and marker. Only 9 members who make use of white board and market, i.e., 6 and rarely 3 members.

Researcher observed that this is mainly used in laboratory where dust has been protected. This is the second largest devise used by faculties after black board chalk and duster.

(Most Often =93, Often =176, Sometimes = 12 Rarely =4, do not use =0)

- **Lecture notes**

Faculty members make used to lecture notes as supplementary to Black / White board chalk / marker. In this category, 80 members most often and 193 members often provides notes and hardly 11 members sometimes and 1 in both rarely and zero member who do not use respectively.

Researcher observed lecture notes as an addition to the black board and white board this could be a supplementary.

(Most Often =80, Often =193, Sometimes =11, Rarely =1, do not use =0)

- **Presentation (slides) Projector**

Faculty members make used to lecture notes as Presentation (slide) Projector, 77 members most often and 186 members often provides notes and hardly 17 members sometimes and 5 in both rarely and zero member who do not use respectively.

Researcher observed that this is the most useful method after the Black / White board marker, when the syllabus needs to be covered in less time and when the diagrams are more and cryptic in nature. This method makes use of presentation tools of PowerPoint for effective presentation. (Most Often =77, Often =186, Sometimes =17, Rarely =5, do not use =0)

- **Case Study**

Faculty members were asked to rate case study as tool, 70 members most often and 174 members often make use of this tool. 32 members sometime makes used of case study, 9 members rarely and 0 members who do not use this devise or tool.

Research observed that case study is a tool which can be given to participants to know to what extend they have understood the concept and to express their views on the subject.

(Most Often =70, Often =174, Sometimes =32, Rarely =9, do not use =0)

- **Black board Chalk and Duster plus Lecture notes**

Faculty members from the group of 285 were asked the usability of Black board, Chalk and Duster plus Lecture notes, 92 members most often and 163 members use this tool often. Faculty member who sometimes make use of goes this to 24, 3 members rarely makes use of this tool and 3 members do not make use of this tools.

Researcher observed that Black board, Chalk and Duster plus Lecture notes are preliminarily used as a tool supplement to each other. After explaining the concept to students, faculty members use this tool help each other.

(Most Often =92, Often =163, Sometimes =24, Rarely =3, do not use =3)

- **White Board Marker plus Lecture notes**

Faculty members from the group of 285 were asked the usability of White board and Marker plus Lecture notes, 74 members most often and 189 members use this tool often. Faculty members who sometimes make use this of go to 17, 4 member rarely make use this tool.

Researcher observed that White board and Marker plus Lecture notes are preliminarily used as a tool supplement to each other. After explaining the concept to students, faculty members use this tool to help each other. Most Often =74, Often =189, Sometimes =17, Rarely =4, do not use =0)

- **Presentation (Slide) Projector plus Lecture Notes**

Faculty members from the group of 285 were asked the usability of Presentation (slides) Projector plus Lecture notes, 77 members most often and 168 members often use this tool often. Faculty member who sometimes make use of this goes to 33, 5 members rarely make use of this tool and 2 members who do make use of this tool.

Researcher observed that Presentation (slides) Projector plus Lecture notes are preliminarily used as a tool supplement to each other. After explaining the concept to students, faculty member use this tool help each other

(Most Often =77, Often =168, Sometimes =33, Rarely =5, do not use = 2)

- **Case Study plus Printed notes**

Faculty members from the group of 285 were asked the usability of Case Study with printed notes, 49 members most often and 172 members use this tool often. Faculty member who sometimes make use of goes to 44, 16 members rarely make use of this tool and 4 members who do make use of this tool.

Researchers observed that this tool is useful when the subject itself is conceptual and requires deep understanding. This tool is useful when case study is given and after some time solution for the same is given after discussion in the class.

(Most Often =49, Often = 172, Sometimes =44, Rarely =16, do not use =4)

- **Readymade notes**

Faculty members from the group of 285 were asked the usability of readymade notes, 52 members most often and 158 members use this tool often. Faculty member who sometimes make use of go to 48, 16 members rarely make use of this tool and 11 members who do make use of this tool.

Researcher observed that for post-graduate students is expected to visit library and refer different books and thereby study the curriculum. That is why, among all the above mentioned this tool/ method is not so popular. (Most Often =52, Often =158, Sometimes =48, Rarely =16, do not use =11)

- **Computer Based Training (CBT) CD Tutor**

From the group of 285 faculty members were asked the usability of CBT CD Tutor, 42 members most often and 150 members often use this tool often. Faculty member who sometimes make use of go to 74, 13 members rarely make use of this tool and 6 members who do make use of this tool.

Researcher observed that this is not so popular tool, as it is done with less interaction between Faculty member and students. For distance learning courses, CBT CD Tutor is mostly used. The students are undergoing course where faculty members are not available to the students. Academics do not prefer such type of method. (Most Often =42, Often =150, Sometimes = 74, Rarely =13, do not use =6)

- **Web Based Training (WBT) Internet based**

Faculty members from the group of 285 were asked the usability of Web Based Training, 38 members most often and 141 members use this tool often. Faculty member who sometimes make use of goes to 92, 10 members rarely make use of this tool and 4 members who do not make use of this tool.

Researcher observed that one of the challenges by the faculty member is internet. They need to share the machines even for browsing their mails. It is observed that some of them aren't of this method. In this method, interaction with faculty is there but is quite famous for cloud based training or interactive chats which requires huge amount of investments.

(Most Often =38, Often =141, Sometimes = 92, Rarely =10, do not use =4)

- **Learning Management System (LMS) CD based**

Faculty members from the group of 285 were asked the usability of LMS based method, 31 members most often and 143 members often use this tool. Faculty member who sometimes make use of this go to 94, 12 members rarely make use of this tool and 5 members who do make use this tool.

Researcher observed that few faculty members were not aware of this tool. Some faculty member knew that this is LMS CD tutor, and not so popular in the faculty community. This mode of training is available in Distance Learning Mode. Since University of Pune do not permit distance education this method is void.

(Most Often =31, Often =143, Sometimes = 94, Rarely =12, do not use =5)

- **Video Conferencing**

Faculty members from the group of 285 were asked about the usability of Video Conference method, 27 members most often and 120 members use this tool often. Faculty member who sometimes make use of this go to 112, 18 members rarely make use of this tool and 8 members who do not make use of this tool.

Researcher observed that this method is not at all effective. To address it to the masses this method is used. There are certain challenges as to setting up of infrastructure and organizing and recording, restoring it when required and repetitively using it.

(Most Often =27, Often =120, Sometimes =112, Rarely =18, do not use =8)

- **Wi-Fi based learning**

Faculty members from the group of 285 were asked about the usability of Wi-Fi based learning method, 28 members most often and 104 members use this tool often. Faculty member who sometimes make use of this method go to 126, 19 members rarely make use of this tool and 8 members who do not make use of this tool.

Researcher observed that though this is method which is not that popular but appreciated by faculty members (i.e. techy). The cost of setting such an environment will take some time.

(Most Often =28, Often = 104, Sometimes =126, Rarely =19, do not use =8)

- **Pedagogical (which may include Interactive, Audio, Video, CD based)**

Faculty members from the group of 285 were asked about the usability of Pedagogical method, 25 members most often and 97 members often use this tool often. Faculty member who sometimes make use of this tool go to 135, 23 members rarely make use of this tool and 5 members who do not make used this tool.

Researcher observed that this method is gaining popularity as students appreciate learning with audio, video and interactive learning. It is in the initial stage that is why it not so famous. Faculty members need to make use of this to bring clarity in curriculum.

(Most Often =25, Often =97, Sometimes =135, Rarely = 23, do not use =5)

- **Tablet PC (Learn Pad)**

Faculty members from the group of 285 were asked about the usability of Tablet PC method, 26 members most often and 93 members often use this tool. Faculty member who sometimes make use of goes to 133, 27 members rarely make use of this tool and 6 members who do not make use of this tool.

Researcher observed that this tool is famous for online learning, when the group is small and laptop facility is provided then PC Tablet mode is effective. To some extent, this tool is not appreciated by students. The biggest challenge is maintainability.

(Most Often =26, Often = 93, Sometimes =133, Rarely =27, do not use =6)

- **e-learning (referring Web Site)**

Faculty members from the group of 285 were asked about the usability of e-learning method, 47 members most often and 138 members often use this tool. Faculty members who sometimes make use of this tool go to 87, 12 members rarely make use of this tool and 1 member who doesn't do make use of this tool.

Researcher observed that e-learning method is gaining popularity, even faculty member appreciate such kind of training, for both regular and distant learning. University of Pune never conducts distance learning mode, but other Universities do conduct such training.

(Most Often =47, Often =138, Sometimes =87, Rarely =12, do not use =1)

- **Audio-Video based teaching**

Faculty members from the group of 285 were asked about the usability of Audio-Video based teaching method, 33 members most often and 174 members often use this tool. Faculty members who sometimes make use of this go to 69, 6 members rarely make use of this tool and 2 members who don't make use of this tool.

Researcher observed that audio-video based learning will be appreciated by faculty members. (Most Often = 33, Often =174, Sometimes =69, Rarely =6, do not use =2)

- **Project based learning**

Faculty members from the group of 285 were asked the usability of Project based learning method, 60 members most often and 165 members use this tool often. Faculty members who sometimes make use of this go to 48, 5 members rarely make use of this tool and 1 member who doesn't make use of this tool.

Researcher observed that project based learning or on the job learning, is much appreciated when students gain some expertise. Faculty member likes this method of teaching, as they learn and present it before the board and answer the questions posed by faculty members. (Most Often =66, Often =165, Sometimes = 48, Rarely =5, do not use =1)

- **Question Paper Solving plus Case Study**

Faculty members from the group of 285 were asked about the usability of Question Paper solving and case study method, 56 members most often and 164 members often use this tool often. Faculty member who sometimes make use of this tool goes to 56, and 9 members rarely make use of this tool.

Researcher observed that this method is very common among faculty members, as this gives confidence in students mind to solve any question paper and case study.

(Most Often =56, Often =164, Sometimes =56, Rarely =9, do not use =0)

- **Role play and mock training (Games)**

Faculty members from the group of 285 were asked the usability of role play and mock training method, 31 members most often and 150 members use this tool often. Faculty member who sometimes make use of goes to 69, 33 members rarely make use of this tool and 2 members who do make used this tool.

Researcher observed that this is the oldest and most popular method of teaching.

(Most Often =31, Often = 150, Sometimes = 69, Rarely =33, do not use =2)

- **Showing Charts**

Faculty members from the group of 285 were asked the usability of showing charts during training method, 26 members most often and 105 members use this tool often. Faculty member who sometimes make use of goes to 76, 69 members rarely make use of this tool and 9 members who do make used this tool.

Researcher observed that this is the oldest and most popular method of teaching.

(Most Often =26, Often =105, Sometimes = 76, Rarely = 69, do not use =9)

- **Study tour and Industrial Visit**

Faculty members from the group of 285 were asked the usability of Study tour and Industrial Visit method, 38 members most often and 109 members use this tool often. Faculty member who sometimes make use of goes to 68, 65 members rarely make use of this tool and 5 members who do make used this tool.

Researcher observed that this is the oldest and most popular method of teaching.

(Most Often =38, Often =109, Sometimes =68, Rarely = 65, do not use = 5)

- **Kinesthetic**

Faculty members from the group of 285 were asked about the usability of Kinesthetic training method, 47 members most often and 134 members use this tool often. Faculty member who sometimes make use of this go to 58, 45 members rarely make use of this tool and one member who does not make use of this tool.

Researcher observed that this is the oldest and most popular method of teaching.

(Most Often =47, Often =134, Sometimes =58, Rarely =45, do not use =1)

- **Learning based on hands-on work and engaging in activities**

Faculty members from the group of 285 were asked about the usability of Learning based on hands-on work and engaging in activities method, 72 members most often and 154 members often use this tool. Faculty member who sometimes make use of this go to 44, 13 members rarely make use of this tool and 2 members who do not make use of this tool.

Researcher observed that this is the oldest and most popular method of teaching.

(Most Often =72, Often =154, Sometimes =44, Rarely =13, do not use =2)

- **Collaboration allows students to actively participate in the learning process**

Faculty members from the group of 285 were asked about about the usability of Collaboration which allows students to actively participate in the learning process method, 84 members most often and 158 members often use this tool often. Faculty member who sometimes make use of this go to 34, 3 members rarely make use of this tool and one members who do make used this tool.

Researcher observed that this is the oldest and most popular method of teaching.

(Most Often = 84, Often =156, Sometimes =34, Rarely =3 , do not use = 1)

- **Experiential learning (the process of making meaning from direct experience)**

Faculty members from the group of 285 were asked about the usability of experiential learning method, 84 members most often and 163 members often use this tool. Faculty member who sometimes make use of this go to 34, 3 members rarely make use of this tool and 1 members doesn't make use of this tool.

Researcher observed that this is the oldest and most popular method of teaching. Learn from the mistake, never commit the same in future.

(Most Often =84, Often =163, Sometimes =34, Rarely =3, do not use =1)

- **Forming a Students group and circulating notes for groups**

Faculty members from the group of 285 were asked the usability of forming a Students group and circulating notes for groups method, 97 members most often and 141 members often use this tool. Faculty members who sometimes make use this of this go to 36, 11 members rarely make use of this tool.

Researcher observed that this is the oldest and most popular method of teaching.

(Most Often =97, Often =141, Sometimes =36, Rarely = 11, do not use = 0)

- **Maps, transparencies (OHP), globes, Flash Cards, Models.**

Faculty members from the group of 285 were asked about the usability of Maps, transparencies (OHP), globes, Flash Cards, Models training method, 76 members most often and 84 members often use this tool. Faculty member who sometimes make use of this go to 46, 69 members rarely make use of this tool and 10 members who do not make use this tool.

Researcher observed that this is the oldest and most popular method of teaching. With LCD projector use of OHP, globes, flash cards are becoming obsolete.

(Most Often =76, Often = 84, Sometimes =46, Rarely =69, do not use =10)

7.2.4. Knowledge Storing

Different methods used by the faculty members to remember during the class are:

1. Noting down the important points on the some corner of blackboard
2. Slide presentation
3. Lecture plan
4. Referring help level
5. Scribble points on piece of paper use them in class.

The ranks table to show that the most preferred knowledge storage technique is slide presentation (mean rank = 3.48), the second most preferred technique is lecture plan (mean rank = 3.41), followed by referring help level (mean rank = 3.28), scribble down points on piece of paper and use them in class (mean rank = 3.04), and noting important points for discussion on the board (Mean = 3.39).

Researcher comes to the conclusion that Knowledge storage techniques used by the faculty members to remember in the order of preference the points are slide presentation, lecture plan, referring help level, scribble down points on piece of paper and use them in class and noting important points for discussion on the board. Faculty member while making the presentation first prepares two slides, one for topic and other for objectives of the study and talks about entire flow of class. Second, preference of the faculty member is going as per lecture plan.

Table 7.3: Knowledge Dissemination Methods of Teaching (Digital -Post Graduates)

Ranks	CBT	WBT	LMS	VC	WIFI	PG	TPC	EL
5	42	38	31	27	28	25	26	47
4	150	141	143	120	104	97	93	138
3	74	92	94	112	126	135	133	87
2	13	10	12	18	19	23	27	12
1	6	4	5	8	8	5	6	1
	285	285	285	285	285	285	285	285

Table 7.4: Knowledge Dissemination Methods of Teaching (Other -Post Graduates)

Ranks	AVI	PBT	QPS	RPMT	CHT	ST	Kinesics	C	EL	GRP	OTH
5	33	66	56	31	26	38	47	72	84	97	76
4	174	165	164	150	105	109	134	154	163	141	84
3	69	48	56	69	76	68	58	44	34	36	46
2	6	5	9	33	69	65	45	13	3	11	69
1	1	1	0	2	9	5	1	2	1	0	10
	285	285	285	285	285	285	285	285	285	285	285

7.2.5. Feedback Mechanism Adopted by the Management Institutes / Colleges

To analyze the feedback mechanism adopted by the management institutes in upgrading the knowledge of IT Faculty on regular basis.

Table 7.5: Feedback Mechanism

	Strongly- Agree	Agree	Neutral	Disagree	Strongly disagree
QIP, FDP, SUP	146	144	7	3	1
By Attending QIP, FDP, SUP	161	134	4	1	1
By Attending Conferences, Seminars	98	173	13	9	2
Digital Learning tools (CBT. WBT)	103	173	13	10	2

It is noticed that in Quality Improvement Programme (QIP), Faculty Development Programme (FDP) and Skill Upgradation Programme (SUP) among which the 146 members (48.50%) strongly feel that the feedback mechanism helps them to improve, 144 members (47.84%) thinks that they agree to the concept that feedback mechanism helps to improve, 7 members (2.32%) did not comment, 3 members (0.99%) Disagree and one member (0.33%) strongly disagreed the feedback mechanism.

Researcher feels that feedback helps to find out the way to improve quality education. More and more Quality Improvement Programme (QIP), Faculty Development Programme (FDP) and Skill Upgradation Programme (SUP) are being conducted, so that it becomes easy for faculty members to participate. Most of the colleges and institutes has started with prior approval by taking the sponsorship from University of Pune.

Researcher feels that FDP, QIP and SUP require participation from the faculty members. It is their urge and willingness to get knowledge about the subject. University of Pune shall make it compulsory that Faculty member must undergo at least 2-3 programmes of FDP, QIP and SUP in an academic year. Faculty member requires sponsorship from the

Colleges or Institutes, in the questionnaire 137 members strongly agree (53.48%), 134 members (44.51%) agree to the concept, 4 members (1.31%) did not comment, one member (0.33) disagrees and another member (0.33) strongly disagrees to the concept.

Researcher strongly feels that Colleges and Institutes should allow Faculty member by keeping the work aside and motivate the faculty member and organize for sponsorship FDP, QIP and SUP.

Faculty members need to be focused towards the knowledge gaining and different ways of knowledge gaining. The Colleges and Institutes motivate faculty members to participate in Seminars and Conferences by sponsoring the amount and time.

Feedback is taken from the Faculty member, in the questionnaire, to improve IT faculties to upgrade their skills, 98 members (32.55%) strongly agree to the concept, 173 members (52.47%) do agree, 13 members (4.31%) do not comment, 9 members (2.99%) disagree and 2 members (0.66%) strongly disagree.

Researcher strongly feels that the Colleges and Institutes motivate faculty members to participate in Seminars and Conferences by sponsoring the amount and time

Feedback mechanism helps to improve through Digital Learning tools like CBT, WBT. The colleges and Institute must support the environment where in faculty members get the benefit by using CBT, WBT. Since University of Pune is not supporting digital media, it is up to the Colleges and Institutes work on this. Faculty member were asked for the digital media, 103 members (34.21%) strongly agree, 173 members (57.47%) agree, 10 members (3.32%) disagree and 2 members (0.66%) strongly disagree.

Researchers strongly feels that Faculty member should make use of digital learning tools like CBT, WBT, and some Colleges and Institutes has already started distributions of CBT for courses.

7.2.6. Maintaining and Upgrading the Knowledge

To understand feedback mechanism adopted by the management institutes/college in maintaining and upgrading the knowledge of IT faculty members on regular basis.

Table 7.6: Adoption of Feedback Mechanism

	Library books availability	Internet connection	Sponsorship for Conference, Seminars	Sponsorship for QIP,FDP,MDP	Availability of Media in Class
ALWAYS	175	132	113	99	115
SOMETIMES	108	136	140	145	117
NEVER	18	33	48	57	69
	301	301	301	301	301

It is expected that since the Institute/College authorities do face certain challenges faced by faculty members.

- **Library Books:** From a total 301 faculty members, 175 members always faced this problem by not getting the books in time, 108 members sometimes faced this challenge and they need to look out for some alternated source and 18 members never face this challenges.

Researcher recommend that few books need to be used only for reference purpose and a separate section need to made available for the teachers teaching the same subjects. Further, it is suggested that recommendation of books need to be made and arrangements to be made at least per month. Borrowing books from other institutes library, motivating students to donate unused

books, photocopying out-of-print books etc. Researcher also recommends a strong digital library, wherein members can avail the books.

- **Internet Connection:** From a total 301 faculty members, 131 members do feel that internet connection is required always or they do not get the facility of internet, 134 members think that they sometimes get internet connection and 33 members never face the challenge of Internet connection.

Researcher suggests that as AICTE Mandatory disclosure it is compulsory to have internet facility or web development for which it is necessary to have internet line connection. If the same thing is extended to Faculty members (with Firewall protection), this issue will be resolved.

- **Sponsorship for QIP/ FDP/ MDP:** From a total 301 faculty members, 112 members do face this challenges always, 139 members sometimes feel the necessity of sponsoring for Quality Improvement Programme (QIP), Faculty Development Programme (FDP), Management Development (MDP), and 47 members never face this challenge. Researcher suggests that the top management people are intelligent enough to decide whom to sponsor or not. Moreover, it is suggested that faculty members need to mention that they would like to go for QIP, FDP and MDP. For sponsorship of research paper, it is their interest and faculty member need to organize the time table.

- **Availability of media in the class:** From a total 301 faculty members, 98 members do feel that they always face this challenge, 143 members sometimes face this challenge and 57 members never face this problem. Research suggests that in every class room and seminars arrangements need to be made so that transportation of equipment's needs to be

minimized. The challenge is faced by faculty members because of seminars/ guest lectures the shifting of equipments is done.

7.2.7. Acquiring Modern Information Technology

To analyze problems experienced by the IT Faculty members in acquiring modern information technology

Researcher realized that the modern techniques need to be adopted, in the questionnaire for post-graduate courses, questions were posed to rank the methods. Total 285 members are teaching to post-graduate courses and the data collected is applied to only post-graduate courses.

Table 7.7: IT Faculty member’s adoption of modern methods.

	CBT CD Tutor	WBT Internet Based	LMS CD Based	Video Conferencing	Wi-Fi Based Learning	Pedagogical Learning	Tablet PC	e-learning	Audio-Video based learning
5	42	38	31	27	28	25	26	47	33
4	150	141	143	120	104	97	93	138	174
3	76	93	94	113	127	136	134	88	70
2	13	10	13	18	19	23	27	12	6
1	4	3	4	7	6	4	5	1	2

CBT CD Tutor:

From the total of 285, 42 (14.74%) faculty members most often make use of CBT CD Tutors, 150 (52.63%) faculty member come under usage of often, 76 (25.96%) members do not comment, 13 (4.56%) members make rare uses and 4 (2.11%) members do not use Computer Based Training.

Researcher recommends that 52.63% often make use of the CBT CD Tutor.

WBT Internet Based:

From the total of 285 faculty member, 38 (13.33%) members most often make use of Web Based Tutors, 141 (49.47%) members often uses, 93 (32.28%) members do not commented, 10 (3.51%) members make rarely uses and 3 (1.40%) members did not use Web Based Tutors (WBT).

Researcher recommends that 49.47% often make use of the WBT Internet based.

LMS CD Based:

From the total of 285 faculty member, 31 (10.88%) members most often make use of Learning Management System, 143 (50.18%) members often uses, 94 (32.98%) members do not commented, 13 (4.21%) members make rarely uses and 4 (1.75%) members do not use Learning Management System.

Researcher recommends that 50.18% often make use of the LMS CD.

Video Conferencing:

From the total of 285 faculty member, 27 (9.47%) members most often make use of Video Conferencing , 120 (42.11%) members make often uses, 113 (39.30%) members didn't comment, 18(6.32%) members make rarely uses and 7 (2.81%) members do not use Video conferencing.

Researcher thinks that Video Conferencing is yet to get popularity as far as dissemination method.

Wi-Fi Based Learning:

From the total of 285 faculty member, 28 (9.82%) members most often make use of Wi-Fi Based Learning , 104 (36.49%) members often uses, 127 (44.21%) members do not commented, 19 (6.67%) members make rarely uses and 6 (2.81%) members do not use Wi-Fi based learning.

Researcher recommends more and more Wi-Fi based learning campuses need to be established.

Pedagogical Learning:

From the total of 285 faculty member, 25 (8.77%) members most often make use of Pedagogical Learning , 97 (34.04%) members often uses, 136 (47.37%) members do not commented, 23 (8.07%) members make rarely uses and 4 (1.75%) members do not use Pedagogical learning.

Researchers recommend more and more Pedagogical learning methods shall be applied to teaching.

Tablet PC:

From the total of 285 faculty member, 26 (9.12%) members most often make use of Tablet PC based Learning , 93 (32.63%) members often uses, 134 (46.67%) members do not commented, 27 (9.47%) members make rarely uses and 5 (2.11%) members do not use Tablet PC based learning.

Researchers feel that this media is yet to get popularity, as this mode is expensive. With lowering of prices of Tablet, this method is used as a tool for presentation and project presentation.

E-Learning:

From the total of 285 faculty member, 47 (16.49%) members most often make use of e-Learning, 138 (48.42%) members often make uses, 88(30.53%) members did not comment, 12 (4.21%) members make rarely uses and one member do not use e- learning(0.35%).

Researcher feels that e-learning is not popular among the faculty members.

Audio-Video Based learning:

From the total of 285 faculty member, 47 (16.49%) members most often make use of Audio-Video based learning , 174(61.05%) members often make uses, 70 (24.56%) members did not comment, 6 (2.11%) members make rarely uses and 2 (0.70%) members do not use Audio-Video based learning.

Researcher recommends Audio-Video Based learning as it takes care of visual-sound learning and faculty member appreciates.

7.2.8. Digital Learning Methods

To understand the popularity of the digital learning methods of teaching with traditional one for the IT Faculty members.

Table 7.8: Methodology

Faculty Member adoption of Teaching Methods	Method
Cognitive Teaching	280
Digital Learning	12
Cognitive / Digital	9

From a group of 301 faculty members, Cognitive teaching methods used were 280 (93%), Digital learning methods are 12 (4%) and both (Cognitive / Digital) were 9 (3%).

Researcher observes that Cognitive teaching methods is common and among faculty members 93%, digital learning methods to not popular (4%) and among faculty member to who uses both is 3%.

To study, overall, expected that the finding of the study will eminent due to IT institutes and over stakeholders to upgrade in learning emerging strategies of knowledge during various programs like Quality Improvement Programme (QIP), Faculty Development Programme (FDP), Skill Development Projects, Refreshers Course/Workshop etc. in Information Technology in the bidding the faculty for excellent in high IT education. The researcher has observed that Digital Learning methods help the IT Faculty members to significantly update their knowledge.

In this chapter researcher focuses on the finding and observation from a survey conducted by the researcher. The next chapter gives the concluding remark by the researcher that is carried out in the research study.

CHAPTER 8

CONCLUSIONS

8.1. Chapter Brief

In the earlier chapter, researcher had identified some facts. On asking different methods or pedagogy, researcher had some observations. This is the overall summary of the researcher's theses. The educational institutes always help to improve the knowledge of a faculty member. The methods adopted by the faculty members can be very more effective in collecting, disseminating and sharing knowledge. The process of knowledge transmission helps to improve students' knowledge and ensures 360% good feedback.

Knowledge to a teacher or faculty member is as important as blood in the body of human being. As Knowledge of a faculty member gives rise to better learning environment. In this research a conceptual analysis of developing communities of practices is to ensure effective knowledge transfer by the faculty member to the student.

The process of knowledge development life cycle (KDLC) helps the faculty members in acquiring, capturing, sharing and using acquaintance in the development of faculty members and ultimately their skills with Colleges and Institutions. Information can be shared and is willingly apprehended in documents or in databases even for selection of the subject by the faculty members. It is said that such information helps to know decision the of faculty members of colleges/ institutes and may ultimately lead to wisdom.

One of the most important roles of faculty members is to transfer their knowledge to learners. Thus, faculty member (as senders) attempt to transfer and codify explicit and tacit knowledge to learners (as receivers). This can take place in the learning environment. However,

educators face the difficulty of codifying tacit knowledge into explicit knowledge for learners' retrieval. This facilitates them to acquire the tacit knowledge.

The role of the faculty development programme for the IT subjects is to improve the curriculum (information) quality so that faculty member's learning experiences can be enhanced. It is possible that when the things are purposely right and used properly, they can be used to determine students' requirements. This assigns appropriate quality material for learners to select and achieve the desired learning objectives.

The process of knowledge transmission must address both the creation and transfer of explicit as well as tacit knowledge. Faculty members face the challenge of codifying tacit knowledge.

In e-learning clarifies, learning occurs when beginners go through the sequence of instruction. Learners should be informed about the curriculum, so that they know what is expected from them and will be able to measure. This ensures ongoing development in the faculty member's knowledge. The ability to draw correct conclusions and implications about faculty member teaching IT subjects is rightly related to the actions and methods used during the valuation process; poor methods and tools can lead to defective results and misleading conclusions.

In knowledge dissemination faculty members who teach IT subjects need to confirm that they are teaching to the students. Faculty members need to become effective facilitators of learning. Educational institutions should develop and implement a scientific research agenda to implement changes. This agenda should determine which instructional design practices are required to create quality material in order to optimize students to gain some knowledge.

Quality of learning information that promotes effective outcomes currently are not recognized, generally understood, or agreed upon by producers, consumers and education policy leaders. There is an important gap in the research literature, in that the linkage between information quality and student understanding has only been minimally examined to date. The number of faculty members are presently completed double post graduate, it is rather expected that they should go for doctoral degree programme. To understand different sources of transmitting the knowledge and to understand how effective and efficient these tools are in knowledge.

8.2. THE SOURCES OF KNOWLEDGE ACQUISITION.

Following sources of knowledge acquisition has been given to faculty member:

- Reading text books suggested by University books
- Frequent interaction with the IT Faculty members
- Learned from attending the Seminars and Conferences
- Attending lectures of other faculties on the same subject.
- Discussing with colleagues and / or researchers on the subject helps me to gain the knowledge.
- Reading recognized journals/ periodicals and constant reviewing websites on the subject to get the knowledge.
- Repeated and frequent discussion teaching help to get additional knowledge.
- Reading available software documentation on website
- Attending and participating special lecture to gain knowledge Quality Improvement Program (QIP), Faculty Development Program (FDP), Skill Upgradation program and any other faculties acquire new knowledge

- Change in version facilitates new development by practicing
- Attending Conferences/ Seminars updating
- Writing new articles in Research Journals
- Digital learning tools like CBT, WBT
- By studying further

Researcher recommends that reading books recommended by University of Pune shall be used as a major source for knowledge gaining. Along with this, the frequent interactions with the IT Faculty members help members to gain the knowledge. Researcher recommends that they need to attend the Seminars and Conferences for gaining the knowledge and attend other faculty member's lecture; which people did not attend due to ego hassles'.

Researcher is of the opinion that discussing with colleagues on a particular subject helps the faculty member to gain the knowledge; the discussion needs to be productive. Faculty members need to constantly review the journals / periodical and read/publish articles on the subject; thereby they can express the views and help other members to gain some knowledge. After all, reading and writing always helps faculty members in sharing their knowledge. Researcher feels that there is a need for a strong and frequent interaction on the subject and more precisely, groups for discussion to get additional knowledge. Blogs need to be created and used for knowledge gaining. Researcher recommends that authentically published articles need to be read by the members and also suggests reading software documentation from the source itself which is going to help the authorized sources for knowledge gaining. Researcher recommends that objectives shall be made clear to the member as a major source of knowledge gaining. It is observed that during last minutes adjustment is not going to help. Asking the same faculty members to participate in QIP, FDP and skill development program is not going to help; rather it

demotivates other faculty members. As practice makes man perfect, researcher recommends faculty members to try and use their knowledge and explore it. At the same time, Institutes, Colleges and Universities upgrade the curriculum available and also provide latest version.

Researcher strongly feels that since the colleges never give sponsorship to faculty members, either faculty members need to give sponsorship or reduce the fees for participation. These can be used as assets of the College or Institute.

Researcher is of the opinion that most of Institutes or Colleges did not support digital learning tools such as CBT or Web Based Tools. Researcher further recommends that making use of digital library (fully operational) is going to help faculty members to gain some knowledge. University needs to take further steps in sharing the knowledge by providing membership to colleges and use digital library. Researcher further recommends that faculty member always learns new thing and Institutes or Colleges need to recommend complete disbursement of fees.

The complete sponsorship or disbursement of fees, need to help both Faculty member and Institution or college to look into this as a major source for knowledge gaining. The challenge of getting the students can be resolved to some extent.

Researcher has identified few of the Knowledge Acquisition methods. Further research in this area may come with different methods and vary according to the circumstances and scenario depending upon the consequences.

8.3. THE KNOWLEDGE CREATION, DEVELOPMENT AND UTILIZATION.

Since IT Faculty members work for two categories i.e., Graduate and Post-Graduate, questions have been posed. For graduate courses like BCA, B.Sc. (IT/Computer), BBA, B.Com, B Sc., Faculty members will be asked the tools and method they use to deliver the class like:

- Black board, Chalk and Duster
- Flip board and Marker
- White board and Marker
- Lecture notes
- Presentation (slides) Projector
- Case Study
- Black board, Chalk and Duster plus Lecture notes
- White board and Marker plus Lecture notes
- Presentation (slides) Projector plus Lecture notes
- Printed notes
- Readymade notes
- Chart based tools

Researcher recommended that Black board, chalk and duster is a regular method of teaching and in some cases College or Institution is providing them other means so they hardly depend on black board, chalk and duster. Researcher after visiting different colleges has observed that Flip board and Marker are not regularly used methods.

Researcher recommended that White board and Marker are mainly used in laboratory where dust has been protected. This is the second largest method used by faculties after black board chalk and duster. Researcher recommends lecture notes could be supplementary addition

to the black board and white board. Researcher recommends that when the diagrammatic things are to be explained or large amount of syllabus is to be completed in an hour, presentation tools are preferred. Researcher recommended that case study is a tool which can be given to participants to know till what extent they have understood the concept and express their views on the subject.

Researcher recommends that Black board, Chalk & Duster or White board & Marker plus Lecture notes are primarily used as tools supplement to each other. After explaining the concept to students, faculty members use this tool to help each other.

To make the lecture effective, Researcher recommends that projecting presentation (slides) plus Lecture notes are mainly used as tools supplement to each other. Researcher understands that Printed notes as a tool, does vary according to the subject under consideration. Printed notes depend on the faculty who promotes his/her ideas to the student. These books being recommended books must be available in Colleges and Institutions. If the faculty is suggesting to purchase books from the market students shall follow his/ her instruction. Students feel that if all notes are available in one book, they prefer the same.

During the examination time, students purchase the notes. Researcher feels that how fast one will get notes depends on the availability of notes from the market. Researcher understands that chart based teaching is accepted but, for large group it does not serve the purpose of small group, so this tool is very rarely used by the faculty members.

Researcher has conducted a survey of Faculty members teaching to Post-graduate students i.e., MCA (Management, Science, Commerce), MCM, MBA, M.Sc. (IT/ Computer), and other post-graduate courses with different teaching methodology or aids that were used by them during the dissemination or delivery of lectures were asked to rate on a Likert's scale.

The tools and the methods were:

- The Black board, Chalk and Duster
- Flip board and Marker
- White board Marker
- Lecture notes
- Presentation (slides) Projector
- Case Study
- Black board Chalk and Duster plus Lecture notes
- White Board Marker plus Lecture notes
- Presentation (Slide) Projector plus Lecture Notes
- Case Study plus Printed notes
- Readymade notes
- Computer Based Training (CBT) CD Tutor
- Web Based Training (WBT) Internet based
- Learning Management System (LMS) CD based
- Video Conferencing
- Wi-Fi based learning
- Pedagogical (which may include Interactive, Audio, Video, CD based)
- Tablet PC (Learn Pad)
- E-learning (referring Web Site)
- Audio-Video based teaching
- Project based learning
- Question Paper Solving plus Case Study

- Role play and mock training (Games)
- Showing Charts
- Study tour and Industrial Visit
- Kinesthetic
- Learning based on hands-on work and engaging in activities
- Collaboration allows students to actively participate in the learning process
- Experiential learning (the process of making meaning from direct experience)

Researcher recommends that Black board, chalk and duster is a regular method of teaching and in some cases College or Institution provides them. Researcher understands that it is used in laboratory where dust has been protected. Researcher has been visiting different colleges and institutions in which Flip board and Marker are not regularly been used as a teaching method. Lecture notes are used in addition to the chalk and white board marker. This could be a supplementary which is being used to stress the concept which students have learned. Presentation (slides) Projector is the most useful method and researcher recommends that after the Chalk / White board marker, when the syllabus needs to be covered in less time and when the diagrams are more and more cryptic in nature, this method makes use of presentation tools of PowerPoint to show diagrams and key points for effective presentation.

Case study is a tool which can be given to participants to know to what extent they have understood the concept and express their views on the subject. Researcher recommends case study as a method of training or teaching.

Researcher recommends that the traditional teaching methods like Black board, Chalk and Duster plus Lecture notes are preliminarily used as a tool supplement to each other. After explaining the concept to students, faculty members use this tool to help each other.

White board and Marker plus Lecture notes are preliminarily used as a tool supplement to each other. Either students learn from Black board, Chalk and Duster or make use of White board and Marker plus Lecture notes. Presentation (slides) Projector plus Lecture notes are preliminarily used as tools supplement to each other. After explaining the concept to the students, faculty members use this tool to help each other. Case Study with printed notes is given when the subject itself is conceptual and requires deep understanding. When a case study is given, after the discussion for some time in the class, solution for the same is given.

Researcher observed that for post-graduate students it is expected to visit library and refer different books and thereby study the curriculum. Readymade notes for faculty members are not so popular and have never been used as a tool/ method. To cultivate the habit among students to visit library and refer different books, faculty member dislikes this tool or method.

After traditional learning tools and methods, faculty members may use some innovative tools and methods for delivering lectures. Such tools are CBT Tutor, Web Based Training, LMS, Video Conference, Wi-Fi based, Pedagogical method, Tablet PC, e-learning, and Audio-Video which are gaining popularity. Even faculty members appreciate such kind of training for both regular and distant learning. University of Pune never conducts distance learning mode, but other Universities do conduct such training. Researchers recommend University of Pune to organize and promote above mentioned innovative tools. In some colleges or institutions, faculty member is using such tools, but like online examination, if such tools are promoted by University of Pune, faculty member starts making use of digital learning tools and some innovative ideas may come up.

Researchers understand that use of CBT as a tool or method is not so popular tool, as it is done with less interaction between Faculty member and students. For distance learning

courses, CBT Tutor is mostly used. The students are undergoing course where faculty members are not available to the students. Academics do not prefer such type of method.

One of the challenges faced by the faculty members is internet availability. They need to share the machines even for browsing their mails. It is observed that some of them are not aware of this method. In WBT method, interaction with faculty is there but it is quite famous for cloud based training or interactive chats which requires huge amount of investments. Researcher recommends to the Colleges and Institutions to avail WBT as a tool or method and request the University of Pune to release funds for the same. Initially, when colleges are having multi-disciplinary branches, they can begin with at least of one environment or lab where WBT facility works.

Researcher understands that few faculty members were not aware of LMS tool. Some faculty members thought that this is LMS CD tutor, and not so popular in the faculty community. This mode of training is available in Distance Learning Mode. Since University of Pune does not permit distance education this method is void.

To address it to the masses, video conferencing method is used. There are certain challenges as to setting up of infrastructure and organizing and recording, restoring it when required and repetitively using it. Wi-Fi based method is another method which is not that popular but is appreciated by faculty members (i.e. techy). The cost of setting such an environment will take some time.

Pedagogical method is gaining popularity as students appreciate learning with audio, video and interactive learning. It is in the initial stage that is why it is not so famous. Faculty members need to make use of this to bring clarity in curriculum.

Tablet PC method or tool is famous for online learning, when the group is small and laptop facility is provided then PC Tablet mode is effective. To some extent, this tool is not appreciated by students, the biggest challenge is maintainability.

E-learning method is gaining popularity; even faculty members appreciate such kind of training, for both regular and distant learning. University of Pune never conducts distance learning mode, but other Universities do conduct such training. Learning with the help of Audio-Video based teaching method will be appreciated by faculty members.

The other methods of learning where student also play an important role such as Project based learning method, Question Paper solving, case study method and of role play & mock training method. Faculty members in this kind of method are a mentor and help the students, if they are going wrong. Researcher recommends that project based learning or on the job learning, is much appreciated when students gain some expertise. Faculty members like this method of teaching as they learn and present it before the board and answer the questions posed by faculty members. Question Paper solving, case study method is very common among faculty members as this gives confidence in students' minds to solve any question paper and case study. Question Paper solving and case study method and role play and mock training method are mainly used during the examination time. This is one of the oldest methods where student and faculty members come together and interaction takes place.

Among other methods like Study tour, Industrial Visit method and Kinesthetics, learning is based on hands-on work and engaging in activities method. Collaboration allows students to actively participate in the learning process. Apart from forming a students' group and circulating notes for groups, maps, transparencies (OHP), globes, Flash Cards and Models are some of the traditional methods faculty members make use of.

8.4. The Skills and Motivational Factors in Retaining the Knowledge.

To understand the skills and motivational factors in retaining the knowledge acquired by the IT faculty members, researcher has identified few challenges that every faculty member faces during the working that become the hindrance to the teaching:

- Library Books
- Internet Connection
- Sponsorship for QIP/ FDP/ MDP
- Availability of media in the class

Researcher recommends that few books need to be used only for reference purpose and a separate section is needed to be made available for the teachers teaching the same subjects. Further, it is suggested that recommendation of books and arrangements shall be made every month at the minimum.

Researcher suggests that AICTE Mandatory disclosure is compulsory to have web development for which it is necessary to have internet line connection. If the same thing is extended to Faculty members this issue will be resolved.

Researcher suggests that the top management people are intelligent enough to decide whether to sponsor or not. Moreover, it is suggested that faculty members need to mention that they would like to go for QIP, FDP and MDP. For sponsorship for research paper, it is their interest and faculty members need to organize the time table.

Research suggests that in every class room and discussions arrangements need to be made so that carrying of equipment's need to be minimized. The challenge is faced by faculty members when seminars/ guest lecturers and faculties need to conduct the session without having any device.

8.5. The Feedback Mechanism

To analyze the feedback mechanism adopted by the management institutes in upgrading the knowledge of IT Faculty on regular basis measures to be taken are as follows:

- QIP, FDP, SUP conducting
- By Attending QIP, FDP, SUP
- By Attending Conferences, Seminars
- Digital Learning tools (CBT. WBT)

Observation: It is observed that Quality Improvement Programme (QIP), Faculty Development Programme (FDP) and Skill Upgradation Programme (SUP) most of the 122 (44%) members think and strongly agree that the feedback mechanism helps them to improve, 144 members (52%) agree that feedback mechanism helps to improve, 7 members (3%) did not comment, 3 members (1%) disagreed and one member strongly disagreed that feedback mechanism helps to improve.

Remark: Researcher strongly recommends that feedback mechanism adopted by the colleges and institution helps to improve to know that this is one of the ways to improve. Further, it is suggested to organize more and more FDPs, SUP and QIP programs and allow faculty members to attend such programme by participation.

Observation: Feedback mechanism helps to improve by attending QIP, FDP and Skill Upgradation Programme, 137 members strongly agree (50%), 134 members (48%) agree to the concept, 4 members (2%) did not comment, one member each either did not like or strongly disagrees to the concept.

Researcher recommends that feedback mechanism helps to improve by attending QIP, FDP and Skill Upgradation Programme. University of Pune shall provide a benefit to faculty members who participate in such programmes.

Moreover, University of Pune shall make it compulsory and faculty members need to participate in such programmes. Like any ISO 9000: 2008 organization where they have compulsory training programmes, calendar for which it is prepared, University of Pune needs to decide and prepare calendar and for faculty members make it compulsory to attend.

By attending more and more conferences and Seminars, faculty members need to improve their skill set and feedback helps to improve IT faculties to upgrade their skills. 80 members (29%) strongly agree to the concept, 173 members (62%) do agree, 13 members (5%) do not comment, 9 members (3%) disagree and 2 members (1%) strongly disagree.

Researcher strongly recommends faculty members to attend conferences and seminars which need to be considered by providing full-sponsorship or part-sponsorship, so that faculty members attend and conduct conferences and seminars.

Observation: Feedback mechanism help to improve through Digital Learning tools like CBT and WBT. 79 members (28) strongly agree, 173 members (62%) agree, 10 members (4%) disagree and 2 members (1%) strongly disagree.

Along with the traditional teaching methods, University of Pune promotes Colleges and Institutions for the benefit of CBT, WBT and curriculum development programme. Researcher strongly recommends that faculty members need to be innovative and colleges and institutions taking the advantage of faculty members' skill prepare and help faculty members to develop contents which could also be uploaded on the website. There is an advantage that students and

faculty members understand their skills and try to improve areas where they feel, they are lacking.

Feedback mechanism needs to be considered as feed-forward mechanism, where faculty members will be given a chance to improve by the way of applying their innovative skills. Colleges and Institutions support such faculty members.

8.6. Digital Learning Methods.

To compare between the digital learning methods of teaching with traditional one for the IT Faculty members. Faculty members were asked for the methodology they adopt for teaching to the post-graduate classes:

- Cognitive Teaching
- Digital Learning
- Cognitive / Digital

Observation: From a group of 301 faculty members, cognitive teaching methods used were 280 (93%), Digital learning methods are 12 (4%) and both (Cognitive / Digital) were 9 (3%).

Researcher recommends that Cognitive teaching method is common (93%); digital learning method is not popular (4%) among faculty members and number of faculty members who use both is (3%). University of Pune is supposed to promote digital learning methodology with the help of Faculty members.

Studying and finding will be eminent due to IT institutes over stakeholders to upgrade their knowledge by learning emerging strategies of knowledge during various programs like Quality Improvement Programme (QIP), Faculty Development Programme (FDP), Skill Development Projects, Refreshers Course/Workshop etc.

8.7. Knowledge Process Cycle (KPC)

From the literature review, Knowledge Management life cycle activities identified were: acquire, organize, store, access, share, apply and create. Researcher found out that adaptation of knowledge by different sources of knowledge gaining and the methods that are followed during the training are going to help the faculty members. Sources discussed above are definitely going to help the faculty member in identifying different skills and techniques learned by way of FDP, QIP, MPD, Skill Updating Program, by reading articles, using digital learning programs and learning further in knowledge acquiring.

Adaptation of skills by applying in disseminating or delivering by different methods which is suited to faculty member, cognitive (traditional) or digital learning method, one needs to organize the activities i.e., examples to be taken in the class, notes to be taken etc. is going to help faculty members in delivering the contents effectively.

Faculty members need to carry or store the contents in some form and access them as and when required and use them before, during and after the sessions. In the dissemination, they share the contents with students and colleagues. A Faculty member needs to face the challenges during the delivering unless faculty members test it before the session at least once. In the process of delivering lectures, it is expected that faculty members will get mastery on a particular subject. As a faculty member, while solving the program or calculation, they may develop some new method of solving during student and faculty discussion. This is how the content gets created.

Researcher totally agrees with the concept of Knowledge Process Cycle (KPC).

CHAPTER 9

FINDINGS, SUGGESTIONS AND SCOPE FOR FURTHER RESEARCH

9.1. Findings

Knowledge transmission and knowledge management are the primary themes of this thesis. Faculty members are likely to teach the subjects by providing the examples that suits and necessitates giving away their knowledge as much as possible. Faculty members are expected to transform the knowledge to collect, memorize, disseminate and sharing knowledge by giving away the entire knowledge possessed by them.

This research is aimed at knowledge management practices and examines the impact of knowledge in the development of faculty members. This study has investigated the complete development of faculty members and suggests the area to be improved in the process of knowledge transfer. For effective knowledge management system, faculty member are likely to express creation and transfer of tacit knowledge in the explicit knowledge. Researcher expresses a model of that, converts tacit knowledge to explicit knowledge and vice versa. For this purpose, it is expected that faculty members need to be innovative. Faculty members gain the knowledge by repetitive teaching the same subjects and every time they need to teach the subject using different kind of remedial methods. Methods need to be different and innovative as well as experimenting by using different pedagogy. IT subjects themselves are very challenging. Faculty members shall store their experience with the colleagues regarding the challenge they faced so that the colleagues get an idea by what means they shall overcome such challenge or get an idea from peer member.

Faculty member may take the help of accessing the better quality material from source of knowledge requirements. Most of the faculty member's time is spared for curriculum development such as preparation of Lecture plan, notes preparation etc.

Faculty members are recommended to refer certain books or methods for updating their knowledge. New models of teaching or transferring the knowledge or shortcuts to explore shall definitely help the faculty members to teach IT subjects. The same method could be applied while disseminating it to the class. Role of the faculty members is no more being a faculty, but a facilitator. When faculty members use digital learning methods like CBT, E-Learning, WBT etc., their role is changing. The digital learning tools could be used by faculty members even to upgrade their knowledge. As faculty members start making use of digital learning tools while delivering, its impact on students is much higher, as students can see the real effects.

The evidence of this research is restricted to urban population of Pune and Pimpri-Chinchwad Corporation. It is highly recommended to conduct empirical studies on the effectiveness of knowledge transfer by faculty members teaching different students. Further, researcher gives some suggestions and recommendation in the process of knowledge transmission.

9.2. Suggestions.

The Institutes or Colleges where at least one graduate and post-graduate course is undertaken in the arena of Information Technology [M.C.A. (Management / Science/ Commerce)], M.C.M., M.Sc.[Computers/IT], M.C.S., M.B.A.[Computers/IT/Others], B.C.A and B.Sc. (Computers). The survey conducted by the researcher and responses taken are in all streams like BE, MA, MBA, MBS, MCA, MCM, MCS, ME, MMS, M Phil, MPM, MSc, M.Tech, and Ph.D. Some of the members are double post-graduates, but a faculty member pursuing Ph. D. is very less, more emphasis is given for completing the doctoral degree in the respective field.

The survey has been on the effect of Knowledge Process Cycle stages regarding how they acquire the knowledge, how they store the knowledge, how they disseminate the knowledge and how they upgrade their skills. For Knowledge Acquisition, reading text books followed by Quality Improvement Program (QIP) and Faculty Development Program, reading journals, discussion with colleagues, frequent interaction with IT faculty members and the least preferred ones i.e., attending guest lectures, reading available software documentation and attending special lectures. The most preferred tools by faculties in institutes associated with University of Pune are, reading books suggested by University of Pune, attending Quality Improvement Programme (QIPs) and Faculty Development Programme (FDPs).

For knowledge dissemination survey has been conducted for both faculty members teaching graduates and post-graduate classes. The researcher has identified 12 tools for graduates and 30 tools for post-graduates. This has been asked to rate on Likerts scale.

The most preferred source for knowledge updating is through attending QIPs and FDPs, followed by updating the changes in version facilities, continuing with further studies, using digital learning tools, attending conferences and seminar, and by publishing research papers in peer reviewed journals. The most preferred sources of knowledge updating are attending QIPs, FDPs and conferences & seminars. It is important for faculties to understand that they need to gear up for publications and start contributing to the body of knowledge.

The most preferred knowledge storage technique is slide presentation; the second most preferred technique is lecture plan, followed by referring help level, noting down points on part of paper as well as using them in class and noting important points from note book on the board.

The most preferred knowledge dissemination technique among Faculty members teaching to Graduates are by using Black Board, Chalk & Duster, Lecture notes, White board and marker, Readymade notes and charts.

The most preferred knowledge dissemination technique among Faculty members teaching to Post Graduates are Black Board + Chalk & Duster, Lecture notes, Whiteboard marker + lecture notes, Presentation Projector, Black board, Chalk & duster + Lecture notes, Experiential learning, Presentation Projector + Lecture notes, Case Study, Forming students group, Project based learning, Collaboration of students, Case Study + printed notes, Readymade notes, Question Paper solution, Audio-video based learning, CBT Based learning, Kinesthetic, e-learning, Flip board and marker, Role play & mock training, WBT based learning, LMS based learning, Map, Transparencies Flash cards, Study tour & Industrial visit, Video Conferencing, Wi-Fi based learning, Showing charts, Pedagogical learning and Tablet PC based learning.

Researcher has identified 6 different tools or methods and analyzed that faculty members have been asking for tools or methodology they adapt for updating their skills.

Faculty members were asked for the subjects preferred: Theory, Practical and both (Theory and Practical). Further preference will be given to cognitive or digital learning methods.

Researcher has identified 4 different methods to bridge the gap between student and faculty members. Faculty members were further asked for any challenges they come across and researcher has identified challenges in day-to-day working and has been analyzed. The number of faculty members are presently completed double post graduate. It is expected that they should go for doctoral degree programme. The Faculty member is expected to do research in any of the stream which he/she has selected. One of the challenges faced by Faculty member is that AICTE has stopped giving grants to MCM course. The popularity of MCM course is despondent, the Faculty member of University of

Pune has been asked to complete the MCA course within specific time frame. Some faculty members were needed to look out for some new jobs and some were removed.

9.3. Scope for further Research.

This study is done with respect to the Faculty members teaching in Colleges and Institutions that to with the sample selected by the researcher. Researcher further suggests that a Knowledge Audit is to be conducted as part of the appraisal program by the Colleges and Institutions by appointing some members from both faculty members and human resource department.

Special weightage points are to be given in NAAC Accreditation while giving the Institutional/ College ranking for sustainability in the academic environment. Along with the Financial, Information System Audit and Fire & Safety audit, Knowledge Audit is to be implemented.

9.4. Knowledge Audit.

Every faculty member needs to undergo the process of Knowledge Audit to verify the extent to which knowledge has been gained or updated. Performance and results of the students are some of the indicators of effective transmission of knowledge. Researcher has written an article on Knowledge Audit where he stresses usability of audit from different perspective of faculty members and management stakeholders as presence of audit adds the integrity to the implied assertion by an organization's (College & Institutes) development statement and represents an organization's position and performance of the faculty members of the colleges and institutes or other stakeholders.

The researcher has written an article wherein he mentioned that auditing shall be made rigorously and weightage shall be given to the number of batches conducted, students' feedback and areas of improvements. Many institutes and colleges have recognized this fact and are working towards faculty development. Knowledge audit is a means through which faculty members can be referred to as strength of an institute or college as Intellectual Capital.

Researcher expresses his deep concern for faculty members by showing the significance of viewing a faculty member with the perspective of an advisor, mentor or facilitator rather than considering him/her as an employee. Loyalty of faculty members rises if their opinions are considered. In Researcher's view, there shall be some credit point if a faculty member attends FDP, Conferences and Seminars and produces good articles at the International and National conferences. An Institute/ college shall promote such conferences' fees and faculty's refund amount.

Moreover, 'The Best Performer' award shall be given to the respective faculty member. Giving such awards provides encouragement and faculty members may produce more and more papers. Faculty members who have completed their Ph.D. and SET/NET Exam shall be recognized and rewarded with rise in pay structure.

Institutes and Colleges may come up by publishing their own magazines with ISSN number or ISBN number with some Impact factor. Some have their own magazines or publishing houses in addition to their International or National papers and Journals.

9.4.1. Benefits of Knowledge Audit.

Knowledge audit benefits the faculty member in the following manner:

1. Knowledge audit helps to make use of knowledge related data. On processing, it may properly lead to self-development of a faculty member.
2. Knowledge audit helps to understand and identify the 'GAP' in the organizational knowledge strategy.
3. Knowledge audit helps to evaluate and design events like innovative programs, policy making, awards etc. on a continuous basis.
4. Knowledge audit gives 360% feedback.

5. Knowledge audit enhances the process of knowledge creation, enhancement of both internal and external knowledge events which would be helpful in knowledge gaining.
6. Knowledge audit may be used in education and training programs which mutually benefits faculty members and students.
7. Knowledge audit enhances knowledge gaining and ensures the retention of valuable capabilities of a faculty member and his/her know how.
8. Knowledge audit provides information on assets which weren't recorded earlier and are kept as "Knowledge Assets".
9. Knowledge audit creates and maintains harmony among faculty members as they know each other's knowledge.
10. During the starting of Academic Sessions, faculty members know each other's subject, decision and capabilities.

9.4.2. Implementation of Knowledge audit

In the article written by the researcher, Knowledge audit can ample opportunities and provide numerous sources of competitive advantages. Such audit supports faculty members' ability to learn or how much they have learned or gained knowledge in some new activity or a thing. Knowledge audit provides a complex and multi-dimensional fact-finding and analytical process which necessarily aims to record all quantitative and qualitative variables related to knowledge.

Essentially, Knowledge audit offers a list of quantitative and qualitative variables which can be examined. Faculty members must be highlighted with quantitative details such as designation, level of education (Dr. or Prof.), as well as quantitative details such as years of experience, expertise area, and time spend on their research activity. There are many approaches to knowledge audit depending on the key focus area where the knowledge audit plan may be implemented.

9.5. Digital Learning.

Further Research work is needed to be undertaken:

- to make the digital learning like CBT, WBT, Video Conferencing, Pedagogical Learning tools with Wi-Fi Campus or environment,
- Use of Digital Library for the student learning environment
- Downloading of books and sharing them between students and faculty members.
- Methods of Programming subjects to be taught using tablet, pc or e-learning.
- Research to be done on reducing the cost of digital learning tools.
- Digital Campuses with Wi-Fi connectivity
- Green Computing or using cloud computing to reduce the waste of stationary
- Cyber Classrooms, Connectivity with VC or Skype or any other media
- ERP implementation of an institute or a college
- Big Data with Hadoop for analyzing trends in academic environment
- Implementation of Data Warehousing and Data Mining with Academic Perspective
- Understanding the change in a teacher from digital perspective
- Tracking the Performance Mapping of a teacher / Faculty member
- E-learning and mapping performance
- Change in education environment in pre-school, high-school
- Change in educational environment in junior college, college and post-graduate
- Mobile Learning
- Ubiquitous or U-learning

These are some of the topics in which further scope of research is expected, though some of the research is already going on...

9.6. Conclusion.

Researcher recommends Knowledge Audit a necessity to cover up all the suggestions and recommendations by sparing sufficient time with Local Inquiry Committee (LIC) must be conducted. The Knowledge Audit extends the concept of auditing thoroughly from the courses they have learned, from applied number of batches conducted, students' feedback and other areas of improvement.

Researcher stresses upon a knowledge audit role in deciding both qualitative and quantitative role of a faculty member. Along with financial audit and environmental audit Knowledge Audit (KA) is to be made mandatory. Depending on the role and designation, a faculty member's intelligence level could be decided. Further research is yet to be conducted...

Finally, Knowledge Audit shall give the details of colleges / institutes having so many doctors and faculties working as assistant professor, associate professor, professors and directors in unit as an Intellectual Capital of a college or an institute. Special weightage points are to be given in NAAC Accreditation while giving the Institutional/ College ranking for sustainability in the academic environment.

Along with the Financial, Information System and Fire & Safety Audit, Knowledge Audit is to be implemented. Faculty member is more than an employee being an advisor, a mentor and much more. When a student goes to a school/college for learning some new things, faculty member acts as a bridge between the knowledge and the student. In a way faculty member's role is considered as a need to be apprehended and will be considered as a mentor in educational field. All colleges / institutes of the University of Pune shall take actions accordingly as it is beneficial for educational institutes, stakeholders, faculties and students to attain a WIN-WIN situation.

Finally, knowledge audit is necessary for a college/institute. Researcher observed that unless and until knowledge audit is made mandatory, the college or institute shall not take actions to comply. Knowledge audit is performed for various reasons and the process of implementation is mentioned. Therefore, the success of an educational institute depends on the kind of people who have been employed and is quite oblivious for human resource team to continuously enhance the tacit knowledge and thereby share them for the benefit of others.

It is recommended that all the faculty members need to undergo Knowledge Audit test.

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