"MANAGEMENT PERSPECTIVE (ACADEMIC AND ADMINISTRATIVE ASPECT) IN CAREER PLANNING OF STUDENTS DURING 2007-2013 WITH REFERENCE TO SELECTED MCA INSTITUTES IN PUNE REGION"

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By

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April 2015

DECLARATION

I hereby declare that the thesis entitled "Management Perspective (Academic And Administrative Aspect) in Career Planning of Students During 2007-2013 With Reference To Selected MCA Institutes In 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 Vidyapeeth or examining body.

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C E R T I F I C A T E

This is to certify that the thesis entitled "Management Perspective (Academic And Administrative Aspect) In Career Planning Of Students During 2007-2013 With Reference To Selected MCA Institutes In Pune Region" which is being submitted herewith for the award of the Degree of Vidyavachaspati (Ph.D) in Management of Tilak Maharashtra Vidyapeeth, Pune is the result of original research work completed by Mr. Ashutosh Madhukar Kulkarni (PRN : 15810004531) under my supervision and guidance. To the best of my knowledge and belief, the work incorporated in this thesis has not formed the basis for the award of any degree or similar title of this or any other University or examining body upon him.

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Date :

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ABSTRACT

As Information Technology (IT) and IT Enabled Services (ITES) are booming in India, since 1998, many jobs are offered by this industry. The Indian middle income group is very large and the aspiring children from such families would like to seek jobs immediately after their education. The Government of India began to offer Computer Education to the Science and Commerce graduates to fulfill the increased manpower requirement in the mid eighties. The Master of Computer Application (MCA) program was introduced as a continuation of this process.

As number of institutes has increased along with intake capacity, now a day, the management of these institutes are facing a problem of vacancy during the admissions every year. In 2012, 33% vacancy was recorded for MCA course across Maharashtra. The similar trend was observed during academic years 2009-10 to 2013-14. And therefore, the million dollar question is in front of management of these institutes is to fill the vacancy. It is a fact that in a particular location, two adjacent institutes have contradictory scenario as one institute is having full admissions and another is striving for the students. A survey of undergraduate (UG) engineering students has shown that a majority of them preferred to seek admission to institutions which can offer placement in jobs immediately after their UG studies and same is the case with PG courses like MCA, MBA.

A report of National Association of Software and Service Companies (NASSCOM) states that, in India, only 25% of the fresh graduates are considered readily employable. In addition, Ministry of Human Resource and Development, New Delhi also released a report which has similar opinion. This statement provokes the need to identify the expectations of the IT industry to be fulfilled from the fresh graduates to become readily employable. It has therefore become necessary for educational institutes to understand the industry perspective.

This research offers insights to the management and academia of MCA institutes about the inputs required by the industry for such students as well as the hands-on competencies to be acquired by MCA graduates for getting jobs quickly and suggest the way to improve admission status with the factors responsible for it along with the method to implement or improve these factors

TABLE OF CONTENTS

Chapter	Details	Page No.
1	**INTRODUCTION**	
	1.1 Introduction	1
	1.2 Journey of IT Industry in India	2
	1.3 Need of Master of Computer Applications (MCA)	3
	1.4 Present Scenario	5
	1.5 Purpose of the study	5
	1.6 Rationale of Study	5
	1.7 Research Questions	6
	1.8 Need and Significance of the study	6
	1.9 Organization of Thesis	7
2	**LITERATURE REVIEW**	
	2.1 Introduction	9
	2.2 Literature Review	9
	2.3 Gap Analysis	16
3	**OBJECTIVES AND HYPOTHESIS**	
	3.1 Introduction	17
	3.2 Statement of Research Problem	17
	3.3 Objectives of Research	17
	3.4 Hypotheses of study	18
4	**RESEARCH METHODOLOGY**	
	4.1 Introduction	20
	4.2 Research Methodology: An overview	20
	4.3 Selection of Population	21
	4.4 Primary Data	21
	4.4.1 Selection of Respondents	21
	4.4.2 Sample Design	22
	4.4.3 Questionnaire for IT industry, Teachers, Students	23

	4.4.4 Comparison of industry requirements with existing MCA curricula of Universities from Maharashtra	23
	4.5 Secondary Data	24
5	**DATA COLLECTION, ANALYSIS AND INTERPRETATION**	
	5.1 Introduction	25
	5.2 Questionnaire	25
	5.3 Data collection, Analysis and Interpretation	25
	5.3.1 Data Collection through Interview Technique	25
	5.3.2 Additional Observations from interview	34
	5.3.3 Data Collection through Survey of IT/ITES Industry	35
	5.3.4 Comparison of University Curricula – GAP Analysis	42
	5.3.5 Survey of faculties teaching to MCA program in different institutes	46
	5.3.6 Survey of students admitted to MCA program	48
	5.3.7 Forms and formats of survey	49
6	**TESTING OF HYPOTHESIS**	
	6.1 Introduction	53
	6.2 Statistical Analysis for Hypotheses Testing	53
	6.3Hypotheses Testing	54
7	**OBSERVATIONS AND FINDINGS**	
	7.1 Observations	60
	7.1.1 Observations from Interview	60
	7.1.2 Observations from Survey with IT/ITES industry	61
	7.1.3 Observations from Survey with Faculty	62
	7.1.4 Observations from Survey with Students	62
	7.1.5 Observations from university curricula	63
	7.2 Findings and contribution by researcher	63

8	**CONCLUSIONS AND RECOMMENDATIONS**	
	8.1 Conclusions	64
	8.2 Limitations of Study	65
	8.3 Future Scope	65
	8.4 Action Plan for the Management / Administrators of the institute	66
	PUBLICATIONS	
	List of Publications	69
	REFERENCES	70
	BIBLIOGRAPHY	74
	ANNEXURE I. Snapshots Of Hypothesis Testing With SPSS II. Publications by researcher on the basis of the research topic	

List of Tables

Table No.	Particulars	Page No.
Table 1.1	Growth of Engineering and MCA Institutions with intake capacity	4
Table 5.1	Perspectives on Additional Skills	27
Table 5.2	Perspectives on Present Curriculum	28
Table 5.3	Perspectives on Curriculum Updation Frequency	28
Table 5.4	Perspectives on Institutional Role	29
Table 5.5	Perspectives on Skill Gaps	30
Table 5.6	Perspectives on Tiebreak	31
Table 5.7	Perspectives on First Year Students	32
Table 5.8	Perspectives on various IT Domains	33
Table 5.9	Survey of IT/ITES industry	35
Table 5.10	Ranking of attributes	38
Table 5.11	Ranking of attributes by IT/ITES industry	40
Table 5.12	Percentage ranking of parameters by IT/ITES industry	41
Table 5.13	Conversion of % ranking to sum of 100%	42
Table 5.14	Comparison of existing curriculum	44
Table 5.15	Survey of faculties teaching to MCA program from various institutes	47
Table 5.16	Survey of students admitted to MCA program from various institutes	48
Table 7.1	%Ranking of attributes	62

List of Figures

Figure No.	Particulars	Page No.
Figure 8.1	Measures to be taken by management of the institute	67

List of Graphs

Graph No.	Particulars	Page No.
Graph 1.1	AICTE approved institutes	04
Graph 1.2	AICTE approved intake	05
Graph 5.1	University wise curriculum comparison with respect to domains	45

List of Abbreviations

AICTE	All India Council for Technical Education
CII	Confederation of Indian Industry
ERP	Enterprise Resource Planning
FICCI	Federation of Indian Chambers of Commerce and Industry
IT/ITES	Information Technology / Information Technology Enable Services
MCA	Master of Computer Application
NASSCOM	National Association of Software and Service Companies
NPE	National Policy on Education
NSDC	National Skill Development Corporation
SAP	Systems, Applications & Products in Data Processing
STPI	Software Technology Park of India
TPO	Training and Placement Officer
UI Design	User Interface Design
UG	Under Graduate
VOIP	Voice Over Internet Protocol
Y2K	Year 2000

Chapter 1: Introduction

1.1 Introduction

Formal technical education was worldwide introduced by late 18th century. Mid 19th century can be the formal inception of Technical Education in India. The major policy initiatives can be listed down as, 1) 1902: A formation of the Indian Universities Commission 2) 1904: An Indian Education policy resolution 3) 1905: establishment of IISc. Bangalore. 4) 1913: The Governor General's policy statement stressing the importance of Technical Education Just after independence, the growth in industries in India, also demanded the qualified professionals such as Business Management, Architecture, Hotel Management, Pharmacy etc. Although the traditional courses such as Commerce, Economics, Finance, etc., were taught for a long time, the need of formal Management Education was felt in India only in the fifties.

In 1954, a Board of Management Studies was established under AICTE promote Management Education. Other major initiatives taken in Management Education include: setting up of the administrative staff college of India at Hyderabad in the late fifties, National Productivity Council and Indian Institution of Management in the early sixties.

Understanding the commercial aspect of business and fulfilling the required needs, the business education has started its journey in India as follows:

1) 1886: India's first B-school i.e. Commercial School of Pacchiappa Charties in the southern city of Chennai (Madras).
2) 1903: Presidency College in Calcutta.
3) 1913: Sydenham College, Mumbai.
4) 1920: Shri Rama College of Commerce.
5) 1948: The Indian Institute of Social Science founded as India's first management program with an objective to train manpower to create & spread the knowledge required for managing industrial enterprises in India.
6) 1949: Xavier Labor Relations Institute (XLRI) at Jamshedpur by Catholic community.
7) 1953: Indian Institute of Social Welfare & Business Management (IISWBM) Calcutta. And also known as India's first official Management Institute.
8) 1961: Indian Institute of Management, Calcutta and Indian Institute of Management, Ahmadabad (Gujarat) after receiving grant from the Ford

foundation. The IIM Calcutta established in collaboration with the Sloan School of Management with an intention to focus on quantitative & operational aspects of management. IIM Ahmadabad was founded in 1962, pioneered the case method of teaching in India with an emphasis on Qualitative strategic-integration.

9) 1973: Indian Institute of Management Bangalore (Karnatka) and Indian Institute of Management, Lucknow (Uttar Pradesh).
10) 1982: The Indian Institute of Forest Management, Bhopal (M.P.) with specialization in management education for the entire forestry system in India with the help of IIM, Ahmadabad.
11) 1996: Indian Institute of Management , Kozhikode (Kerala)
12) 1998: Indian Institute of Management, Indore (Madhya Pradesh)

Meanwhile, very slow growth was observed in expansion of Institutions and intake remained in the Government, Private-aided and University sectors. It was an era of eighties, where private and voluntary organizations were allowed in the setting up of self-financing Technical and Management Institutions as a part of government policy shift. It was phenomenal expansion of the Technical Education System, and the trend continued during successive Five Year Plans.

In 1947, before independence, the slow growth of Technical Education as far as number of Engineering Colleges and Polytechnics are concerned (including Pharmacy and Architecture Institutions) was 44 and 43 respectively with an intake capacity of 3200 and 3400 respectively.

The National Policy on Education (NPE), 1986, as updated in 1992, imposed greater stress on improvement in the quality and relevance of education at all levels, including technical and professional education.

1.2 Journey of Information Technology Industry in India

In 1968, Tata Group has started Tata Consultancy Services (TCS) for software development services in India by developing punched card facilities for TATA steel employees (TSICO). In 1966, WIPRO also entered into the IT services sector. In 1972, Patni Computer Systems erstwhile Data Conversion Inc started developing software and providing services since the inception. In 1981, Infosys committed towards providing quality software services. Their IT business model was later followed by majority of the IT companies in India. The private business entities were totally under control of government of India before 1991. Due to this, the functioning

of the software services providers was completely constrained. The first major IT reform was, corporation known as Software Technology Parks of India (STPI). The role was to provide satellite links to IT industry to transmit the work done directly to abroad. This was the major step taken to acquire the business of outsourcing. As the result, integration with other nations became very easy from business perspective.

The IT industry in India got the momentum with for establishing relations with foreign clients and enterprises willing for outsourcing. The major growth for Indian IT industry after 1991 reforms was the Y2K problem. Most of the work was outsourced to the Indian IT industries. The outcome was growth in a national GDP of more than 6%. And then, India is known as the IT hub of the world.

Further the government of India has decided the development of IT as the top priority in their long term agenda. Formation of Indian National Task Force with an objective of development of IT services in large and small IT enterprises in India proposed with more than 100 recommendations to improve the IT sector in India. An action plan was executed and all the recommendations were implemented resulted into IT exports touching more than $50 billion.

The New Telecommunications Policy, 1999 (NTP 1999) was another feather in the crown which helped in booming IT industry in India. The Information Technology Act 2000 provided legal recognition of the electronic documents, digital signatures, offences and contraventions. This made it possible in striking deals with clients as no across the table meeting was required for cracking the business deals.

1.3 Need of Master of Computer Applications (MCA) Program

Master of Computer Applications (MCA) is a program at post graduate level where inputs are derived from Computer Science, Computer Engineering, Computer Technology and Management streams. The increased requirement of manpower in the area of computer applications was mainly felt in nineties. Government of India introduced a Master of Computer Applications (MCA) program to increase the manpower pool for IT/ITES industry by giving additional enabling inputs to Science and Commerce undergraduates and by offering training in computer education. The available manpower from engineering programs was insufficient and a Master of Computer Applications (MCA) was a new program initiated by Indian Society for Technical Education (ISTE) in 1990, was taken up by All India Council for Technical

Education (AICTE) which proposed a curriculum for a Master of Computer Applications program.

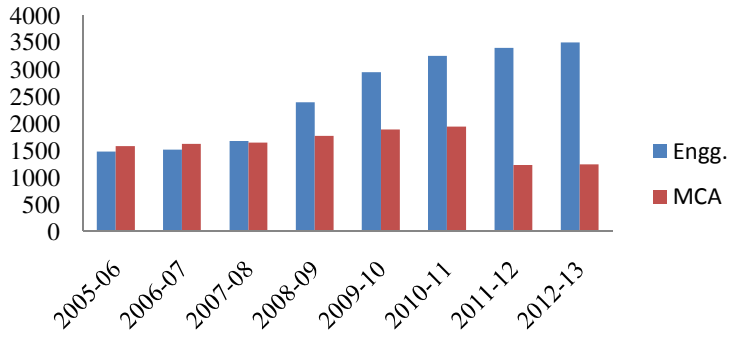
MCA is a three year (six semesters) program. The students entering MCA must be any graduate with Mathematics / Statistics as one of the subjects at 10 + 2 level or at Graduation. This program became popular and a large number of self financed institutions introduced this program. Currently in the State of Maharashtra, 121 institutes offer this program with an intake of 10610 students (AY 2015-16) . Out of these institutions, 53 institutes (44%) are affiliated to the Savitribai Phule Pune University (SPPU) with an intake of 5925 (56%). These institutes are private , self financed institutes. Table 1 with Graph 1 and 2 depicts progress in increase in intake of MCA as well as number of institutes as compare to Engineering intake and institutes.

Table 1.1 : Growth of Engineering and MCA Institutions with intake capacity

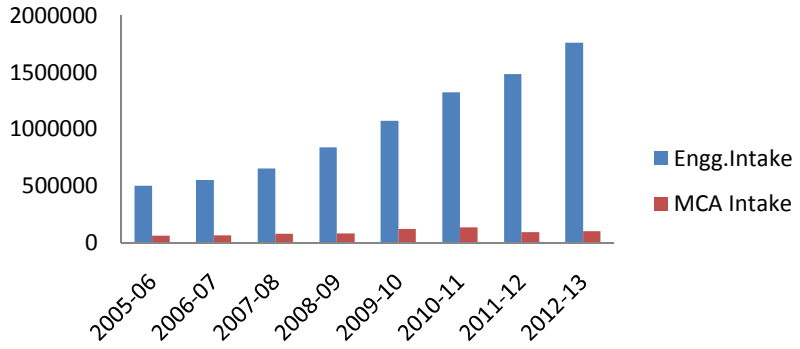
Year	Engg.	Intake	MCA	Intake
2005-06	1475	499697	1576	61991
2006-07	1511	550986	1619	63394
2007-08	1668	653290	1642	78692
2008-09	2388	841018	1768	82578
2009-10	2942	1071896	1888	121123
2010-11	3241	1324246	1937	135173
2011-12	3393	1485894	1228	92216
2012-13	3495	1761976	1241	100700

**Source: AICTE Approval Process Manual2014*

Graph 1.1 - AICTE approved Institutes



Graph 1.2 - AICTE approved intake



1.4 Present Scenario : MCA Institutes in Maharashtra

As number of institutes has increased along with intake capacity, now a day, the management of these institutes are facing a problem of vacancy during the admissions every year. In 2012, 33% vacancy was recorded for MCA course in Maharashtra. The similar trend was observed during academic years 2009-10 to 2013-14. And therefore, the million dollar question is in front of management of these institutes is to fill the vacancy.

It is a fact that in a particular location, two adjacent institutes have contradictory scenario as one institute is having full admissions and another is striving for the students.

1.5 Purpose of the study

Since majority of the institutes are private, self financed institutes, economy of the institute is completely dependent on number of admissions in the institute. Hence it becomes prime important for the management to make sure that the admissions are made fullest of its intake capacity.

The purpose of study is to find the way to improve admission status with the factors responsible for it and the method to implement or improve these factors.

1.6 Rationale of Study

The rationale behind the study is to offer suggestive action plan to management of all types of MCA institutes irrespective of geographical location like rural/urban etc. so that institute will survive and improve the admission status in due course of time.

1.7 Research Questions

A survey of undergraduate (UG) engineering students has shown that a majority of them preferred to seek admission to institutions which can offer placement in jobs immediately after their UG studies and same is the case with PG courses like MCA, MBA.

A large number of IT graduates are available every year from different universities, but NASSCOM claims that very few IT graduates are employable, in addition, Ministry of Human Resource and Development (MHRD), New Delhi released a report which supports this view expressed by NASSCOM.

Looking into present scenario, the researcher has identified questions for research as:

a) What are the factors that are largely influencing the campus placement?
b) Are the factors for recruiting engineering graduates and MCA graduates different?
c) What are the industry needs/expectations from aspiring MCA candidates?
d) Are these needs/expectations known to the management of institute?
e) Is there any gap between industry and academia?
f) If the gap exists, how to bridge the gap?

1.8 Need and Significance of the study:

Since NASSCOM feels that a small percentage of IT graduates are readily employable, it is imperative for the Management of institutions to look into various aspects leading to the employability of the students passing out from the institutes. It is a challenge to the Management of such institutions to improve the quality of education imparted to the students to ensure employability, which is a major attraction for all the candidates joining these programs. Industry always looks for a pool of candidates having the knowledge of core subjects and value added skills. Since IT industry recruits engineering graduates as well as MCA graduates, MCA graduates have to compete with engineering graduates for getting jobs.

From institute's point of view, one of the real challenges is to groom such industry ready graduates within the present or traditional educational system, to satisfy industry needs.

Therefore the objective of this research is to identify factors that can improve employability of MCA graduates and propose guidelines to the management of such institutions to groom industry ready graduates.

1.9 Organization of the thesis

This thesis is structured into eight chapters.

Chapter 1:

Chapter 1 consists of brief introduction about inception of MCA program, development journey of IT industry in India, fact findings, rationale of the study , research questions, along with its need and significance in today's world.

Chapter 2:

Chapter 2 consists of review of literature. The researcher has reviewed the literature regarding employability in general with focus on need of IT industry, influencing parameters of employability, opinion about curricula from job placement perspective, views of government. Also researcher has presented gap analysis from the study.

Chapter 3:

Chapter 3 consists of definition of hypothesis. Based on introduction and literature review, objectives were consolidated for study. On the basis of objectives, the construction of hypotheses along with justification is made.

Chapter 4:

Chapter 4 consists of the research methodology implemented to carry out the research work. It consists of type of research, research design for collection of data.

Chapter 5:

Chapter 5 consists of analysis of collected data, and interpretation.

Chapter 6:

Chapter 6 consists of testing of hypotheses. Hypotheses were tested with standard statistical tests and a renowned tool SPSS.

Chapter 7:

Chapter 7 consists of observations and findings of the research work.

Chapter 8:

Chapter 8 consists of conclusions to this research work. This section concludes with contribution by researcher, limitations of the study, future scope and finally recommendations and suggestions for the managements of institutes offering MCA program.

Publications:

This section consists of the research papers published by the researcher based on the research carried out. The research papers are published in National Conference, International Conference, and International journal with impact factor 6.9071 calculated by GISI.

References and Bibliography:

This section consists of all the references referred by the researcher to study the present facts and scenario with employability issue of MCA / IT fresh graduates in India.

Annexure:

This section consists of

- MCA Admission Vs Vacancy Scenario 2012-13
- Survey form circulated to IT/ITES industry
- Survey form circulated to faculty of various institutes
- Survey form circulated to students admitted to MCA , and
- Publications by researcher on the basis of the research topic

Chapter 2: Review of Literature

2.1 Introduction:

A review of the literature is an overview of previous research on the author's topic or on an important aspect of the author's topic. It identifies, describes and in some cases analyzes related research that has already been done and summarizes the state of knowledge about the topic.

In the literature review, the objective is to accomplish the following four important aspects : overview of previous research on the topic, references to important previous studies related to the research question that are found in high quality sources such as scholarly books and journals, succinct and well-organized review, as well as its presentation style.

2.2 Literature Review:

S.P. Gupta *et. al.*, mentioned that, ITES industry can create new employment opportunities which could be ten times greater in number than those directly involved in core IT industries as the application of information technology has reached all kinds of traditional industries [1].

FICCI in Industry – Academia Convergence on "How to bridge the skill gaps (FICCI, 2004)" suggests that new learning model should be developed utilizing the learning of persons working in industry. Institutions may utilize the expertise from the industry as well as alumni. As the technology has been changing with a great pace, for developing employable fresher, it is necessary to shift the curriculum from traditionally academic to practically relevant one. As India's IT revolution has been fuelled by the availability of a very large reservoir of engineers, the challenge is to give them adequate inputs to generate not only sufficient but also surplus capabilities. [2].

P.N. Gupta e*t al.,* suggests that the educational institutes can develop direct linkages with the industry and utilize it to strengthen quality of education and fulfill the industry requirement. As it is win-win situation for both of them, the linkages can grow faster [3].

FICCI has also suggested domain specific competence, work related skills and non-relevance of the curriculum as important reasons for unemployability of graduates [4].

Ramandeep Sudan *et al.,* emphasize on quality of education in close alignment with local and global industry needs [5].

V Saravanan, in the publication "Sustainable Employability Skills for Engineering Professionals" suggested that soft skills training are more relevant instead of personality development. Soft skills training are essential with the help of corporate houses. Also he suggests bringing soft skills within the curriculum with the preferences to role play, group discussion, seminar, presentation, questioning, brain storming, book reviews, interaction etc [6].

Government of India introduced a Master of Computer Applications (MCA) program to increase the manpower pool for IT/ITES industry by giving additional enabling inputs to Science and Commerce undergraduates and by offering training in computer education [7].

"National Employability Report – Engineering Graduates" (Aspiring Minds, 2011) claimed that maximum efforts are required to be taken to improve programming, logical and quantitative ability of the fresher's as well as ability to communication in English. A survey of top 100 institutions across India indicates that job opportunities offered in IT product industry fall from 8.44% to 2.17% and the same in IT Service industry falls by 30.95% to 16.32% due to lack of required skills [8].

The World Bank South Asia Region Education Team (Andreas Blom et al, 2011) has identified skills by factor analysis based on survey "Employability and Skill Set of Newly Graduated Engineers in India." suggested that institutes providing the technical education programmes in India should seek to improve the skill set of graduates and shift the focus toward higher-order skills and creativity . The team found that employers perceive Soft Skills (Core Employability Skills and Communication Skills) to be very important. These findings suggest that engineering education institutions should seek to improve the skill set of graduates, recognize the importance of Soft Skills and revise the assessment schemes as well as teaching-learning process. In line with this, they also suggested to prepare the curriculum away from traditional thinking skills, such as remembering and understanding and move towards higher-order skills, such as analyzing and logical abilities to solve engineering problems, as well as creativity; and interact more with employers to understand the particular demand for skills in that region and sector . [9]

In the publication, "Career Development Challenges in Front of MCA Institutes in Pune Region… A Management Perspective" (Ashutosh Kulkarni et al.) suggested that

an interaction to understand needs with IT/ITES industries will not only provide the methods for effective teaching learning process but also will give the inputs to improve the employability. In fact, it is a need to design a set of guidelines / model for the management or administrators of the institute to improve the employability since a large number of IT graduates are available every year from different universities, but NASSCOM claims that very few IT graduates are employable, in addition, ministry of Human Resource and Development, New Delhi released a report which supports this view expressed by NASSCOM . [10]

I. Padmini mentioned that communicative skills , critical thinking , problem solving ability are must have abilities for employability of any professional. Further it is suggested that Soft Skills have to be embedded in the curriculum with implementation activities such as questioning, class discussion, brain storming, team work, presentation, role play and simulation, task/project, field work and site visits. [11]

M. Radhakrishnan et al. Suggests that in addition to imparting technological knowledge, the engineering colleges will have to focus on nurturing the employability skills. It is necessary to bring in required changes in the curriculum and teaching methodology as per industry needs. [12]

M. Sudarshan et al. identified that there is no comprehensive system to ensure continuous professional development to improve skills of fresh gradautes. [13]

M. Sudhirkumar et al. says that companies are giving 50-50 percent weightage on an average in terms of technical and behavioral aspects while selection and accordingly decides the plan of training to the candidates after selection. [14]

Hemant Abhyankar et al. identified that a majority of undergraduate (UG) engineering students preferred to seek admission to institutions which can offer placement in jobs immediately after their UG studies.[15]

M. Vijaykumar claims that communication skills is a major criteria for selection of fresh graduates and companies always innovate strategies to identify and recognize required competencies. [16]

As per admission process manual of MCA, in state of Maharashtra, 144 institutes are offering MCA program with an intake of 25939 students out of which 58 institutes are affiliated to University of Pune with an intake of more than 7000 students.[17]

An interim report “Human Resource and Skill Requirements in the IT and ITES Sector - A Study on mapping of human resource skill gaps in India till 2022” by National Skill Development Corporation (NSDC) mentioned the following skill gaps

among fresh graduates aspiring for jobs, at the time of recruitment: i) Inability to 'deep-dive' into a particular language/technology platform as experience level increases, ii) Inadequate soft skills, especially when it comes to interacting with the client , iii) Inadequate knowledge of corporate culture – reporting, compliance, escalations, e-mail etiquettes and protocols, iv) Inability to understand their role as a 'Software Engineer' (they perceive it more as a 'programmer' which results in to gaps in 'systems approach/thinking'. v) Poor awareness of concepts of Software Engineering . Based on the trends witnessed in productivity and the growth potential of the IT and ITES industry in India, NSDC also claims that the industry would need about 7.5 million persons by 2022. NSDC with association of ICRA Management Consulting Services Limited suggested potential areas for skill building amongst fresh graduates which are logical thinking and for problem solving, demand driven programming languages, training in project management, training of business analysis like UML, Rational Rose, and Softskills (including communication) [18].

TeamLease Services India Labour Report (2012) noted that the curriculum to be formulated keeping in view the necessity of both domain skills and life skills. The term, skill, is an n-dimensional concept, as most jobs need a combination of skills for adequate performance. It includes physical abilities, cognitive thinking and interpersonal orientation [19].

In the publication, "Employability of Management Students In India: Some Concerns and Considerations" (Dhar, 2012) suggested that if the members of the alumni are successfully placed in different reputed organization including blue chip companies as well as multi-national corporations and if they are working either as middle or senior level managers, then words of mouth publicity, due to such alumni, will fetch more and more jobs to the students of their institution. The companies will come to recruit in bulk from such branded campus as they presume to get better candidates [20].

The National Policy on Education (NPE), 1986, as updated in 1992, imposed greater stress on improvement in the quality and relevance of education at all levels, including technical and professional education.[21]

Rajni Khosla et.al claims that the employability crunch is also observed with MBA graduates. The industry is expecting parameters like ownership, responsibility, initiative, empathy, integrity as self initiative core values with fresh graduates. Also it is recommended that personality development courses must be a part of curriculum. [22]

S.R. Ganorkar et.al identified the skills required for employment are communication skills, teamwork skills, problem solving skills, initiative and enterprise skills, planning and organizing skills, learning to learn skills, technology related skills, self management skills.[23]

L.S. Chandrakant et.al illustrates that the requirements from fresh graduate is going to vary from industry to industry hence blaming the curriculum of universities or institutes is unrealistic.[24]

Vandana Pragada et.al precisely appeal to academia to have industry institute interaction in terms research sponsorship line with business needs, live case studies and business problem ideas and developing personality of the students. [25]

Soni Agarwal et al. identified the challenges in front of ITES companies in India such as unavailability of skilled employees, attrition, retention of suitable employees, global economic slowdown, etc. As a solution he suggested that industry oriented practical training to the fresher is necessary. [26]

Dr. P. Bharati suggested that equal emphasize must be given to technical and employability skills while designing the Engineering education curriculum. [27]

A. Somalingam et al. identified five top competencies and skills such as Mastery Skills and knowledge in the discipline, communication and language skills, inter-cultural competence, innovation and creativity skills, social and leadership skills while employing engineering graduates. [28]

H.A. Padmini appeals that software companies have to take a lead in helping academia to shape the curriculum. On the other hand academia should analyze and incorporate changes constantly to ensure the grooming of students. [29]

Ravi S. Iyer proposes that if the practice oriented software development career track, is introduced in UGC & AICTE regulations for appointment and promotion of Indian CS & IT academics then, a healthy mix of both research oriented as well as software development oriented Indian Computer Science & Information Technology academics will solve the problem.[30]

Nishant Saxena identified missing skills from fresh graduates are Ownership/Motivation, Business Ethics/Honesty, Grooming/Confidence, Communication Skills, General Awareness, Basic Managerial Skills (Leadership, Teamwork, Time Management etc.), Basic Sales and Customer Service (most entry level jobs require one of these),Domain Knowledge, Work Experience.[31]

Dr. Deepshikha Mehra et al. claims that it is very important to carry out a need assessment of students to understand their communication skill needs. [32]

Azami Zaharim identified employability skills gap as the most important skills but most lacking skills are teamwork, communication, and problem-solving and additional skills are lifelong learning, apply basic knowledge, understand professional, social and ethical responsibilities. [33]

Rashmi Rekha Borah strongly believes that the communicative competence with grammatical competence influences employability because employers set their eyes not only on the high scores of the new graduates but also the business etiquette and their polished behavior. [34]

Tathagat Verma addresses the issue of fresh graduates that just technical brilliance or coding knowledge alone is not sufficient for success in corporate culture. Change of the mindset from just being a programmer to being a "Software Professional" is essential. [35]

Vidya Kulkarni precisely recommends that the students must be exposed to the tools that are standard in the software industry to acquire more practical experience and work on real-life projects. [36]

Varwandkar Ajit et al. identified that Domain Knowledge, Empathy, Communication Skills &Managerial Ability have significant impact on the employability of engineering graduates. [37]

Samson Packianathan et al. proposed a combined model with development of employability skills such as Written Communication, Verbal Communication, Investigating and Analyzing, Planning and Organizing, Negotiating and Persuading, Co-operating, Leadership, Numeracy along with curricular changes curriculum planning, Experiential learning pedagogy, Flexible curriculum, Soft skill training, Mock interviews together is going to lead towards better placements of graduates of B school. [38]

Deloitte knowledge paper gives a insight on qualitative deficiencies in segments and levels of IT and ITES industry along with skill gap. [39]

Srikantan Moorthy illustrates that the inability of the fresh employee in terms of applying concepts learnt to solve practical problems, work well in teams, communicate well in both spoken and written forms is the gap between students capability and the needs of the industry. [40]

According to Parmjit Singh, highest ranked generic skills as expected by employers are Communication Skills and Integrity & Professional Ethics while the lowest ranked are Leadership Skills and Entrepreneurship Skills on the other hand, the instructors ranked communication skills followed by integrity and professional skills as important skills. [41]

Dr. Sukhwinder singh Jolly mentioned that, apart from imparting technical knowledge, institutions have to focus on soft skills so that employability of students will be enhanced after graduation. [42]

Rajendra Babu Vemuri et al. investigated the skills required for employability and suggested that , to achieve optimum results, the curriculum should be restructured to include the following employability skills as teamwork skills, problem solving skills, communication skills, interpersonal skills , writing skills , technology skills (Machine oriented skills) , entrepreneurship skills and leadership skills. Also it is proposed to adopt teaching approach to teach Language Improvement Program (LIP) modules in order to improve outcome based learning. [43]

V.K. Bansal says an industrial training is one of the strongest viable modes of interaction between industry and institute and which can be useful in updating student's curriculum and improving governance in order to enhance education quality, training effectiveness and to strengthen industry-academia-interface.[44]

Confederation of Indian Industry (CII) demands the education in India to be more industry-oriented. [45]

Aspiring Minds conclude that establishing more engineering colleges is not going to solve the employability issue instead improving education standards of current engineering colleges is a need of hour. [46]

Kaushik Sengupta mentioned that quality management courses are more useful to students and hiring companies, which will bridge the present gaps between teaching, practice and the emphasis on wrong issues being taught. [47]

2.3 Gap Analysis

- Majority publications are giving insight of IT employability in general.
- Limited research work on parameters required for employability of MCA graduate is noticed.
- Though various authors have identified various attributes required for recruitment purpose, but it is not clear that which attribute contains higher preference.
- The time dependent precise expectations of IT industry are not known.
- Publications are not available on mechanism of understanding timely requirement of industry.
- Literature is not available regarding utilizing services of alumni to improve employability
- Effect of General Proficiency subjects is missing in literature.
- Usually company declares the eligibility criteria at the time of campus placement, but no emphasis is given in the literature on how to create opportunity for non eligible candidates to become eligible for placement.

Chapter 3: Objectives and Hypotheses

3.1 Introduction

As Information Technology (IT) and IT Enabled Services (ITES) are booming in India, since 1998, many jobs are offered by this industry. The Indian middle income group is very large and the aspiring children from such families would like to seek jobs immediately after their education. The Government of India began to offer Computer Education to the Science and Commerce graduates to fulfill the increased manpower requirement in the mid eighties. The Master of Computer Application (MCA) program was introduced as a continuation of this process. But it is observed that over the last five years, the trend in the vacancy position at the time of admission is increasing. On one side there is a huge demand of technical manpower and on the other hand IT industry is not happy with passing out the graduates and willing to join the industry. Though lot of institutions are offering the MCA program but these students have to compete with engineering undergraduates for a job.

This research aims to find expectations of industry from the management and academia of MCA institutes as well as the hands-on competencies to be acquired by MCA graduates for getting jobs quickly which ultimately lead towards better placement and admission status at fullest of its intake capacity.

3.2 Statement of the Research Problem

A large number of IT graduates are available every year from different universities, but NASSCOM claims that very few IT graduates are employable, in addition, Ministry of Human Resource and Development, New Delhi released a report which supports this view expressed by NASSCOM. The objective of this research is to identify factors that can improve employability of MCA graduates and offer guidelines to the management of such institutions running these programs to groom industry ready-graduates.

3.3 Objectives of Research

The objectives of the research work are framed on the basis of key question that is to be addressed as “What are the expectations of IT/ITES industry from employability perspective?”

Another objective is to investigate the factors which are keenly observed during recruitment process to improve the job offers.

The research is mainly focused to identify

1. The methodology for campus recruitment process of MCA graduates.
2. Specific skills required from the aspirants by IT/ITES industry.
3. The attributes of fresh MCA graduates as expected by IT/ITES industry, at present.
4. The skill gap of what MCA graduate possess and what IT/ITES industry needs.
5. Expectations of industry from management / administrators of MCA institutes.
6. The gap with reference to the currently existing curricula of various universities in Maharashtra versus skill expectations of industry.

3.4 Hypotheses of Study

The hypotheses are formulated taking into consideration three groups involved in placement activity, namely, executives from IT / ITES industry, the faculty of the institutes offering MCA courses and the students admitted to MCA course. IT / ITES industry people are the ones who recruit the candidates for their company.

Hypotheses

H1: IT / ITES industry interaction of the institutes is positively correlated with faculty members' quality time given to the students.

Justification: The industry interaction is facilitating the technology updates along with the current trends which faculty intern shares with the students and students are preparing themselves accordingly. For this purpose, faculty is sparing quality time with the students.

H2: IT / ITES industry visit of the faculty members facilitates quality of students' projects.

Justification: The effective visits of faculty with industry enhance the public relations with the industry. This increase in public relation helps in getting quality problem statements as sponsored project work for their students.

H3: Faculty interactions with experts from IT / ITES industry is positively correlated with the quality of students projects.

Justification: Once the project work commence, the faculty is continuously interacting with the industry expert looking after the project. The faculty is continuously getting feedback about the performance of the students working on the project. This performance is based on parameters like technical understanding, programming skills, along with communication and soft skills.

H4: Faculty perceives that curriculum flexibility enhances quality of students' projects.

Justification: In tune with the industry, faculty would like to update themselves as well as their students in terms for academic inputs which will enhance the quality of the students for internship as well as campus placement.

H5: Students are aware about job availability and aware about job criteria for seeking a job also.

Justification: Majority of the students join MCA course to get a job in IT industry. So they are continuously getting inputs regarding jobs available, type of company, and selection criteria.

H6: Students' curriculum satisfaction is positively correlated with their awareness regarding criteria for seeking a job.

Justification: Students feel that the curriculum offered to them by the respective university is sufficient to acquire the job.

Chapter 4: Research Methodology

4.1 Introduction

Qualitative Research aims at discovering the underlying motives and desires, using in depth interview technique and Qualitative Research consists a process to find out how people feel or what they think about particular subject.

Since the research work consists of investigating the facts, understanding opinion of participants, the total work is combination of qualitative and quantitative research.

4.2 Research Methodology : an overview

The research consists of following methodologies:

a) Interview
b) Survey
c) Comparison of facts

The researcher initially has adopted a survey method through interview technique with open ended questions to know the IT/ITES industry in total and its culture regarding recruitment process. Initially the researcher was of opinion that answers of interview will give the insight of IT industry recruitment process but after discussion, it was felt essential to have a macro level survey because the perception of IT industry is varying from company to company.

Further to know the factors that are influencing while recruiting fresh graduates, a survey with predefined structured questionnaire was adopted. The researcher has also conducted survey with predefined structured questionnaire with faculties and students. After identifying the industry needs, researcher has adopted comparison method to understand the gap between industry requirements and university curricula across the State of Maharashtra.

In this study primary and secondary data is collected to find out the importance of academic and administrative factors for improving the employability through campus placement. Primary data is collected through interview and survey method whereas secondary data is collected through published material.

4.3 Selection of Population

The researcher has exclusively identified Pune as region due to following reasons:

a) Since Pune region is known as IT Hub with companies who generally recruit fresh graduate through campus placement.
b) Large numbers of university affiliated (affiliated to Savitribai Phule Pune University formerly known as Pune University) institutes are offering MCA program with high intake are available.

Since the study is limited to career planning of MCA graduates in Pune region , the survey was conducted with IT/ITES industry , faculty and students in and around Pune region.

4.4 Primary Data

Primary data is collected through interview method, survey method and original in nature. This data is collected by interviewing IT professionals first and then by distributing the questionnaire & getting filled by the concerned respondents, for this purpose, manual method was used.

Further primary data is collected by distributing the questionnaire & getting filled by the concerned respondents viz. faculty and students of MCA institutes. For this purpose also , manual method was used.

4.4.1 Selection of Respondents

a) Interview Method: The respondents are senior technical officers identified from well-known IT industry.
b) Survey Method :
    i. IT/ITES Industry: The respondents are technical officers who are involved in campus recruitment process at large.
    ii. Faculty: The respondents are 100% available faculty members from institutes offering and teaching to MCA program.
    iii. Students: The respondents are 100% available students admitted to MCA program and are aspiring candidates for campus recruitment process.

4.4.2 Sample Design

Sample Design for IT/ITES Industry:

Population Size : Population for this study is IT/ITES industry units from Pune and in and around region. Size of population is 250+ IT/ITES industries out of these around 125-150 industries are recruiting the fresh graduates through campus selection and others have their own methods.

Sample Design : Sample design is a specific plan which designed to get samples from population. To serve the purpose of the research subject, the researcher has selected the total 55 sample units. selection. The sample size represents **44%** representation of total population.

The researcher has specifically identified the respondents (183 from 55 industries) who participate in recruitment process through campus

Sample design for Faculty and Students of MCA Institute:

Population : 53 institutes approved by AICTE and affiliated to Savitribai Phule Pune University.

Total Intake : 5925.

Sample Design : 5 institutes

Participants : 72 faculties and 446 students.

The researcher has selected faculties and students from five institutes identified through convenience sampling method, to understand their views on employability of MCA fresh graduates. Total 72 faculties and 446 MCA students have participated in the exercise.

Rationale behind convenience sampling:

The rationale behind identifying institutes is, all the institutes are technical institutes approved by AICTE, New Delhi and affiliated to Savitribai Phule Pune University and,

1. Autonomous institute having highest cutoff at the time of admission: Vishwakarma Institute of Technology, Pune.
2. Institute following university curriculum and having higher cutoff at the time of admission: Institute of Management and Career Courses (IMCC), Pune.

3. Institute having highest intake capacity and following university curriculum: Sinhgad Institute of Management (SIOM) Vadgaon, Pune.
4. Institute situated in semi rural area: Jayawant Institute of Computer Applications (JICA) , Tathawade, Pune.
5. Institute situated in rural area: Vidya Pratishthan Institute of Information Technology, Baramati.

4.4.3 Questionnaire for IT/ITES industry, Teachers, Students

The initial interaction and interview were carried out with senior experts from IT industry where the questionnaire was open ended in its nature. On the basis of initial interaction and interview a questionnaire was designed to conduct a survey at macro level. The questionnaire is structured in its nature. This questionnaire was circulated to experts, who were requested to choose most preferred alternative as an answer to the question. Researcher has visited 55 leading IT/ITES industries in and around Pune city in Maharashtra and conducted the survey from 183 participants with different job profiles who are working in the industry and whose work experience range from 2 years to 15 years. The questionnaire designed and circulated to experts had four alternative answers to the first ten questions from which experts have to choose one. The last, eleventh question asks the experts to rank the attributes or characteristics of the fresh graduates to which they offer preference while recruiting. The highest preference is rank one and the lowest is ten.

Similarly closed questionnaires are designed for faculties teaching to MCA program and students respectively and circulated amongst five institutes identified, to understand their views on employability of MCA fresh graduates. All the institutes which are identified are affiliated to Savitribai Phule Pune University.

4.4.4 Comparison of industry requirements with existing MCA curricula of Universities from Maharashtra

In order to understand the gap between industry requirements and existing curricula, a study was carried out for six universities in the State of Maharashtra.

Researcher has studied and compared the curriculum offered in AY 2012 by the following universities viz. Mumbai University (A), Pune University (B), SNDT University (C), Dr. Babasaheb Ambedkar Marathwada University (D), Amravati University (E) and Shivaji University (F).

Web Sources for curriculum :

1. Mumbai University : vesit.edu/wp-content/uploads/2015/03/First-year-MCA.pdf
2. Pune University: www.unipune.ac.in/syllabi_pdf/revised_2012/mang/mca_wef_12-13_18-5-12.pdf
3. SNDT University : computersc.sndt.ac.in/downloads/course-info/course-structure-ma-computer-applications.pdf
4. Dr. Babasaheb Ambedkar Marathwada University : www.bamu.net/syllabus/acadsyllabus2012/Engineering/MCA_First%20Year.pdf
5. Amravati University : sgbau.ac.in/MCA%20I%20to%20III%20YR.pdf
6. Shivaji Univresity : www.unishivaji.ac.in/syllabus/commerce/M.C.A.-III%20New/MCA%20Credit%20Sys%20Sem%20%20I%20&%20II%20June%2009.pdf

4.5 Secondary Data

Secondary data is used to study the perspective of various authors, reputed federations like NASSCOM, CII, FICCI annual reports, private agencies working on employability as well as central and state government policies about IT/ITES industries.

Chapter 5: Data Collection, Analysis and Interpretation

5.1 Introduction

The researcher initially has adopted interview technique to know the IT/ITES industry and its work culture. Further to know the factors that are influencing while recruiting fresh graduates, a survey with predefined questionnaire was conducted. Further the survey was conducted with faculties and students to understand their opinion and expectations regarding employability. Since the study is limited to career planning of MCA graduates in Pune region , the survey was conducted with IT/ITES industry as well as institutes offering MC A program in and around Pune region.

5.2 Questionnaire

On the basis of initial interaction and interview with a few senior experts and recruiters from IT/ITES industry, a structured questionnaire was designed. This questionnaire was circulated to technical experts (involved in campus recruitment process) , who were requested to choose most preferred alternative as an answer to the question. Researcher has visited 55 leading IT/ITES industries in and around Pune city and conducted the survey from 183 participants with different job profiles who are working in the identified industry and whose work experience range from 2 years to 15 years.

5.3 Data collection, Analysis and Interpretation

5.3.1 Data Collection through Interview Technique

Interview sessions were carried out with experts who are at senior positions from well known IT companies having 15 years experience to know the specific skills they look for with fresh graduates were identified. Name of the IT companies and expert are not disclosed as per their company policy. Company A to O (Total 15) given below have presented their perspective on the question asked. Few of them are Amazon, Morgan Stanley, IBM, Kirloskar Pneumatic, Sify Software, BMC Software, Sunguard etc.

To recruit large number of fresh graduates, most of the IT/ITES Companies prefer the campus placement process. To carry out this process, the institutes are inviting IT/ITES companies and based on the requirement, the companies are deciding to visit the various campuses. Company communicates eligibility criteria along with selection

process. Qualified students register themselves for the same. During the visit to campus, pre-placement talk comprises of company profile, their products, and technology platforms available as well as pay package. Selection process includes mainly three rounds viz. Aptitude Test, Technical Test/ Interview, Personal Interview. Candidates are shortlisted in the final round with the benchmark defined by the company. The process ends with declaration of selected candidates by issuing offer letter to them. One of the sample communication received from company is given below.

1. Eligibility Criteria

- Qualification : BE/ B.Tech/ MCA/ ME/MTech.
- Students of which semester : For BE/BTech 7th semester, ME/MTech 3rd Semester and MCA 5th Semester
- Percentage of Marks achieved : Aggregate 60% of marks throughout academics i.e 60% in 10th, 12th and till date.
- A candidate having backlog(s) in one or multiple subject is NOT eligible.

2. Offer details

- Expected date of joining : July 2012
- Job location : Mumbai/Pune, India.
- Is there any bond to be signed? : No
- Pay Package : 3.5 Lacs/per annum

3. Recruitment Process to be followed at your college premises: Screening of resumes based on students academics.

4. Written Test Questions would be based on Quantitative Aptitude. Computer Fundamentals are of objective type and computer programming with programs or pseudo codes of the program.

5. Technical Interview and

6. HR Interview

During interview sessions, company A to O (Total 15) given below, have presented their perspective on the question asked.

Q.1 Every company normally looks into Technical Skills, Logical Ability, and Communication Skills etc as parameters for selection of fresh candidates, what could be the other parameters that has to be considered / looked into while recruiting the fresh candidate?

Table 5.1 Perspectives on Additional Skills

Company	**Perspective**		**Company**	**Perspective**
A	- Writing Skills		I	- Ability to learn new things - Involvement - Attitude - Correlating theory & practices
B	- Open Source skills		J	- Problem solving approach - Aptitude - Troubleshooting
C	- Future Plans		K	- Communication Skills
D	- Presentation skills		L	- Can do attitude - Learning new things
E	- Self Learner - Analytical Skills - Good Listener - Good reader of documents		M	- Attitude - Flexibility
F	- New ideas in mind		N	- Presentation skills

	- Grasping power			
G	- Grasping power - Adaptable for changes		O	- Ability to work as team player - Adapt new technologies - Interpersonal skills
H	- Idea about business process			

Q.2 What is your opinion on present curriculum available in India?

Table 5. 2 Perspectives on Present Curriculum Updation

Company	**Perspective**		**Company**	**Perspective**
A	Not Aware		I	Need industry inputs in design.
B	Need to update		J	Not aware
C	Need to update		K	More theoretical
D	Need to update		L	Need to update
E	Need practical & professional approach		M	Not Aware
F	Need to update		N	Need to update
G	Average		O	Not seen
H	Need to update			

Q.3 How frequently updation of curriculum must be carried out in terms of years?

Table 5.3 Perspectives on Curriculum Updation Frequency

Company	**Perspective**		**Company**	**Perspective**
A	3 Years		I	1 Year
B	Frequently		J	4 Years

C	Frequently		K	3 Years
D	1 Year		L	3 Years
E	5 Years		M	2 Years
F	5 Years		N	3 Years
G	1 Year		O	3 Years
H	1 Year			

Q.4 What must a role of institute as far as campus placement is concerned?

Table 5.4 Perspectives on Institutional Role

Company	**Perspective**		**Company**	**Perspective**
A	- Not Given		I	- Identify needy organizations and bring them to campus.
B	- Conduction of awareness programs regarding current trends.		J	- Source good opportunities as well as provide aptitude tests, mock interview training
C	- Training of required skills other than curriculum.		K	- Motivated Placement Officer.
D	- Good contacts with alumni. Take assistance to prepare the freshers.		L	- Hands-on assignments. - Invite industry to share expectations.
E	- Good mediator between aspirants and employers		M	- Assistance in getting projects. - Should bring Top 10

				industries in campus.
F	- Survey of latest trends and train the students		N	- Removal of fear of interview. - Counseling through softskills, aptitude test etc.
G	- Establish network with industries. Use it for campus placement.		O	- Prepare students to understand gap between institute and corporate world
H	- Visit industries. Identify their business processes and convey to students.			

Q.5 What is it that is lacking in IT freshers now a days?

Table 5.5 Perspectives on Skill Gaps

Company	**Perspective**		**Company**	**Perspective**
A	- Basic concepts like data structures		I	- Passion
B	- Presenting themselves - Real Time Thinking - Situation Handling		J	- Understanding the need to distinguish themselves - Not ready for the experimentation
C	- Failing to prove		K	- Good team

	himself			member
D	- Could not express their achievements		L	- Patience, stability, hard work
E	- Lack of confidence or over confidence		M	- Stability
F	- Technology Updation		N	- Softskills
G	- Positive attitude, - Flexibility, - Clarity about domain		O	- Attitude towards work and professionalism
H	- Business processes			

Q.6 If there is a tie between two fresh candidates and you have to select one, what is it that you will prefer to select best out of two?

Table 5.6 Perspectives on Tiebreak

Company	**Perspective**		**Company**	**Perspective**
A	- Not answered		I	- Attitude - Ability to learn new things - Involvement
B	- Not answered		J	- Energetic - Honest about +ve &-ve things
C	- Not answered		K	- Energy
D	- Attitude		L	- Attitude - Long term

				commitment
E	- Industrial training		M	- Attitude - Flexibility
F	- Project developed		N	- Certifications
G	- Attitude - Grasping power		O	- Attitude
H	- Attitude			

Q.7 If at entry level (i.e in first year) if institute would like to evaluate students from employability perspective, do you suggest any methodology to be carried out?

Table 5.7 Perspectives for First Year Students

Company	**Perspective**		**Company**	**Perspective**
A	- Not answered		I	- Basics
B	- Not answered		J	- Not sure
C	- Not answered		K	- Logical thinking
D	- Evaluation through puzzle games		L	- At second year projects
E	- Mini project & its evaluation		M	- Aptitude test
F	- Give them work in their area of interest and evaluate		N	- Not sure
G	- Depends on institute		O	- Not sure
H	- Not sure			

Q.8 Most of the fresh candidates are dreaming the IT job in development / programming but there may be some other areas also where industry needs fresh

candidates. Kindly suggest such areas where IT fresh candidates can have better or equal opportunity with a good pay package.

Table 5.8 Perspectives on various IT Domains

Company	Perspective		Company	Perspective
A	- Not answered		I	- Networking - Cloud computing
B	- Not answered		J	- Business Analysis
C	- Not answered		K	- Business Analysis - Software Testing - Technical Writing
D	- Not answered		L	- Production support - Software Testing - Technical Writing
E	- Every section of Q.1		M	- Technical Support
F	- Networking - SAP - Software Testing		N	- Data warehousing - Software Testing - Web content Management
G	- Software Marketing		O	- Business Analyst

	- After sales service - Software Testing - Web Designing - UI Designing			- Software Testing - KPO
H	- ERP Functional /Support Team			

5.3.2 Additional Observations from interview

i. This interview process has formed basis for designing structured questionnaire at macro level to understand and categorize the exact expectations of IT/ITES industry.

ii. A very first observation stated by the experts is that, the fresh candidates have less idea about IT sectors and opportunities available in different sections or departments of these sectors where as fresh candidates are always dreaming only a job of developer.

iii. From the industry experts researcher came to know the different domains for job are available for the fresh candidates. The major domains available in IT/ITES industry are: Enterprise Applications Intensive Workloads such as Databases, Business Intelligence and Virtualization, Modeling and Simulation, SAP, Digital Content Creation, Electronic Design Automation, Image And Signal Processing, Financial Algorithms, Scientific Research And Seismic Processing, Cloud Computing, Network Management Engines, Internet Cache Engine, Intrusion Detection Systems, Unified Messaging, Gateway/Gatekeeper/SS7 solutions, VOIP Services and Voice portals, IP Translation Database Processing, e-Commerce, ERP, e-Governance, Infrastructure Management, Software Testing and Quality Assurance, Transcription / Data capture, Data Analytics, Data Warehousing, Gaming and

Animation, Web based Application Development, Production Support, Service Providers, Database Management, Business Analysis, UI Design, Technical Writing, Consultancy and Training.

iv. During interaction, it has observed that fresh candidates have misunderstanding about software testing domain (less competitive work, less salary, less future etc) and they refuse offers which are then gets open to other graduates.

5.3.3 Data Collection through Survey of IT/ITES Industry

After understanding the perspective of the senior experts through interview, in the next phase, the objective was to find out the perspective of the team members who are actually involved in recruitment process. To understand the perspective of senior experts, the researcher has designed a structured questionnaire to understand industry requirements at macro level and circulated to experts. Each question had four alternative answers to the first ten questions from which experts have to choose one. The last, eleventh question asks the experts to rank the attributes or characteristics of the fresh graduates to which they offer preference while recruiting. The highest preference is rank one.

Table 5.9 : Survey of IT/ITES Industry

Question asked	Answers in %	Observations
Most preferred qualification of fresh candidate as fresher (a) Engineering Graduate (b) Post Graduate in Engineering (c) MCA (d) Graduate in other discipline	 (a) 78% (b) 4% (c) 15% (d) 3%	IT/ITES industry prefers Engineering Graduates but has inclination to accept fresh MCA graduate too.
Expected consistency in academic performance of MCA as fresh graduate (a) Consistently high from	 (a) 30%	

10th standard. (b) Above average from 10th standard. (c) Consistent first class in MCA (d) First class in MCA final Year	 (b) 24% (c) 38% (d) 8%	 Good academic record is important.
Higher priority while recruiting MCA graduate (a) Oral Presentation (b) Technical Presentation (c)Written Communication (d) Academic Performance	 (a) 13% (b) 74% (c) 1% (d) 12%	 Technical Knowledge plays a vital role.
Preferred technical competency (a)Technology Development (b) Assets Management (c) Release Management (d) Maintenance	 (a) 90% (b) 2% (c) 3% (d) 5%	 The IT industry prefers skills for Technology Development.
Knowledge of Development themes, useful for an enterprise (a) System Programming (b) Application Programming (c) Scripting and Interfacing (d) Higher Order Language	 (a) 11% (b) 79% (c) 7% (d) 3%	 Fresh graduate should predominantly acquire knowledge of Application Programming
Development themes expected from MCA graduates		 Industry expects curriculum to

(a) Module Based (b) Component Based (c) Pattern Based (d) Framework Based	(a) 30% (b) 21% (c) 7% (d) 42%	focus on a variety of Development Themes.
Better hands-on practice expected at institute level (a) Lab Assignments (b) Mini Projects (c) Group Assignments (d) Individual Projects	 (a) 9% (b) 45% (c) 11% (d) 35%	 Carrying out a Mini Project is the best practice.
Best way to create awareness about the ongoing practices in the IT/ITES sector (a) Lectures by industry expert (b) Assignments on articles of current trends (c) Regular guidance by alumni (d) Awareness visits to industry	 (a) 54% (b) 20% (c) 11% (d) 15%	 Lectures by experts from Industry are strongly recommended.
Preferred Co-curricular activities institute must adapt (a) Presentation in seminar (b) Paper publication in conference (c) Participation in technical competition (d) Short-term internship in an enterprise	 (a) 8% (b) 4% (c) 24% (d) 64%	 Short Term internship with an enterprise is necessary.

Current trend of retention (a) B.E/B.Tech (b) M.E/M.Tech (c) MCA (d) Other graduates	 (a) 63% (b) 6% (c) 25% (d) 6%	 MCA graduates tend to change their jobs.

Having analysed the experts' replies to the first ten questions of the questionnaire above, the answer to the eleventh question has been presented below.

Question 11: In general, for the recruitment of a fresh MCA graduate, how would you rank (for preference) their following parameters?

Kindly rate them from 1 to 10 (in order of your preference). [Please do not repeat the rank.]

Rank 1 – Highest Rank to the most preferred parameter

Higher Rank (Lower Number) signifies more importance to the parameter, from recruitment point of view, in comparison to the remaining once.

Rank 10 – Lowest rank to the least important

Table 5.10 : Ranking of Attributes

Parameter	**Rank**
Attitude	
Awareness of current trends	
Communication Skills	
Hands-on Experience	
Local Candidate	
Overall Personality	
Physical Fitness	
Problem Solving approach	
Strong Fundamentals	
Technical Knowledge	

In response to Question 11, the participants were requested to rank their preference to the attributes expected with fresh candidates, indicated as parameters in the question. Ranking was to be done from 1 to 10 where Rank 1 is the highest rank indicating the most preferred parameter and Rank 10 indicating the least preferred one. Total 166 participants have offered their ranking.

Table 5.11 : Ranking of parameters by IT/ITES industry

Parameter	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	Rank 9	Rank 10
Attitude	37	16	19	30	15	19	18	7	2	3
Awareness Of Current Trends	2	0	6	18	30	39	40	22	6	3
Communication Skills	5	16	17	28	39	40	13	6	0	2
Hands-On Experience	9	8	11	25	24	33	32	11	11	2
Local Candidate	7	1	0	1	3	2	3	18	32	99
Overall Personality	3	0	5	6	6	10	39	61	32	4
Physical Fitness	1	7	0	1	4	4	6	27	73	43
Problem Solving Approach	19	30	48	30	18	4	4	7	3	3
Strong Fundamentals	44	43	28	13	12	8	6	2	6	4
Technical Knowledge	39	45	32	14	15	7	5	5	1	3

This table is analysed using a simple method of decision making i.e. marks from 9 to 0 are given in the descending order for rank one to rank 10 respectively and the overall preference to each attribute / parameter is calculated in terms of percentage. Table 5.12 shows the marks to each rank and the overall percentage for each attribute.

Table 5.12 : % Ranking of parameters by IT/ITES industry

Parameter	R1*9	R2*8	R3*7	R4*6	R5*5	R6*4	R7*3	R8*2	R9*1	R10*0	% Ranking
Attitude	333	128	133	180	75	76	54	14	2	0	66 %
Awareness Of Current Trends	18	0	42	108	150	156	120	44	6	0	43 %
Communication Skills	45	128	119	168	195	160	39	12	0	0	58 %
Hands-On Experience	81	64	77	150	120	132	96	22	11	0	50 %
Local Candidate	63	8	0	6	15	8	9	36	32	0	12 %
Overall Personality	27	0	35	36	30	40	117	122	32	0	29 %
Physical Fitness	9	56	0	6	20	16	18	54	73	0	17 %
Problem Solving Approach	171	240	336	180	90	16	24	14	3	0	72 %
Strong Fundamentals	396	344	196	104	60	32	18	4	6	0	78 %
Technical Knowledge	351	360	224	98	75	28	15	10	1	0	77 %

$$\% \, Ranking = \frac{\sum (\mathrm{R1} * 9 \; + \; \mathrm{R2} * 8 + \ldots . + \mathrm{R10} * 0)}{(\mathrm{No.\,of\,Participants}) \; * \; 9}$$

Table 5.13 : Conversion of % Ranking to sum of 100%

Parameter	**Calculated Weightage**
Strong Fundamentals	16 %
Technical Knowledge	15 %
Problem Solving Approach	14 %
Attitude	**13 %**
Communication Skills	**12 %**
Hands-on Experience	10 %
Awareness of current trends	9 %
Overall Personality	6 %
Physical Fitness	3 %
Local Candidate	2 %
Total	100%

5.3.4 Comparison of University Curricula – GAP Analysis

In order to understand whether the current curriculum of a university can inculcate all the attributes expected by the IT/ITES industry amongst fresh MCA graduates, by providing them with the necessary inputs, a study was carried out for six universities in the State of Maharashtra.

In general, the MCA curriculum is for three years spread into six semesters. It has the structure of administering the contents, examining scheme, the marks assigned to theory / practical examination, term-work etc.

The inputs for enabling the graduate with IT/ITES skills, though various subjects to be taught during this program, have been classified by industry experts into four segments and the curricula is then compared by researcher with the expectations of the IT/ITES industry to find out if it can offer adequate inputs.

(i) Core Courses: Courses which are discipline specific and must be learned by all students for core computing knowledge building. It includes the subject disciplines such as Computer Architecture, Data Structures, Theory of Computer Science, Computer Networks and Database Management System.

(ii) Fundamental Development Courses: Courses required for practicing the concepts in theory by using different language and development paradigms. It includes the

courses like System Development Programming, Application Programming, Scripting Languages and Higher Order Programming.

(iii) Technology Realization Courses: Courses required knowing the different development styles used in industry. It includes the courses elaborating on Module based Development, Component based Development, Pattern-based Development and Framework-based Development.

(iv) Workforce Skill Development Courses: Courses required for enhancing the apprenticeship and employee skills projection like soft skills, mini projects and short term internship.

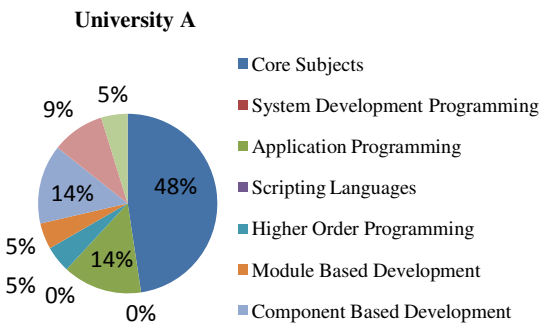
Researcher has studied and compared the curriculum (which was in place in academic year 2012-13) offered by the following universities viz. Mumbai University (A), Pune University (B), SNDT University (C), Dr. Babasaheb Ambedkar Marathwada University (D), Amravati University (E) and Shivaji University (F).

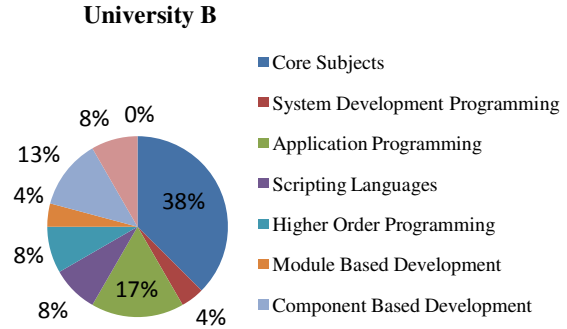
Table 5.14 depicts the comparison matrix indicating the gap in expected attributes and necessary inputs to inculcate them amongst fresh graduates. It is found that the curriculum in all these universities does take adequate care to cover desired core courses. The gap analysis for the other points under focus reveals the following. The notation (√) represents existence of the courses and the notation (X) represents non-existence of the courses.

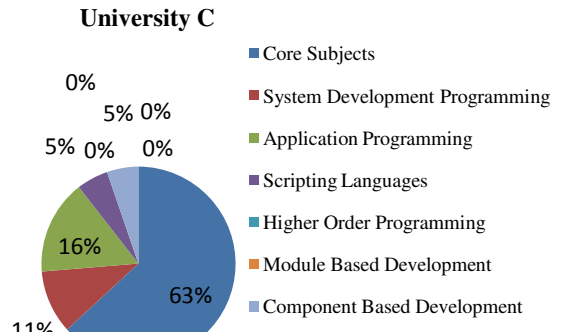
Table 5.14 : Comparison of existing curriculum – GAP Analysis

Parameters	University A	University B	University C	University D	University E	University F
System Development Programming	X	√	√	√	X	√
Application Programming	√	√	√	X	√	√
Scripting Languages	X	√	√	√	X	X
Higher Order Programming	√	√	X	√	√	X
Module based Development	√	√	X	√	X	√
Component based Development	√	√	√	√	√	√
Pattern based Development	√	√	X	X	√	√
Framework based Development	√	X	X	X	X	X
Soft skills	√	√	√	√	√	√
Mini Project	X	√	X	X	√	√
Short Term Internship	X	X	X	X	X	X

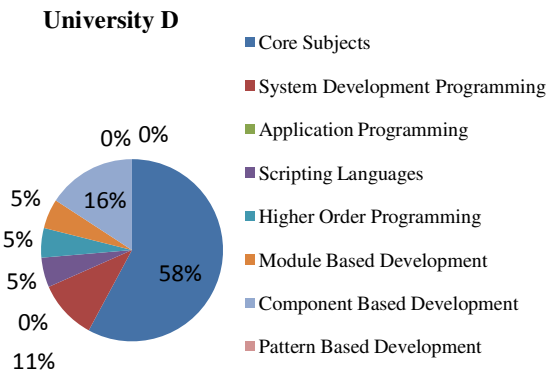
University A to F	Core Subjects	System Development Programming	Application Programming	Scripting Languages	Higher Order Programming	Module Based Development	Component Based Development	Pattern Based Development	Framework Based Development
Maharashtra Scenario	68	6	14	4	7	4	17	6	1

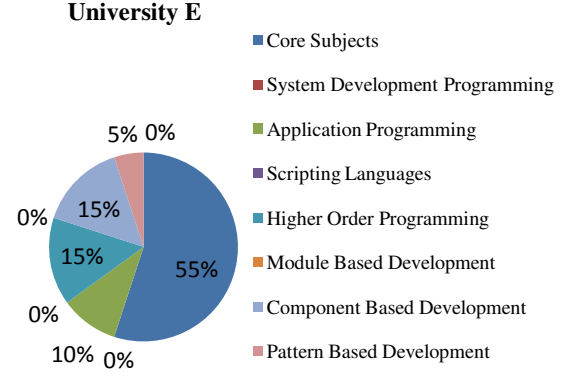


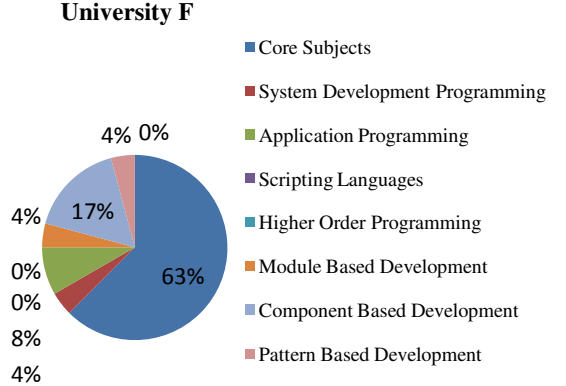




Graph 5.1 : University wise curriculum comparison with respect to domains







GAP Analysis – Findings

- Universities A and E do not offer System Development Programming.
- University D does not offer Application Programming.
- Universities A, E, and F do not offer Scripting Languages.
- Universities C and F are not offering Higher Order Programming languages.
- Universities C and E have not included Component Based Development.
- Universities C and D have not included Pattern Based Development.
- Universities B, C, D, E, F have not offered emphasis on Framework Based Development.
- Mini Projects are not included in Universities A, C and D.

5.3.5 Survey of faculties teaching to MCA program in different institutes

After understanding the industry requirements and gap analysis with respect to university curricula across the state of Maharashtra, researcher has conducted survey with faculties from five institutes identified through convenient sampling, to understand their views on employability of MCA fresh graduates. All the institutes which are identified are affiliated to Savitribai Phule Pune University:

1. Autonomous institute.
2. Institute following university curriculum and having highest cutoff at the time of admission.
3. Institute having highest intake capacity and following university curriculum.
4. Institute situated in semi rural area.
5. Institute situated in rural area.

The researcher has designed a closed questionnaire with ten questions and circulated amongst the faculties who are teaching prescribed curricula of MCA.

Analysis of survey of faculties teaching to MCA program in different institutes :

Total Faculty Participated: 72

Table 5.15 : Survey of faculties teaching to MCA program

Q.1	Does your institute have an Industry Institute Interaction?	
	(a) Frequently **68**	(b) Rarely **04**
Q.2	Do you think such an interaction can play an important role in the employment of your MCA students?	
	(a) Yes **72**	(b) No **00**
Q.3	Do you visit any of the industry?	
	(a) Frequently **26**	(b) Rarely **46**
Q.4	How often do you get an opportunity to interact with the industry experts for understanding the gap in your curriculum?	
	(a) Frequently **47**	(b) Rarely **25**
Q.5	Do you think the present curriculum is good enough to make every student ready for employment?	
	(a) Yes **33**	(b) No **39**
Q.6	Are you aware of the value adding inputs necessary to make your students employable?	
	(a) Yes **70**	(b) No **02**
Q.7	With the current time table, do you get time to give extra value adding inputs to students?	
	(a) Yes **38**	(b) No **34**
Q.8	Do you think the University curriculum should provide more flexibility to the students to choose subjects of their choice?	
	(a) Yes **63**	(b) No **09**
Q.9	Have you guided a project for the students which fetched a top rank in any project competition?	
	(a) Yes **46**	(b) No **26**
Q.10	Do your students get a job immediately at the end of MCA program?	
	(a) Yes, easily **31**	(b) Not so easy **41**

5.3.6 Survey of students admitted to MCA program

Researcher has conducted survey with students from five institutes identified through convenient sampling, to understand their views on employability of MCA fresh graduates. All the institutes which are identified are affiliated to Savitribai Phule Pune University:

1. Autonomous institute.
2. Institute following university curriculum and having highest cutoff at the time of admission.
3. Institute having highest intake capacity and following university curriculum.
4. Institute situated in semi rural area.
5. Institute situated in rural area.

The researcher has designed a closed questionnaire with five questions and circulated amongst all the students who are aspirant candidates of campus placement .

Analysis of survey of students of MCA program in different institutes:

Total Students Participated : 446

Table 5.16 : Survey of students admitted to MCA program from various institutes

Q.1	After Completing the program, are you interested in seeking a job?	
	(a) Yes **434**	(b) No **12**
Q.2	Do you think, getting a job is easy in the current scenario?	
	(a) Yes **54**	(b) No **392**
Q.3	Are you aware about how many jobs are offered to MCA graduates every year?	
	(a) Yes **180**	(b) No **266**
Q.4	Are you aware of the criteria for offering a job in a good industry?	
	(a) Yes **367**	(b) No **79**
Q.5	Are you happy with the present curriculum?	
	(a) Yes **279**	(b) No **187**

5.3.7 Forms and formats of survey

Form1 : Survey form circulated to IT/ITES Industry Experts

"An interactive session with IT/ITES industry experts on Industry Expectations while offering a job to MCA Fresher"

Dear Participant please note that:

*The **confidentiality** of the following data which you will furnish in this questionnaire will be strictly maintained. Your datasheet will not be shared and/or disclosed to any other individual or institute or organization. It will be used only for our research purpose.*

Name : _____ Company : _____

Designation: _____ Total Experience: _____Yrs

Sector:_____(e.g Development, Testing, Design, KPO, BPO…etc)

Please tick (✓) any one option which is closer to your opinion.

Q.1	Which qualification is preferred for recruitment of a fresher by your enterprise?			
	(c) Engineering Graduate	(d) Post Graduate in Engineering	(e) MCA	(f) Graduate in other discipline
Q.2	What kind of academic performance of an MCA fresher is expected at the time of recruitment by your enterprise?			
	(c) Consistently high from 10th std.	(d) Above average from 10th std.	(e) Consistent first class in MCA	(f) First class in MCA final Year
Q.3	Which parameter has highest priority for judging suitability of MCA fresher?			
	(c) Oral Presentation	(d) Technical Presentation	(e) Written Communication	(f) Academic Performance
Q.4	Which technical competence should be preferably acquired by an MCA fresher for recruitment in your enterprise?			
	(c) Technology Development	(d) Assets Management	(e) Release Management	(f) Maintenance
Q.5	Which of the development themes practiced by an MCA fresher are more useful to your enterprise?			
	(c) System Programming	(d) Application Programming	(e) Scripting and Interfacing	(f) Higher Order Language
Q.6	Which development theme should be thoroughly practiced by MCA fresher?			
	(a) Module Based	(b) Component Based	(c) Pattern Based	(d) Framework Based

Q.7	In your opinion, which practice at institute level would impart a better hands on training to MCA students?			
	(a) Lab Assignments	(b) Mini Projects	(c) Group Assignments	(d) Individual Projects
Q.8	Which of the following can create adequate awareness about the ongoing practices in the IT/ITES sector?			
	(a) Lectures by industry expert	(b) Assignments on articles of current trends	(c) Regular guidance by alumni	(d) Awareness visits to industry
Q.9	Which of the co-curricular activities would be more beneficial for MCA fresher?			
	(a) Presentation in seminar	(b) Paper publication in conference	(c) Participation in technical competition	(d) Short-term internship in an enterprise
Q.10	Recruited graduates of which qualification have shown better retention with your industry?			
	(a) B.E/B.Tech	(b) M.E/M.Tech	(c) MCA	(d) Other graduates

Q.11 In general, for the recruitment of MCA fresher, how would you rank their following parameters?

Kindly rate them from 1 to 10. **[Please do not repeat the rank.]**

Rank 1 – Highest Rank with most important parameter

Higher Rank (Lower Number)shows more importance to the parameter, from recruitment point of view, as compared to the remaining once.

Rank 10 – Lowest rank with less importance

Parameter	**Rank**
Attitude	
Awareness of current trends	
Communication Skills	
Hands-on Experience	
Local Candidate	
Overall Personality	
Physical Fitness	
Problem Solving approach	
Strong Fundamentals	
Technical Knowledge	

Signature

Form2 : Survey form circulated to faculties of MCA Institutes :

An interactive session on "How to improve employability of MCA Graduates" with Faculties from various MCA institutes in Pune Region

Dear Participant please note that: *The **confidentiality** of the following data which you will furnish in this questionnaire will be strictly maintained. Your datasheet will not be shared and/or disclosed to any other individual or institute or organization. It will be used only for our research purpose without any mention of the name of individual and/or his/her institute.*

Name : _____ Institute: _____

No. of Yrs. Experience: _____ Signature: _____

Please tick (✓) **any one option** which is closer to your opinion.

Q.1	Does your institute have an Industry Institute Interaction?	
	(a) Frequently	(b) Rarely
Q.2	Do you think such an interaction can play an important role in the employment of your MCA students?	
	(a) Yes	(b) No
Q.3	Do you visit any of the industry?	
	(a) Frequently	(b) Rarely
Q.4	How often do you get an opportunity to interact with the industry experts for understanding the gap in your curriculum?	
	(a) Frequently	(b) Rarely
Q.5	Do you think the present curriculum is good enough to make every student ready for employment?	
	(a) Yes	(b) No
Q.6	Are you aware of the value adding inputs necessary to make your students employable?	
	(a) Yes	(b) No
Q.7	With the current time table, do you get time to give extra value adding inputs to students?	
	(a) Yes	(b) No
Q.8	Do you think the University curriculum should provide more flexibility to the students to choose subjects of their choice?	
	(a) Yes	(b) No
Q.9	Have you guided a project for the students which fetched a top rank in any project competition?	
	(a) Yes	(b) No
Q.10	Do your students get a job immediately at the end of MCA program?	
	(a) Yes, easily	(b) Not so easy

Form3: Survey form circulated to students of MCA Institutes :

An interactive session on "How to improve employability of MCA Graduates" with Students from various MCA institutes in Pune Region

Dear Participant *please note that: The* ***confidentiality*** *of the following data which you will furnish in this questionnaire will be strictly maintained. Your datasheet will not be shared and/or disclosed to any other individual or institute or organization. It will be used only for our research purpose.*

Name : _____ Institute: _____

Please tick (✓) **any one option** which is closer to your opinion.

Q.1	After Completing the program, are you interested in seeking a job?	
	(a) Yes	(b) No
Q.2	Do you think, getting a job is easy in the current scenario?	
	(a) Yes	(b) No
Q.3	Are you aware about how many jobs are offered to MCA graduates every year?	
	(a) Yes	(b) No
Q.4	Are you aware of the criteria for offering a job in a good industry?	
	(a) Yes	(b) No
Q.5	Are you happy with the present curriculum?	
	(a) Yes	(b) No

Chapter 6:Testing of Hypotheses

6.1 Introduction

The aim of the research being career planning of MCA students through campus placement. In coherence with the objectives of the research, available research on employability and the present scenario of IT industry, the hypotheses were formulated. The research involves responses of experts from IT industry, responses of teachers and responses of students regarding issues related to campus placement. The responses of senior employees of IT industry have been qualitatively analysed and contribute substantially to the research findings. A questionnaire of nine questions with yes/no response pattern was designed to seek responses of teachers from institutes offering MCA program. Out of these nine questions, six were selected to test the hypotheses formulated on teachers' opinions and the details of questions are given hypotheses wise. The data collected from 72 teachers was checked and then scored numerically. A questionnaire of five questions with yes/no response pattern was designed to seek responses of students from management institutes. The questionnaires of 446 students who had responded were checked and then numerically scored. Out of the five questions asked to the students three were selected to test the hypotheses formulated on students' opinions and the details of questions are given hypotheses wise. The scored data was entered in MS-Excel and copied to SPSS version 16 for statistical analysis.

6.2 Statistical Analysis for Hypotheses Testing

The questions selected for testing the hypothesis had two options, namely Yes and No. Each of the research hypothesis states that the correlation between two variables is positive. Thus the research hypotheses direct the type of relationship shared by the variables. To test each of the hypothesis phi coefficients were computed. Phi coefficient computes correlation between two variables which are expressed in the form of genuine dichotomies. In other words the data is on nominal scale. Phi coefficient ranges between + 1.00 to – 1.00. The significance of phi coefficient is tested with chi square tables. Square of phi coefficient multiplied with number of people is the chi square value. Chi square computes the association between two variables but may not state whether the relationship is positive or negative. The data

is analysed using SPSS 16 version. To test the hypotheses phi coefficient is computed to get the correlation coefficient and subsequently chi square is computed to check the significance of phi coefficient.

6.3Hypotheses Testing

Hypothesis 1

H1: IT / ITES industry interaction of the institutes is positively correlated with faculty members' quality time given to the students.

To test hypothesis 1, Q.1 and Q.7 of Teacher's survey were selected.

Q.1: Does your institute have an Industry Institute Interaction?

Q.7: With the current time table, do you get time to give extra value adding inputs to students?

		Q. 7		
		Yes	NO	Total
Q. 1	Yes	40	29	69
	No	0	3	3
Total		40	32	72

Phi coefficient is 0.233, Chi square value with correction term is 3.913(df 1, $p < .05$). Correlation significant at .05 level

The results indicate that there is positive correlation between industry interaction of the institutes and faculty members' quality time given to the students.

Thus, hypothesis 1 stated as 'IT / ITES industry interaction of the institutes is positively correlated with faculty members' quality time given to the students' is accepted.

Hypothesis 2

H2: IT / ITES industry visit of the faculty members facilitates quality of students projects.

To test hypothesis 2, Q.3 and Q.9 of Teacher's survey were selected.

Q.3: Do you visit any of the industry?

Q.9: Have you guided a project for the student which was appreciated by IT industry?

		Q. 9		
		Yes	NO	Total
Q. 3	Yes	21	5	26
	No	25	21	46
Total		46	26	72

Phi coefficient is 0.264,Chi Square value is 5.026 (df 1, $p < .05$).

Correlation significant at .05 level.

The results indicate that there is positive correlation between industry visit of the faculty members and quality of students' projects.

Thus, hypothesis 2 states as, 'IT / ITES industry visit of the faculty members facilitates quality of students projects' is accepted.

Hypothesis 3

H3: Faculty interactions with experts from IT / ITES industry is positively correlated with the quality of students projects.

To test hypothesis 3, Q.4 and Q.9 of Teacher's survey were selected.

Q.4: How often do you get an opportunity to interact with the industry experts for understanding the gap in your curriculum?

Q.9: Have you guided a project for the student which was appreciated by IT industry?

		Q. 9		
		Yes	NO	Total
Q. 4	Yes	35	11	46
	No	11	15	26
Total		46	26	72

Phi coefficient is 0.338, Chi Square value is 8.215(df 1, $p < .01$).

Correlation significant at .01 level.

The results indicate that there is positive correlation between faculty interactions with experts from IT / ITES industry and quality of students' projects.

Thus hypotheses 3, stated as 'Faculty interactions with experts from IT / ITES industry is positively correlated with the quality of students projects' is accepted.

Hypothesis 4

H4: Faculty perceives that curriculum flexibility enhances quality of students' projects

To test hypothesis 4, Q.8 and Q.9 of Teacher's survey were selected

Q.8: Do you think the University curriculum should provide more flexibility to the students to choose subjects of their choice?

Q.9: Have you guided a project for the student which was appreciated by IT industry?

		Q. 9		
		Yes	NO	Total
Q. 3	Yes	21	5	26
	No	25	21	46
Total		46	26	72

Phi coefficient is 0.367, Chi Square value is 9.696 (df 1, $p < .05$).

Correlation significant at .05 level

The results indicate that there is positive correlation between faculty's perception of curriculum flexibility and quality of students' projects.

Thus hypothesis 4 stated as 'Faculty perceives that curriculum flexibility enhances quality of students' projects' is accepted.

Hypothesis 5

H5: Students are aware about job availability and aware about job criteria for seeking a job also.

To test hypothesis 5, Q.3 and Q.4 of Student's survey were selected.

Q.3: Are you aware about job availability to MCA graduates every year?

Q.4: Are you aware of the criteria for offering a job in a good industry?

		Q. 4		
		Yes	NO	Total
Q. 3	Yes	161	19	180
	No	206	60	266
Total		367	79	446

Phi coefficient is 0.154, Chi Square value is 10.608 (df 1, $p < .001$).

Correlation significant at 0.001level.

The results indicate that there is positive correlation between student's awareness regarding job availability and about criteria for seeking a job.

Thus hypothesis 5 stated as 'Students are aware about job availability and aware about job criteria for seeking a job also.' is accepted.

Hypothesis 6

H6: Students' curriculum satisfaction is positively correlated with their awareness regarding criteria for seeking a job.

To test hypothesis 6, Q.4 and Q.5 of Student's survey were selected.

Q.4: Are you aware of the criteria for offering a job in a good industry?

Q.5: Are you satisfied with the present curriculum?

		Q. 5		
		Yes	NO	Total
Q. 4	Yes	224	143	367
	No	38	41	79
Total		262	184	446

Phi coefficient is 0.116, Chi Square value is 6.046 (df 1, $p < .05$).

Correlation significant at .05 level

The results indicate that there is positive correlation between awareness regarding criteria for seeking a job and curriculum satisfaction among students.

Thus hypothesis 6 stated as 'Students' curriculum satisfaction is positively correlated with their awareness regarding criteria for seeking a job' is accepted.

Chapter 7: Observations and Findings

7.1 Observations

7.1.1 Observations from Interview

a. Technical skills, logical ability and communication skills of the fresh candidates are essential parameters and attitude as additional parameter while recruiting the fresher candidates.
b. The experts are of the opinion that present curriculum needs alignment with industry expectations with frequency of 3 years to match with industry needs.
c. Current fresh candidates are poor in soft skills; industry needs a street smart fresher.
d. In opinion of expert following points were revealed
    - Institute play major role in campus placement.
    - Establishment of Training and Placement Office and appointment of experienced Training and Placement Officer (TPO) is necessary.
    - Continuous interaction with industry experts by TPO is mandatory.
    - Training of students for Aptitude Test, Mock Interview and soft skills is essential.
    - Involvement of alumni for appraising the current students about requirement in industry plays a vital role.
    - Institute must showcase (branding) the performance of students in University examinations and track record for the placement of students with well known industries.
e. The IT experts have suggested that institute should undertake the following for developing employable fresh candidate:
    - Include well designed soft skills program, problem solving subjects, more number of electives, increase industrial training and mini projects.
    - Industry feel that institute should give free hands to the students to do something creative, allow them to use laboratory to their maximum extend.
    - Avoid traditional assignments.
    - Introduce mini project in a group and evaluation by industry is preferred.
    - Train fresh candidate OFFBIT skills/trends.

- Industry looks for presentation with Return On Investment (ROI) of the work done in terms of time, cost, performance, manpower etc from institute.

7.1.2 Observations from Survey with IT/ITES industry

Following are the observations from survey conducted with IT/ITES industry.

a. IT / ITES industry are inclined to select fresh MCA graduates provided students should have additional qualities required for the job.
b. IT / ITES industry expects curriculum flexibility to enhance employability of MCA students.
c. Good academic record of the student is important.
d. Technical Knowledge plays a vital role.
e. The IT industry prefers skills for Technology Development.
f. Fresh graduate should predominantly acquire knowledge of Application Programming
g. Industry expects curriculum to focus on a variety of Development Themes.
h. Carrying out a Mini Project is the best practice.
i. Lectures by experts from Industry are strongly recommended.
j. Short Term internship with an enterprise is necessary.
k. MCA graduates tend to change their jobs.

In response to Question 11, the participants were requested to rank their preference to the attributes expected with fresh candidates for final selection, indicated as parameters in the question. Ranking was to be done from 1 to 10 where Rank 1 is the highest rank indicating the most preferred parameter and Rank 10 indicating the least preferred one.

Table 7.1 : % Ranking of Attributes

Parameter	**Calculated Weightage**
Strong Fundamentals	16 %
Technical Knowledge	15 %
Problem Solving Approach	14 %
Attitude	**13 %**
Communication Skills	**12 %**
Hands-on Experience	10 %
Awareness of current trends	9 %
Overall Personality	6 %
Physical Fitness	3 %
Local Candidate	2 %
Total	100%

7.1.3 Observations from Survey with Faculty

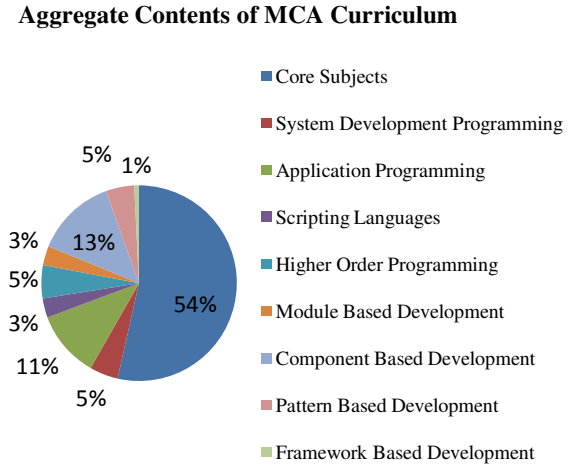
a. Faculty prefer flexibility in curriculum.
b. Faculty needs to understand the need of industry in term of academics through frequent interaction with industry experts.
c. Faculty also need to understand that it is a role of teacher to make student able for employment by providing value added inputs.

7.1.4 Observations from Survey with Students

a. Students are expecting job placement from institute.
b. Students are not aware about job opportunities other than software development.

7.1.5 Observations from university curricula

The curriculum of six universities have unequal distribution of different domains .



7.2 Findings and contribution by researcher

The overall findings from interview, survey and gap analysis are as follows:

a. Industry is still not getting the expected manpower from pool of fresh candidates.
b. With the efforts of faculty, students work on industry sponsored project but more efforts are required to convert them into job offer.
c. Students are having misunderstanding about job profiles, domains available, salary structure and growth of career.
d. The recruiters give high preference to the Strong Fundamentals, Technical Knowledge, and Problem solving Approach as traditional attributes.
e. Researcher has identified two additional parameters which has equal importance while recruiting and they are: Attitude and Communication Skills (Soft Skills) .
f. Internship / Hands on training as tool for improving employability
g. Although the curriculum of all the universities has given emphasis on development of Core Competencies, curriculum flexibility with general proficiency and professional development courses is a need to fulfil the expectations of IT/ITES industry from employability perspective.
h. Absence of short term internship in a curriculum is a major concern.
i. Faculty must take lead to offer innovative mini projects, short term internship in association with industry to enhance the job opportunities.

Chapter 8: Conclusions and Recommendations

8.1 Conclusions

1. The study has provided salient features of an employable fresh graduate and also gives university-wise deficiency in the curriculum for acquiring adequate technical competency.
2. On campus recruitment of fresh graduate, is a basic necessity for any institution to attract better students for admission. In fact, the students choose to select an institute only if it has a track record of inviting industry to the campus for recruitment. In order to ensure admissions to the fullest of the sanctioned intake, the management has to make efforts to make their students employable.
3. Out of the then characteristics (parameters) of the employable graduates, the top two parameters are strong fundamentals and adequate technical knowledge. These are followed with a problem solving approach, attitude and communication skills.
4. The top two are dependent on the curriculum set by the respective university and the academic rigor for implementing the teaching-learning process at a particular institute.
5. The management of the institute can think of achieving academic autonomy to gain total control over the curriculum, which is a lengthy process and is totally dependent on the enthusiasm of the teachers working in the institute.
6. The parameters like a problem solving approach and attitude of the students will have to be carefully nurtured at institute level, right from day one.
7. The additional efforts are required to develop behavioural skill as a part of attitude for the students.

With this background, the following steps are proposed for the management of such technical institutes which offer MCA program to enhance job opportunities as well as improve the admission status.

8.2 Limitations of Study

i. The study is limited to Pune region in Maharashtra for the period of 2009-2013.

ii. The industries / representatives were those who are located in and around pune city were considered .

iii. The industries / representatives who recruit majority of fresh candidates through campus placement activity only.

iv. The institutes selected were affiliated to Savitribai Phule Pune University.

8.3 Future Scope

The future scope for further study is

- Since attitude of fresh candidate is keenly observed at the time of campus placement, identification of measurable parameters of attitude from employability perspective would be valuable contribution to the study.
- Identification of effective process and mechanism to create opportunities for non eligible (those who do not satisfy company criteria in campus placement) candidates.
- Development of fast track mechanism to percolate trends, needs, requirements of industry to institute in tern students can be viewed as future scope .
- Innovative teaching learning method to inculcate industry needs from employability perspective.
- Mechanism to record effect of change/ modification in curriculum on campus placement.

8.4 Action Plan for the Management / Administrators of the institute

In the last five years, the world economy has slowed down and a large number of youth remain unemployed. The intake of engineering colleges has substantially increased in the last decade, enhancing the competition to MCA graduates for employability. As their employability is decreasing, the seats in MCA institutes have been remaining vacant and the management of these institutes are facing financial crunch. These managements need guidance to take steps to improve the employability of their graduating students, thereby improving the admission status.

The researcher has proposed a stepwise action plan to improve the employability.

Step I:

Every institute must identify a senior faculty who can work as an officer for training and placement (TPO) of students and also establish liaison with the surrounding industry. If such a faculty is not available in the institute, the management should identify such a person who could be eligible for such a function and recruit him or her.

Step II:

The institute must establish an Industry Institute Interaction Cell which would be lead by the TPO. Three young energetic faculties can be made a part of this cell who would work under the guidance of the TPO.

Step III:

The cell should enlist all IT/ITES industry within a region of not less 30 kilometres and make an attempt to visit the higher officers in those industries for the interaction. These higher officers' would means a managing director, various client/project heads, and HR manager.

Step IV:

The cell should invite the officials to visit the institute and showcase the facilities available with them.

Step V:

The cell should request the above officials to spare their experts for offering guest lectures to their students.

Step VI:

The senior faculty from the institute must visit these industries to know if they can propose mini projects for students.

Step VII:

The management of the institute must take a keen interest in this liaison activity and should provide all the facilities like transport and/or reimbursement for actual cost for all such visits.

Step VIII:

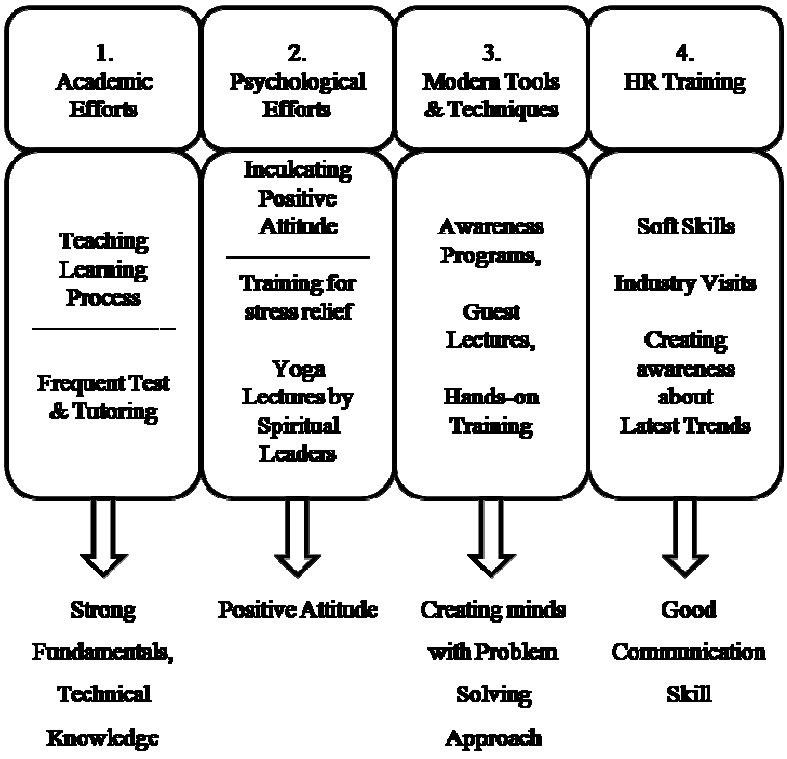
The training of all final year students should be provided by the management preferably free or with substantial subsidies, to improve the language skills and communication skills of the students.

Step IX:

Creating students with a positive attitude would be an important challenge to the management of the institute. Management should take efforts to contact consultants and/or spiritual leaders to undertake programs to their students which could improve their attitude in a positive direction.

All such programs will have to be conducted outside routine college hours and therefore involving the students to participate in such programs would be a task for the management. To perform such activities, mmanagement of concerned institute has to understand appeal of faculty and provide necessary help to improve the employability.

Figure 8.1: Measures to be undertaken by management of the institute



Block 1 in the figure 8.1 is associated with academic efforts where as Blocks 2,3,4 are administrative efforts that can be executed with help of distinguished alumni of their institute.

Step X:

Technical competency is a basic requirement for considering any candidate for recruitment. To ensure, management will have to make efforts in traditional ways as well as with innovative ideas. The traditional ways are as follows:

- Recruit adequate qualified faculty for conducting classes as stipulated by the curriculum.
- Ensure that theory and laboratory classes are held punctually and on a regular basis.
- Attendance of 100% by the students be made mandatory by the management and a mechanism to continuously monitor this be established. As the parents pay the cost of education, the management must make an arrangement to appraise the parents about regularity and sincerity of their wards at all theory and laboratory sessions.

Step XI:

The management should hold regular in-house competitions for the students to work on mini projects.

Step XII:

Management should offer, at reasonable or no extra cost, training of the students in the gap areas identified for their universities.

Step XIII:

Each institute must invite senior officers of nearby IT/ITES industry to be a part of their advisory board, which should be established by all institutes, and regular meetings must be carefully planned for these members to attend on the campus which may also allow them to interact with the students of the institutes.

The above plan of action would work as a model for improving the employability of the students within the institute.

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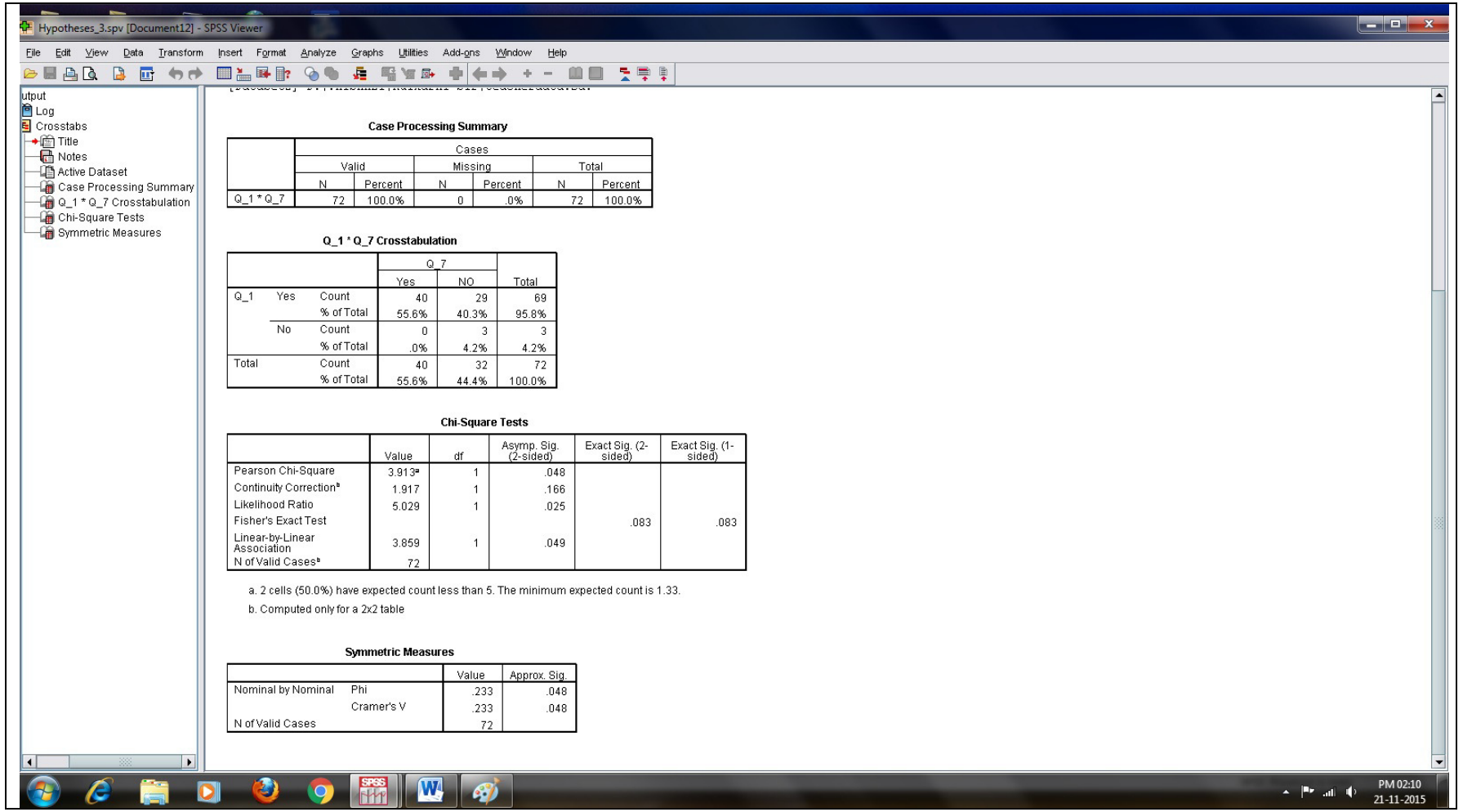

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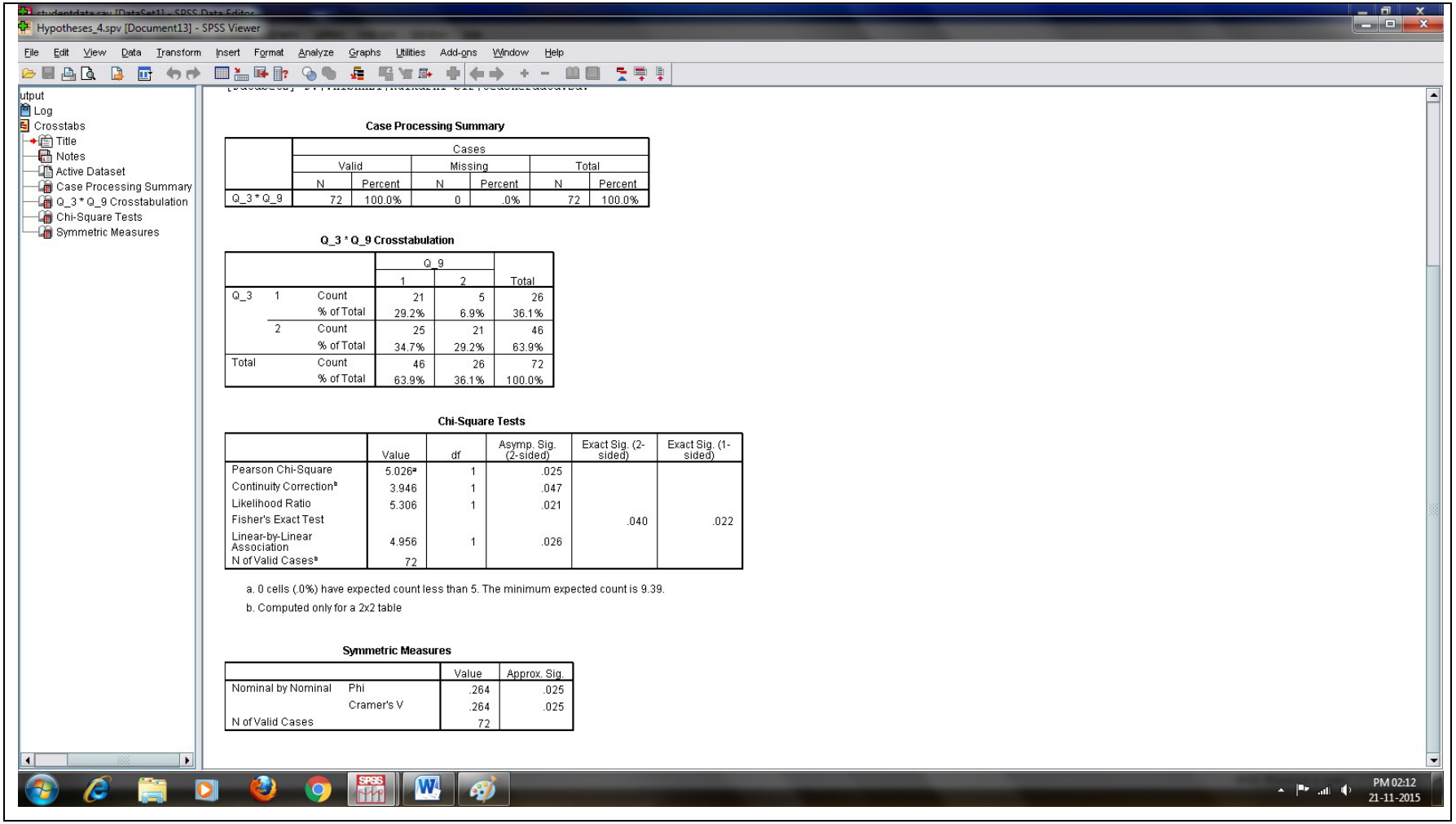

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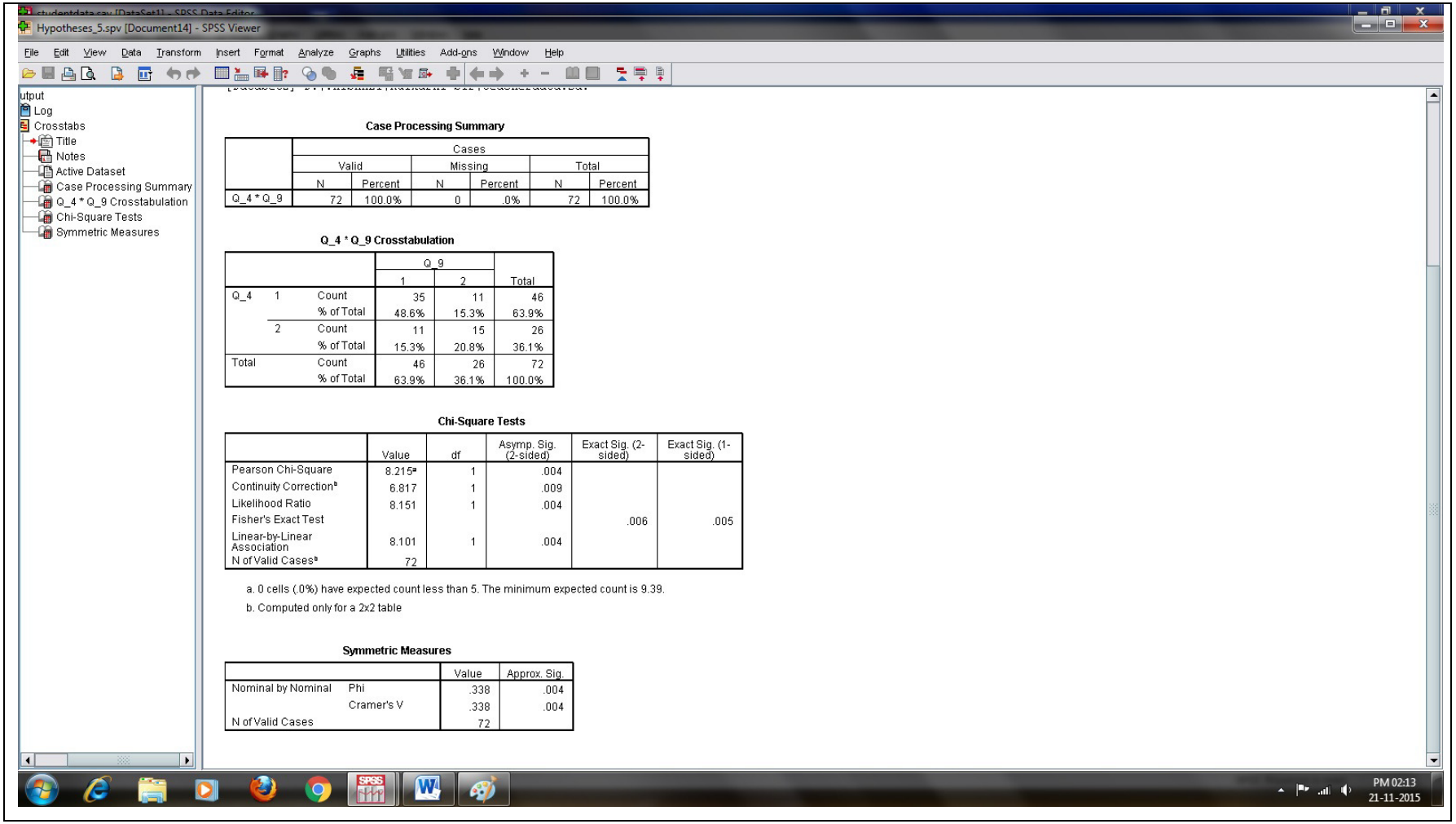

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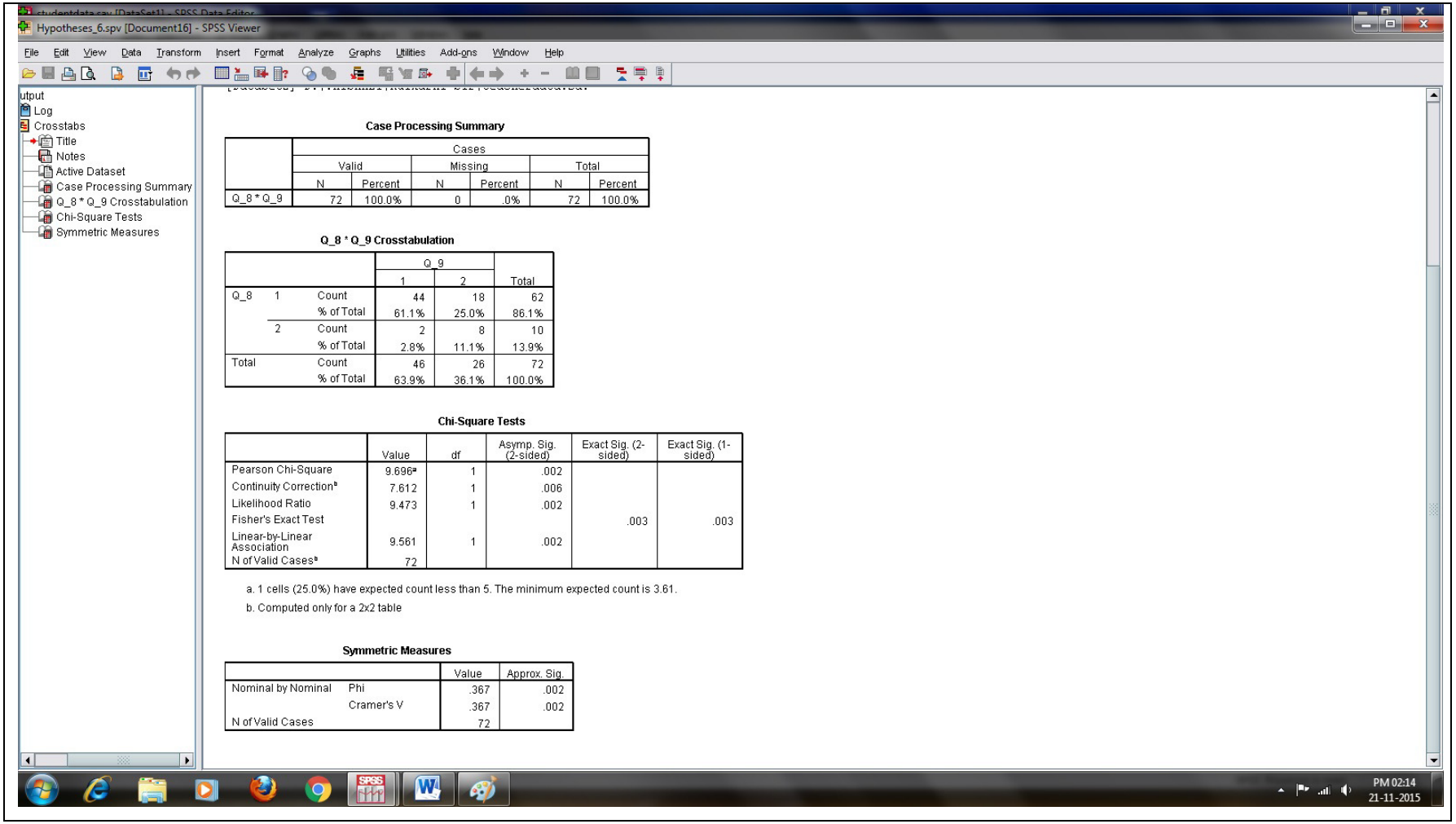
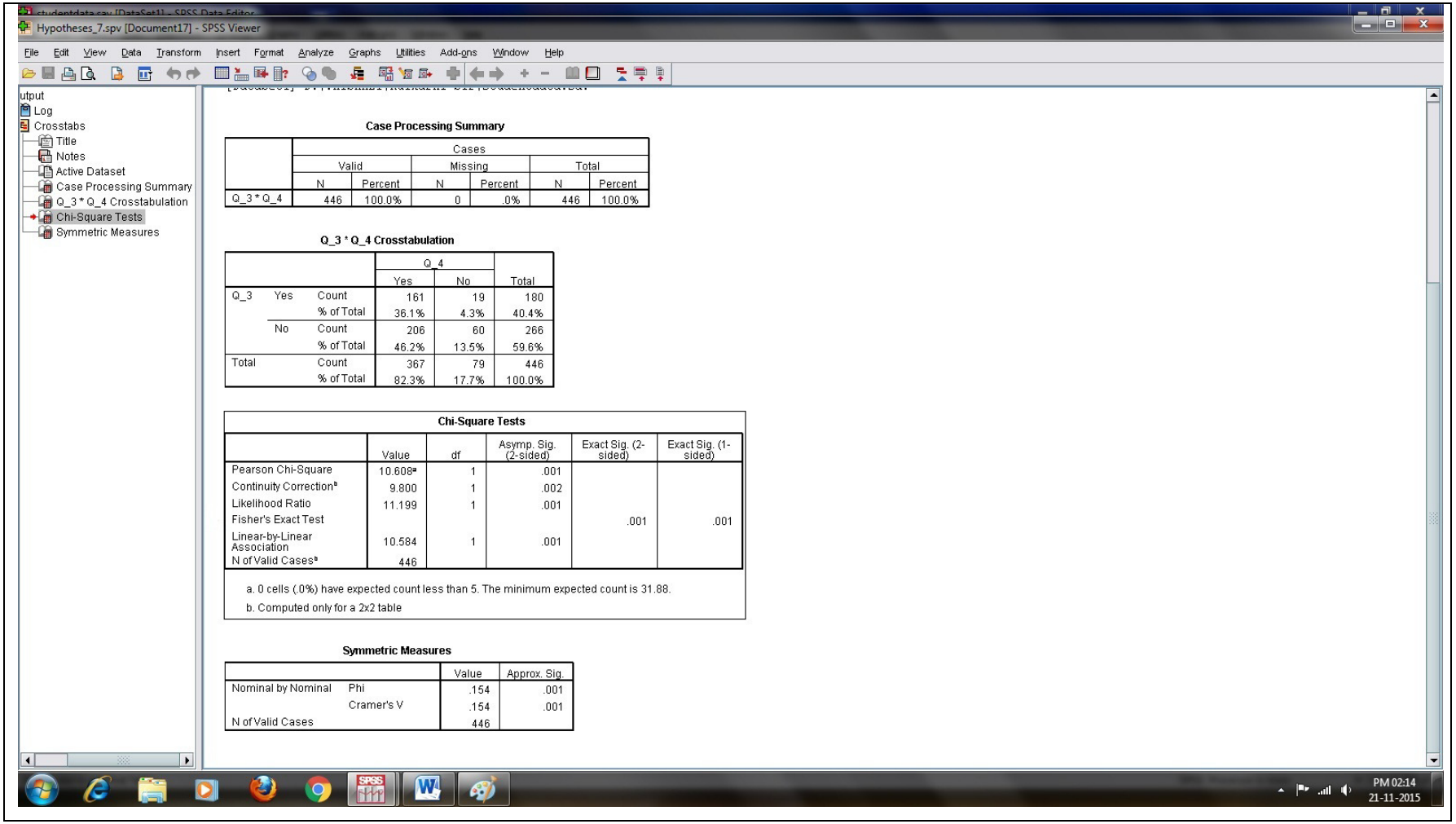
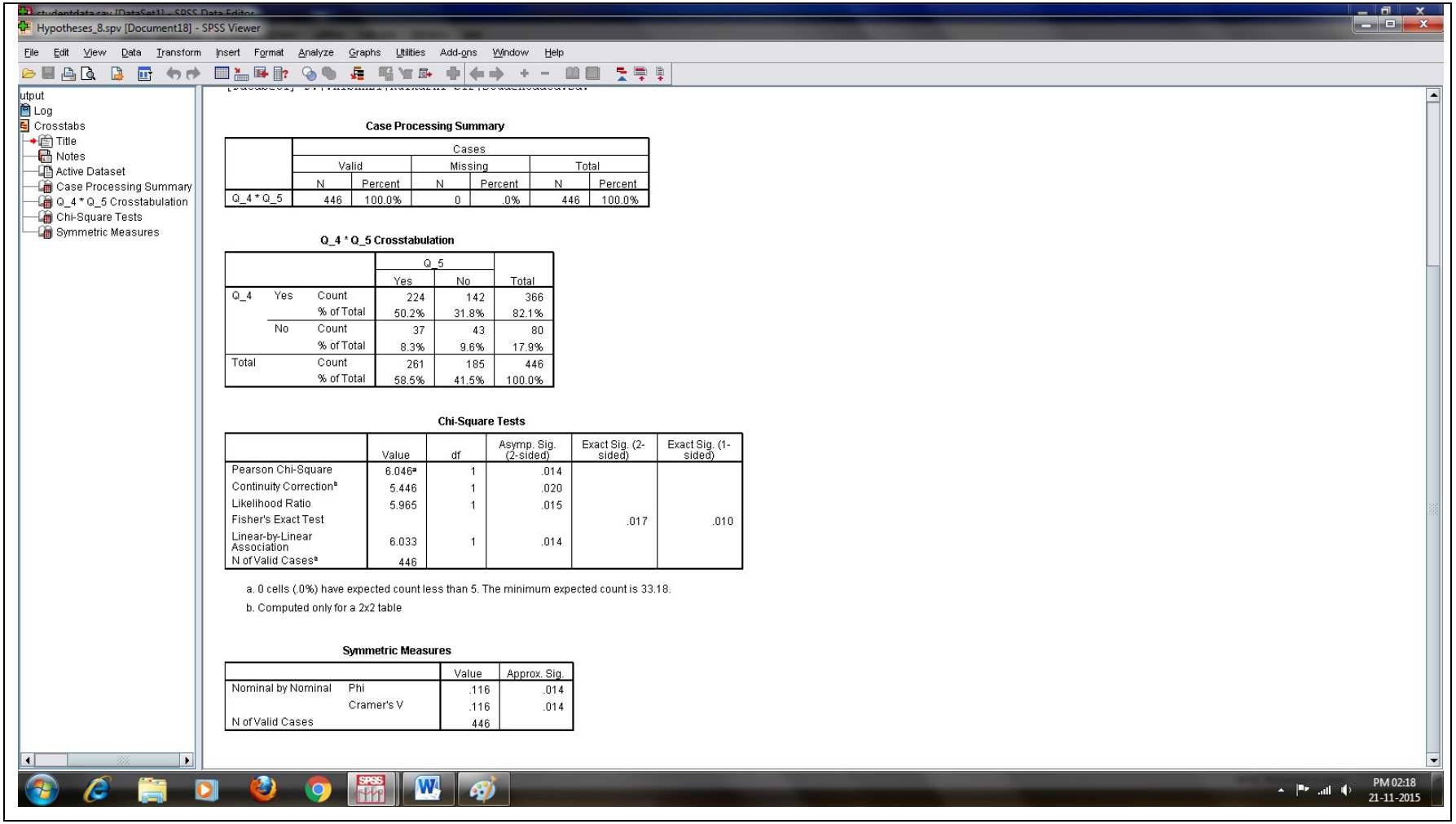


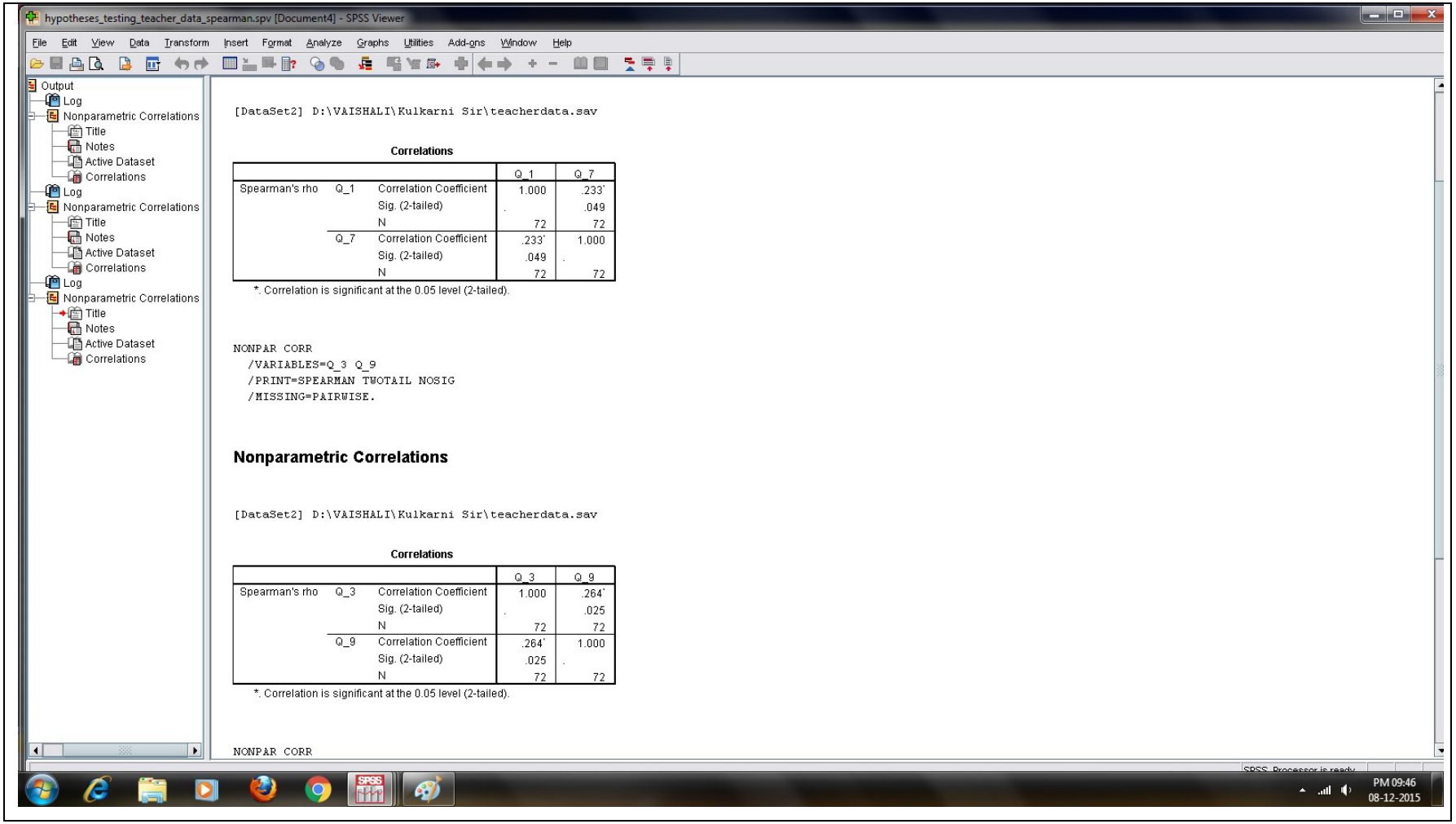
Hypothesis 4 : Chi Square Test



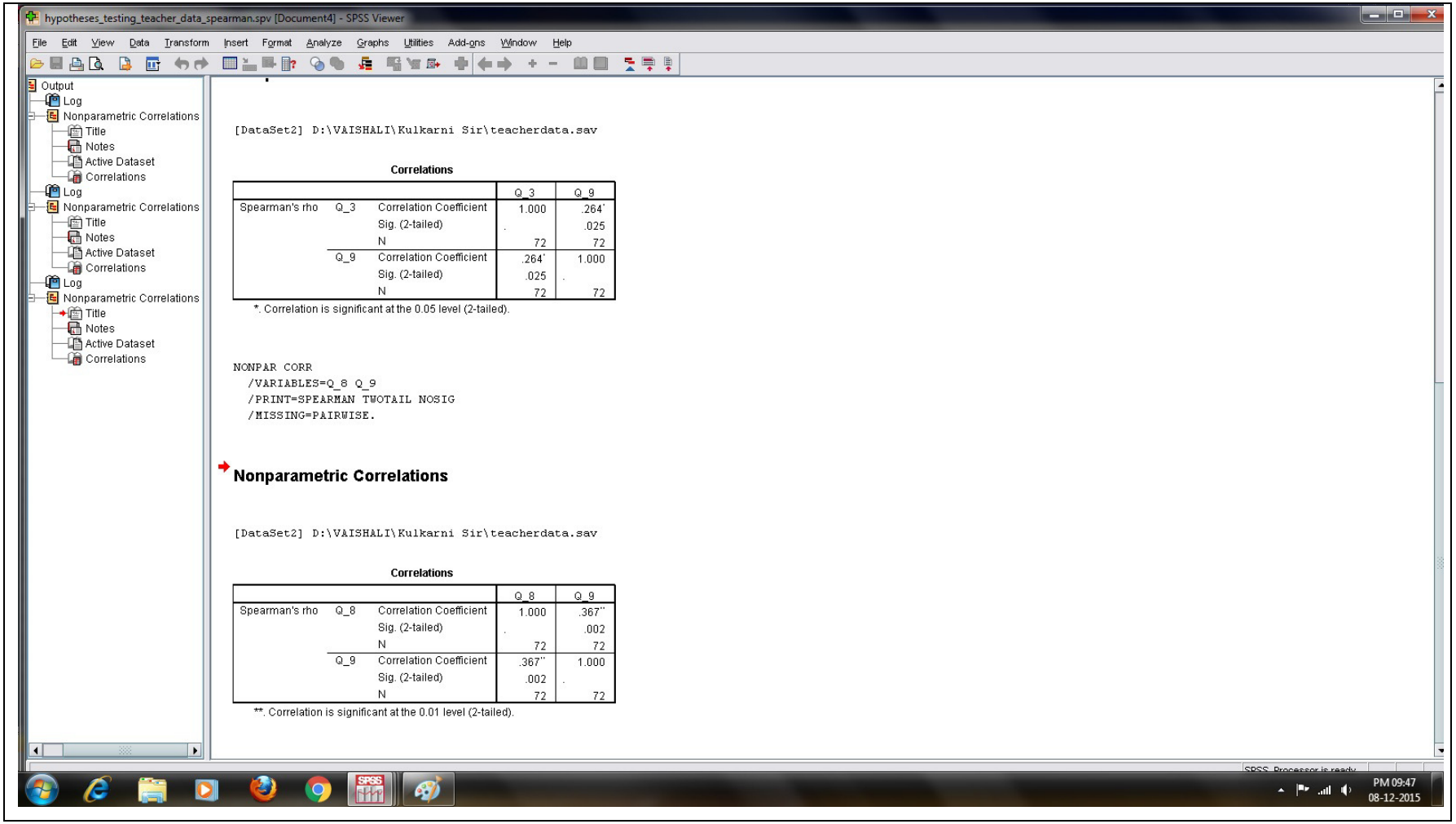
Hypothesis 5 : Chi Square Test



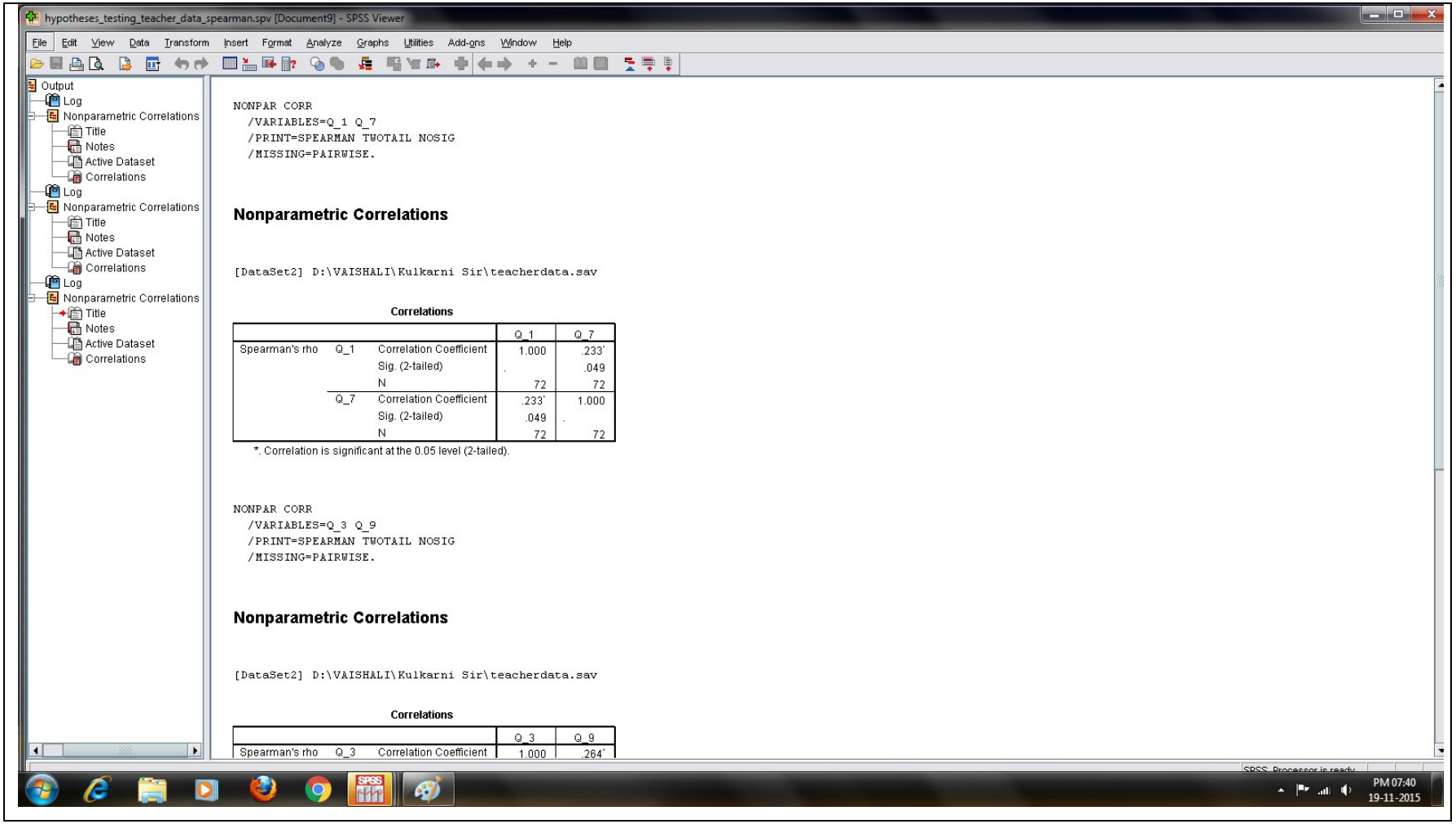
Hypothesis 6 : Chi Square Test



Hypothesis 1 & 2 : Spearman Correlation Coefficient



Hypothesis 3 & 4 : Spearman Correlation Coefficient



Hypothesis 5 & 6 : Spearman Correlation Coefficient