

**ATTITUDE OF AGRICULTURAL STUDENTS
TOWARDS COMPUTER USAGE**

By

Miss. PRIYANKA

B.Sc. (Agri.)

**DEPARTMENT OF EXTENSION EDUCATION
COLLEGE OF AGRICULTURE, LATUR
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VIDYAPEETH
PARBHANI-431402 (M.S.), INDIA.**

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Dissertation
submitted to the
Vasant Rao Naik Marathwada Krishi Vidyapeeth, Parbhani
in the partial fulfilment of the requirement for the
degree of

MASTER OF SCIENCE
(Agriculture)
IN
EXTENSION EDUCATION

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2017

CANDIDATE'S DECLARATION

*I hereby declare that the dissertation
or part thereof has not been
previously submitted by me
for a degree of any
University or
Institute*

Place : LATUR
Date : / / 2017

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CERTIFICATE - I

This is to certify that the dissertation entitled, “**ATTITUDE OF AGRICULTURAL STUDENTS TOWARDS COMPUTER USAGE**” submitted by **Miss. PRIYANKA** to the Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani in partial fulfilment of the requirement for the degree of **MASTER OF SCIENCE** (Agriculture) in the subject of **EXTENSION EDUCATION** is record of original and bonafide research work carried out by her under guidance and supervision. No part of this dissertation has been submitted for any other degree, diploma, associate ship, fellowship or other similar titles.

The assistance and help received during course of this investigation have been fully acknowledged.

Place : LATUR

Date : / /2017

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Research Guide

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Chairman

Advisory committee

CERTIFICATE - II

This is to certify that the dissertation entitle, “**ATTITUDE OF AGRICULTURAL STUDENTS TOWARDS COMPUTER USAGE**” submitted by **Ms. PRIYANKA** to the Vasantrya Naik Marathwada Krishi Vidyapeeth, Parbhani in the partial fulfilment of the requirement for the degree of **MASTER OF SCIENCE (Agriculture)** in subject of **EXTENSION EDUCATION** has been approved by the Student’s Advisory Committee after viva-voce examination in the collaboration with the External Examiner.

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Place: Latur

Date:

Priyanka

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ABBREVIATION

% - Percentage

Viz - Namely

AgEE 62- Agricultural students Computer Skills and Electronic Exams

CCC- Course on Computer Concepts

DOEACC- Department of Electronics and Accreditation of Computer Courses

ENIAC- Electronic Numerical Integrator and Calculator.

hr- Hour

ICT- Information and Communication Technology

MS-CIT- Maharashtra State Certificate of Information and Technology

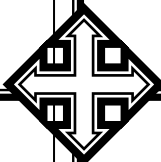
OLS-Ordinary Least Squares

PDF- Portable Document Format

S.D. - Standard deviation

Sl. No- Serial Number

INTRODUCTION



CHAPTER I

INTRODUCTION

India is a large and diverse country with an equally sizeable and varied media. The Spurt growth in media has tremendous impact on shaping development values as it informs, educates and entertains. The computer has been gaining popularity among young people, though at a much slower rate than television and radio. In recent years, the use of computer has far reaching effect on language, education and communication. Now a days Indians are more advanced in taking advantage of the computer revolution to improve their language and education. There is a significant impact in different language use brought out by the use of email viz., Kannada, Marathi, Tamil, Telugu.

In spite of significant differences among the developed and developing countries, the use of computer is rising steadily among young people. There are many computer literate people indicating the younger generation's greater interest and aptitude for technological advances. Around the world young users are increasingly turning to the computer use and internet as source of information, communication, socializing and entertainment. At the same time web access is the divider between countries and within countries. Computer store material and keep them in memory. They express the correct use of language. They furnish valuable information concerning various subjects. They operate at high speed and provide opportunity for rectifying and correcting mistakes and errors. This is a great contribution from the energetic software engineers. Thus the computer, mainly having literary merits, plays a very significant role in education. It provides knowledge and information in almost all the major languages both national and international. As little 10 to 12 years ago everyone would have laughed for asking the question about importance of computer. Many of the old timers still would, but the computers use in agriculture has become irreplaceable as with most modern industry. It is used in record keeping, fertilizer application, determining which crops to plant, to make a maximum profit and determine what and how much medication to give

livestock. Computers have been a significant part of the average student's education since the early few decades.

Young people are enthusiastic about the internet because, more than any other medium, it helps them to establish contact with outside world and freely seek information. Perhaps it is 'free' access to information on the web than information from traditional media. Young people use the computer primarily for communicating (e-mail and chat rooms), downloading (software and music), computer games and obtaining information (about education, entertainment, sports and news).

The uses of computer in agriculture do have some real constraints such as, the lack of hardware and software infrastructure, training and skills and research priorities. However, once these are overcome, the use of computer transcends automation and software application. Instead of thumbing through dozens of books to find information, students can refine searches and access information in seconds.

HISTORY OF COMPUTERS

Computers in the early stages of development were completely different from the personal computers. The first generation computers were really giants in their size and were snail paced. Present day computers are small and these can be desktops. It is amazing to note that computers have undergone tremendous change in their size, shape and speed through generations.

Computers were initially designed to be used as calculating devices. Unlike ordinary calculators, computers can store large information and the stored information can be retrieved later. In the seventeenth century, Napier invented another computing tool called computing rods, which later come to be called as Napier's bones. By the later half of the nineteenth century, machines based on the principles of today's computers were developed. Charles Babbage, an English Mathematician, was the first to develop a machine capable of doing small calculations. Thus he came to be known as the Father of computer. It was

he who proposed a basic structure for computers and this structure remains the same till day.

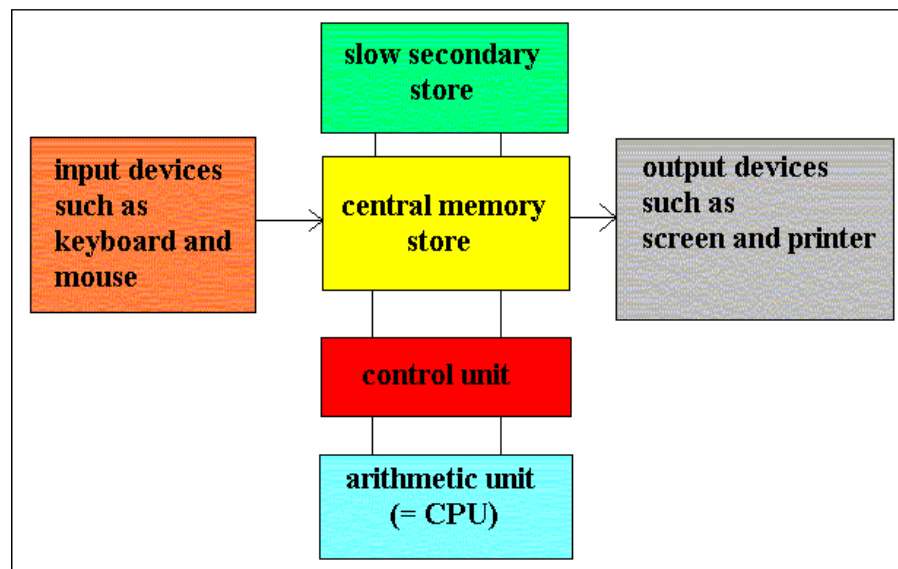
The basic structure of computers consists of four different basic units essential for their working.

BASIC STRUCTURE OF A COMPUTER

All these units are interconnected. The input unit intakes data or programme source code and stores in the storage unit. Different operations are performed by the arithmetic and logic unit and result is stored in the storage unit. The function of output unit to display the output or the result.

The world's first electronic computer was named ENIAC; its abbreviation is Electronic Numerical Integrator and Calculator. In February 1946, ENIAC started working at the University of Pennsylvania. This was the first generation computer made up of thousands of vacuum tubes also relays and occupied vast space. Computers were manufactured using transistor & came to be known as second generation computers.

Fig. 1 Basic structure of computer



The invention and use of integrated circuits reduced the size and weight of computers & using this technology came to be called as a third generation. Present day computers belong to the category of fourth generation. The main part of such computer is the microprocessor, which is the heart of

computer and also called as microcomputers. Unlike computers of the first generation, these are very small and weight less. They can be placed on top of tables or on desks and thus came to be known as table top or desktop computers. Computers are still shrinking in size and expanding in capacity and usage. Laptop and notebook types are popular now. Use of rechargeable batteries helps these computers to be portable.

The major impact of computers

Computers are commonly used items in many areas. It is an important thing to people, especially the people who run organizations, industry, etc. Almost anything you know is run or made by computers. Agriculture Research has benefited from incorporation of technological advances primarily developed for others industries. The industrial age brought mechanization and synthesized fertilizers to agriculture. The technology age offered genetic engineering and automation.

The application of the computer in agriculture research originally exploited for the conversion of statistical formula or complex model in digital form for easy and accurate calculation which are found relatively tedious in manual calculation. In the next generation, the same computer have been used to mechanization, automation and to develop decision support system for taking strategic decision on the agricultural production and protection research. Recently remote sensing and geographic information system has place a major and crucial role in agriculture research especially in the field of yield prediction, suitability of soil for particular crop, and site specific resource allocation of agriculture inputs etc. Let's visualize a world without computers. People in the medical field wouldn't have found a lot of cures to diseases, since most cures were found with the help of computers. Movies like Jurassic Park, Toy Story, A Bug's Life or Godzilla would never have been made without computers because they used computer graphics and animation in them. Pharmacies would have a hard time keeping track with what medications to give to patients. Counting votes would be impossible without computers and most importantly, space exploration wouldn't be possible without the help of

computers. It's a pretty tough life without computers. Some may not agree and say, "Well, we don't need computers to live on." They may be right but mostly, they are wrong. Computers help in curing diseases, make entertainment a lot better, keep track of important records, etc. Without computers, all this wouldn't be possible.

Computers changed the world a lot. It helped man step forward into the future. Thanks to computers, space exploration came true, new designs of vehicles and other transportation were made; entertainment became more entertaining, medical science made more cures for diseases, etc. The computers impacted our lives in many ways. You may not notice it but they did make life a lot easier. Without computers, the world would be a harder place to live in. Thanks to the computers, everyday life is easier for us. Some people may disagree but most wouldn't. Computers impacted many items in today's society. One area the computer impacted on is the business area. Business uses computers for keeping track of accounts, money, or items that they need. You may notice business people using computers a lot, especially the laptop computers, portable computers that can be taken to your work area.

Another area computers impacted on is the entertainment area. Most of the people out there like science fiction or action movies, especially the ones with the neat looking effects. Well, those graphics were mostly made by computers. Most of the movies today use computer graphics to make things more realistic but not real. Computer graphics are mostly used on spaceships, aliens, monsters, and special effects. To the left is a picture from the movie "Godzilla." Godzilla was created by computer animation, texturing, and graphics to make him more realistic than the older version when they used a man in a costume to play Godzilla. Not only movies used computer animations and graphics. Games on the latest game consoles like the PC, PlayStation and Nintendo 64 used the computers to make the coolest games ever. Of course all of you heard of the game Final Fantasy VII. It was the first Final Fantasy game to have a 3D environment and neat computer animation. It was a big money-making seller. Games now and days use computer graphics and animations to

make the coolest games. Computer games also have their share. Wing Commander Prophecy, Shogo and all the other new 3D games were made by really cool computer graphics. It would be really boring without all this wouldn't you think? That's how computers impacted today's entertainment.

Education was impacted by computers as well. Computers help out students in a lot of today's projects and essays. If a student were to do an essay on the planet Saturn, they could look in an electronic encyclopedia in the computer or they could look up their topic on the internet. They could also type their essays and reports on what's called a word-processing program. This program allows you to type anything out from a school essay to business papers. You can make your paper look very neat by adding images and neat looking text to impress your teacher. Now and days, typing out essays and reports are mandatory, especially in High School.

Computers help students in any way they need, researching, typing, searching, etc. An important field computers impacted on is the medical field. The computers helped the hospitals out very much. In pharmacies, the pharmacists use computers to keep a record of what medication to give to a patient and the amount they need. Most computers in the hospital are used to keep data of patients and their status. Computers also keep track of equipment placement and status as well. Scientists need the help of computers to find cures for diseases that need cures like cancer and STDs. Without the computers help, cures for a lot of diseases wouldn't have been found. Computer helped the medical area a lot and we are grateful for that since they keep track of our health. Other areas the computer impacted on is space exploration and designs of transportation.

Scope and Importance of the study

The present 21st century is called as 'computer era'. The uses of computer in agriculture are too many to list each one, but the difference between profit and loss in agriculture that the computer can make the difference in success and failure. Many of the old timers still would not accept but the computers use in agriculture has become irreplaceable as with most

modern industry. Though the price was quite high in the beginning, slowly it is reducing. At present many of the upper class and upper middle class families are owning computer. The State Government is also making computer education as part of the curriculum from primary school itself. Hence agriculture students internalize the skills to operate computer for presentation, online study, research works, internet, games etc. Computer has been a significant part of the average student's education since the early 1980s. Although computer technology has become much more pervasive since then, people often wonder why we need to learn on a computer use in school. Jobs of the future will demand computer literacy from just about every individual. In future computer will not only assist the teacher's teaching, it may replace a teacher if the lesson plans are effectively planned and fed to the computer. Now a day's many of the examinations are conducted through computers. Also various institutional/educational admissions enrolment forms are to be downloaded from internet. Job seeking, job tests, joining, e-mail, face book, job searching, writing online exams etc are done for prestigious computers through computer. Hence it is very essential to know the interest, knowledge and extent of use of computer. Therefore the present study is an effort to bring out a clear picture of the existing situation with respect to use of computers by agriculture students. It would be of utmost importance to the planners, policy makers and extension workers, to take stock of the situation. Computer plays a vital role in the field of Agriculture.

Hence the study on "Attitude of Agricultural students towards computer usage" is conducted with the following objectives:-

1. To study the profile of agricultural students.
2. To know the knowledge of agricultural students towards computer usage.
3. To study the attitude of agricultural students towards computer usage.
4. To delineate the relationship between profile of agricultural students with their knowledge and attitude towards computer usage.
5. To know the constraints faced by agricultural students in computer usage.

Limitation of the study

Due to limitation of time, money and other resources to the student researcher, the present investigation was confined only to the two districts of Marathwada region i.e. Latur and Parbhani. Respondents were selected only from two agriculture colleges and sample consisted of only 120 students because of the time constraints.

REVIEW OF LITERATURE



CHAPTER II

REVIEW OF LITERATURE

A comprehensive review of literature is an important step in a successful research and is an integral part of any investigation as it not only give an idea on the work done in the past but also provide the basis of interpretation and discussion of findings. A good understanding of the problem requires an analysis of the existing body of attitude and knowledge in the area of research under question. The available related reviews are presented under the following heads.

2.1 Study the profile of agricultural students.

2.2 Know the knowledge of agricultural students towards computer usage

2.3 Study the attitude of agricultural students towards computer usage.

2.4 Delineate the relationship between profile of agricultural students with their knowledge and attitude towards computer usage.

2.5 Know the constraints faced by agricultural students in computer usage.

2.1. Profile of Agricultural students

2.1.1 Professional education

Donald *et al.*(2000) in their study entitled, ‘Students enrolled in selected upper-division agriculture courses: an examination of computer experiences, self-efficacy and knowledge’ revealed that students had a variety of computer courses,with (79%) having completed a computer course and (66%) owning a computer. Over one-half of the students had received formal instruction in word processing (76%), file management (71%), spreadsheets (71%), electronic mail (64%), presentation graphics (62%), Internet use (62%), and databases (51%).

Gary J. Wingenbach (2000) in his study entitled as,‘Agriculture students computer skills and electronic exams’ concluded that students who enrolled in AgEE 62 Computer application course in Agriculture showed higher significant level in computer usage.

Chizari *et al.*(2003) in their study entitled,‘The Role of Internet in Educational Activities of Graduate Students at Tehran University, College of Agriculture’ founded that more than half of the respondents (57.9%) were seeking a Master of Science degree, the rest were PhD Students(47.1%). Nearly one-half of the respondents were from the Departments of Extension Education and Food Industry.

LaniganJane.D.*et al.* (2009) in their study entitled, ‘Computer in the Family Context: Perceived Impact on Family Time and Relationships’ revealed that most participants (84.9%) have some education beyond a high school diploma. Thirty three participants had completed some college, 21 held a 4 year degree and 20 held advanced degree.

Iremae D. Labucay (2011) in his study entitled, ‘Internet Use in the Philippines’ and results revealed from the Filipino college that 49 per cent of the students were college graduates and postgraduates and 26% of high school education graduates had computer courses like java, C++ and use the internet.

Abubakar and Adetimirin (2015) in their study named, ‘Influence of computer literacy on postgraduatesuse of e-resources in Nigerian university libraries’ showed that computer literacy level was average (56.3%).

Jane Aba *et al.* (2015) in their study entitled,‘The Use of Internet Services by Postgraduate Students for Research in Francis Idachaba Library’ at University of Agriculture, Makurdi revealed that 37.78% had received Internet training from external sources.

2.1.2 Family type

Manaya and Farzana (2000) in their study entitled, ‘Socio-economic Characteristics of Rural Family’ revealed that 89% of the families of village were nuclear families and 10.6% were joint family.

Rangi *et al.* (2002) study conducted at Fatehgarh Sahib district of Punjab revealed that 44 per cent of the respondents were having joint family.

Poonam shrivastav *et al.* (2004) in their study revealed that 59% of the families of village were nuclear families and 41% were joint families.

Abdad *et al.* (2006) conducted their study in tribal areas of Madhya Pradesh reported that majority (52%) were from nuclear family.

DeBell and Chapman (2006) in their study entitled 'Computer and Internet Use by Students in 2003' found that 92 per cent of the student's family was two parent married household.

Jane D. Lanigan *et al.* (2009) revealed that the participants in the extreme family type group (87.5%) were much more likely to list an activity was solitary or involved minimal interaction than the participants from balanced family type (64%).

Mamoni Das *et al.* (2010) were found that majority of the respondents (70.00%) belonged to nuclear family.

2.1.3. Family size

Richardson *et al.*(1986) carried out study on 'Parent child relationships in early adolescence: effects of family structure'. Interview data for 96, VIII graders from intact families with atleast two children were used for examination, results indicated that family size had a significant influence on parent –adult relationship.

A study of Sirohi and Chauhan (1991) revealed that acceptance of children was a feature of family size because in small family it is natural to have intimate relations with children.

Rangi *et al.* (2002) study revealed that 56% of the students had up to 5 family members whereas, 44% had 6 to 10 family members were living in the joint family.

Shwetha *et al.* (2007) study found that 15 per cent of the families had less than 4 members, 75 per cent had 4-8 members.

Mamoni Das *et al.* (2010) reported that 73.00 per cent of the respondents had small family.

Esen Oruc Buyukbay and Orhan Gunduz (2011) conducted study at Gaziosmanpasa University, Tokat, Turkey and results found that there were 5 family members in respondent family.

Mihaila Teodor (2012) study conducted in University of Bucharest with hundred respondents and results concluded that there was a negative correlation between attitude and family income of the students. As the families have more siblings means they will get low education, computer literacy.

2.1.4. Family education

Aytekin *et al.* (2004) in their study entitled, 'Attitudes of Students toward Computers' recorded that as students who use internet greater their parent's education is higher.

DeBell and Chapman (2006) in their study entitled, 'Computer and Internet Use by Students in 2003' found that student's parents had education in different educational attainment i.e. Less than high school credential(82%), High school credential (89%), Bachelor's degree (93%) and Graduation education (95%).

Jane D. Lanigan *et al.* (2009) A Pew Internet and American Life survey found that parents(women) of about 82.8% used email to enrich their important relationships and expand networks. (Rainie, 2000).

Mary Kate Whitcomb (2011) concluded that parents should be literated to provide guidelines to their agricultural students to monitor assist in protecting and educate about their internet and internet safety. Parents should remember that adolescence is a time of identity development in internet usage.

Ahmad Kainuwa and Yusuf Mohammad (2013) found that if parents had higher education means they can provide good education, better facilities to their children.

Arnaud Chevalier *et al.*(2013) OLS estimation was revealed modest effects of income, stronger effects of maternal education relative to paternal and stronger effects on sons than daughters. In parental education and

income, the maternal education effect disappears, while paternal education remains significant but only for daughters.

Woreta *et al.* (2013) study revealed that father and mother educational status as 31.6 per cent of student's father did Diploma and 31.5 per cent of mothers were illiterate.

2.1.5 Family occupation

Sarita (2000) in her study entitled, 'Educational interest and aspirations of girl students in agriculture college Pune' were revealed that more than three-fifth (61.11%) of the parents had service as their main occupation while 30.00 per cent of parents had farming as their main occupation.

Woman *et al.* (2000) in their study entitled 'Aspirations & employment of agricultural graduates' were revealed that father occupation was farming (73%) and service was (27.1%).

Panpatil (2006) in his study entitled, 'Information and communication Technology used by post graduate students for research and education' observed that 40 per cent of the student's fathers occupation was service, followed by 29.33 per cent students father occupation was farming. 2.66 per cent, 6.68 per cent, 21.33 per cent respondent's father was having landless labour, caste occupation and business respectively.

Mammoni Das *et al.* (2010) observed that majority of the respondents (80.00%) were engaged in farming.

Uma Maheshwara Rao *et al.* (2010) revealed that majority (60.00%) and above) were having agriculture along with dairying as their main occupation.

Ahmed almogbel *et al.* (2015) in their study entitled, 'Analysis of the relationship between Saudi Arabia parents education and economic levels and parental control' and results mentioned that there were no significant differences in the categories of parental occupation and age.

Denise Ante-Contreras (2016) found that family occupation like full time working parents (38%), followed by closely stay at home parents (36%).Part time working parents (16%), work-at-home parents (7%).

2.1.6. Extent of computer usage

Chizari *et al.*(2003) described the levels of Internet usage by graduate students in Iran for educational and research activities. Internet use by graduate students in Iran for research and education activities, Forty-one percent indicated no Internet use, (47%) little or some use, and (12%) much or very much use.

Emily B. Rhoades (2008) revealed that the majority of students (53.7%) spent 2 to 3 hours online each day, with (25.5%) spending one or less hours online. The majority of students (51.6%) indicated visiting three to four sites each visit.

Jagannath K. Dange (2010) in his study entitled, 'Post graduate students' computing confidence, computer and internet usage' was conducted between science and arts students at kuvempu University, Shankargatta, Shimoga and results revealed that students use the internet in higher extent in social media than the educational purposes.

Iremae D. Labucay (2011) revealed that at least daily (42%), at last weekly (29%) and less than weekly (30%) in different activities like social networking (89%), share things online (44%), news (40%) get general health information (37%) etc. used by the college graduates or postgraduates in Filipino.

Jayalaxmi *et al.* (2011) in thier study entitled,'Opinion and knowledge of children and adolescents towards computer usage' and 57.50 per cent of the respondents used computer daily, followed by (30.84%) who used fortnightly. Only a small percentage (11.60%) used computer once in a month and of them were rare users.

Frank W. K. Amenyedzi (2011) revealed that less than 40 per cent of student respondents were used the computer and the internet facility for entertainment, whereas less than 25 per cent used it for research and

learning. Less than 40 per cent of respondent students used the Internet for e-mail and browsing.

Olubanke Mofoluwaso Bankole & Oludayo Oludeyo (2012) results revealed that almost one third of the respondents 32 per cent used the Internet once in a week, 25 per cent used it for 2-3 times per week, 19.5 per cent used it daily and 13 per cent for monthly. The majority of the students 60.6 per cent spent 1-5 hours per week on the Internet followed by 23.8 per cent that spent 6-10 hours per week, while 9.9 per cent spent 11-15 hours weekly on the Internet. The average time spent by all the students was 4.6 hours per week.

Hsi-Chi Hsiao *et al.*(2012) in their study entitled, 'Perceived social supports, computer self-efficacy, and computer use among high school students' and results was found that 78.7 per cent of the students used the computer at the extent of below 5 hours and 11 per cent of the students used computer at the extent of 6 to 10 hours.

Henry Osborn Quarshie (2012) study conducted at Lecturer Regent University College of Science & Technology, Accra, Ghana showed that 23 per cent of the children always used computer for their home work as compared to 10.5% using it for games, 12% chatting online and 11.5% for sending e-mails.

Ahmad Fauzi Mohd Ayub *et al.* (2014) conducted study at University Putra Malaysia. On average, the participants accessed the Internet 4.48 hours per day. There were also significant differences in the time spent using the Internet among students in different fields of study, with computer science students spending more time online (5.61 hours per day) than the others.

Kingsley Obahiagbon and Osahon Joseph (2014) conducted study from University of Benin and Benson Idahosa University through randomly administered questionnaires showed that majority of respondents rated the use of ICT facility in teaching and learning to be very regular (55%) and regular

(31%) while 14 per cent of respondent hardly ever used ICT facility in teaching and learning.

Masoud Rezaei and Ali Shams (2014) revealed that students of College of Agriculture, Zanjan University Zanjan, IRAN, Student's Internet usage was ranged 1 to 40 h per week. The average Internet usage was 10 h per week.

Abubakar and Adetimirin (2015) revealed that students of Nigerian University used only few of the e-resources in their libraries and the frequency of usage was low.

Marjan Sepahpanah (2015) conducted at Kermanshah Azad University and results revealed that between 3 to 7 hours a week students used the internet 53.9 per cent for doing research, 44 per cent for educational activities and 68.4 per cent for communication.

Denise Ante-Contreras (2016) showed that 60 per cent of children used computer for 3 to 4 times a day and 22 per cent of children for about 2 times a day.

2.1.7. Health problems related to computer use

Kaveri Subrahmanyam *et al.*(2000) in their study entitled, 'The impact of home computer use on children activities and development' and results revealed that access to computers increases the total amount of time children spend in front of a television or computer screen at the expense of other activities, thereby putting them at risk for obesity.

Young (2004) studied the effect of internet addiction recognized as the bundle of dilemma such as psychological aspects, interpersonal, physical, work and behavioral problems.

Jane D. Lanigan *et al.* (2009) revealed that 45 per cent of individuals cited a positive influence, while 24 per cent mixed responses that listed both positive and negative influences. A negative impact on relationships was reported by 21per cent of the participants

Jayalaxmi *et al.*(2011) reported that 20 per cent of the respondents experienced eye strain, irritation in the eye followed by 1.67 per

cent faced muscle related problem i.e., backache and 4.17 per cent of them had headache after computer operation. Majority of the respondents (74.16%) relieves tension and nervousness but 43.3% of them strongly disagreed to it.

Masoud Rezaei and Ali Shams (2014) in their study entitled, 'Correlates of internet anxiety among agricultural students in Zanjan University of Iran' revealed that 24.5% of the students had low level, 45.8% had medium level and 29.7% had high level of Internet anxiety.

Syed Shah Alam *et al.* (2014) showed that the adults are using internet excessively were having some problems such as interpersonal problem, behavioral problem, physical problem, psychological problem and work problem in their daily life. The young adults believed that the internet usage can help them to improve their skills for doing their work better.

Iva Lloyd (2015) observed that musculoskeletal conditions, sleep disturbances, headache, changes in vision and behaviour like aggression (16.5%), hyperactivity (15.2%) and depression (15.2%) are being correlated with prolonged use. Greatest concern is that effect on children's and adolescent's physical health due to prolonged use seems to be greater than that of adults.

Jane Aba *et al.* (2015) conducted at University of Agriculture, Markudi revealed that only 22 per cent used Internet daily and 87.41 per cent claimed that digital libraries had greatly enhanced their academic performance with no health problems at all.

2.1.8 Annual family income

DeBell and Chapman (2006) in their study entitled 'Computer and Internet Use by Students in 2003' found that 95 per cent of students had family income was Rs 75, 000 and above.

Shukla and Bhanot (2009) in their study entitled, 'Role of socio-economic status in adjustment of college going boys and girls' showed that majority of (44%) girls had family income above Rs.10,000 per month, followed by 36 per cent were having up to Rs. 5000 per month and 20 per cent belonged to Rs.5000 to 10,000 per month.

Diana Oblinger and James Oblinger (2010) revealed that the distribution based on median family income is similar; 84% of families with incomes over Rs.50, 000 had internet access at home; for those making less than Rs.35, 000, the percentage is 66.

Esen Oruç Buyukbay and Orhan Gunduz (2011) in their study conducted at Gaziosmanpasa University, Tokat, Turkey and results found that average family income was Rs.15, 000.

Arnaud Chevalier *et al.* (2013) in their study entitled, ‘The impact of Parental income and education on the schooling of their children’ found that paternal income is significant for the children higher education.

Ahmad Kainuwa & Najeemah Binti Mohammad Yusuf (2013) revealed that due to the non-sufficient of parental income (Rs 25000), seriously affects the psychological balance in the classroom which causes low concentration, low perception, frustration, sickness leads to 59% of the students drop out from school or college.

Denise Ante-Contreras (2016) found that the highest representation of income came from individuals with a total family household income of between \$25,000 and \$50,000 per year.

2.2. Attitude.

Aytekin *et al.* (2004) conducted at Eastern Mediterranean University showed that students had positive attitude towards computer usage.

Emily B. Rhoades *et al.* (2008) revealed that the grand mean for general attitude toward the Internet was 3.2

Jayalaxmi *et al.*(2011) found that opinion index was 79.18% and which were noticeable and appreciable. The results showed that independent variables i.e., professional education and father’s occupation had exhibited positive significant relationship with existing knowledge level of the respondents.

Nathan Murithiand Francis Chisikwa Indoshi (2011) study revealed those students of 38% and 44% positive attitude towards contents of

computer and methodology in teaching and learning of computer studies curriculum respectively.

G.R.Angadi (2012) in his study entitled, 'Post Graduate Students Attitude towards the use of Internet and' at Rani Channamma University Belagavi jurisdiction revealed that 77 students had positive and 10 students had negative attitude towards Descriptive statistics in favour and against internet usage respectively.

Odede Israel (2013) revealed that students attitude like 'the internet is as important as other research tools' (91.6%), 'I find using the internet easier than using the library' (91.2%), 'Internet is a universal digital library' (90.8%), 'Internet can allow you to do more imaginative work' (88.2%), 'Internet has a potential to be an effective teaching/training tool' (87.8%).

Masoud Rezaei and Ali Shams (2014) revealed that there was negatively significantly attitude with high level of internet anxiety.

Opoku *et al.* (2014) revealed that majority of the students had positive and favourable attitudes toward ICT education. The results showed that the majority of the students (90%) indicated that they feel comfort and loved to use computers to study. It is only a negligible percent of 3.9 who indicated that they did not like studying with computers.

Rhema and Miliszewska (2014) in their study named, 'Socio-economic Characteristics of Rural Family study conducted at Victoria University' and results concluded that students show positive attitude towards computer usage.

Marjan Sepahpanah *et al.* (2015) conducted study at Kermanshah Azad University and results revealed that students possess significant and positive attitude towards internet usage.

Ahmadpour *et al.* (2016) conducted on extension workers who were the BSc Agriculture graduates and results showed that there was a positive attitude towards usage of e-learning.

Denise Ante-Contreras (2016) found that attitude of the respondents like 96 per cent students used cell phones, 36 per cent used laptops and only 8 per cent of students were used desktops and frequently they were used face book than others.

2.3. Knowledge

Donald *et al.* (2000) revealed that students had computer knowledge was fairly low, with a mean of 17.6 (50.3% correct). Nearly three-fourth 72.7% of the students scored 60% or less on the test.

Jagannath K. Dange (2010) conducted between science and arts students at kuvempu University, Shankargatta, Shimoga concluded that science students had high knowledge than arts students.

Frank W. K. Amenyedzi *et al.* (2011) conducted study at University of Education revealed that 78 per cent of respondent students also had basic knowledge in computer.

Olubanke Mofoluwaso Banko and Oludayo Stephen (2012) studied that the knowledge transfer of Internet skills is mostly through personal communication channels (friends). Most of respondents 86 per cent browsed the Internet for information by using search engines. Most respondents 78.9 per cent used Google as the search engine to locate information; followed by 45.9% that used Yahoo, 26.7% utilized AltaVista while 19.8% used Scholar Google.

Woreta *et al.* (2013) conducted study in University of Gondar at Ethiopia and results concluded that 51 per cent of the respondents had knowledge of ICT, of which 29 per cent were female and 75 per cent were originally from an urban residence. Of the students that were considered knowledgeable, 42 per cent were full time.

Opoku *et al.* (2014) revealed that, of the 135 respondents who had access to computers at home, 70 per cent representing the majority of such students have had access to the technology between only one and three years. It is evident from the findings that the majority of the students not had access to computers at home for long and study concluded that students who

access computer at home results in increase their knowledge and competencies.

Jane Aba *et al.* (2015) conducted study at University of Agriculture, Markudi and results revealed that the students had basic knowledge and internet skill of (44.44%) was rated average.

Marjan Sepahpanah *et al.* (2015) revealed that 269 graduated students from the Azad University of Kermanshah had the knowledge in educational activities (53.9%), research (44%) and communication (68.7%).

Thomas (2015) conducted study at University of Science and Technology Port Harcourt and results revealed that postgraduate students had higher level of knowledge in word processing, downloading articles, scanning journals and email.

Ahmadpour.A.*et al.* (2016) study conducted on extension workers who were the B.Sc Agriculture graduates and results showed that there was a positive and high level of knowledge in usage of e-learning, ICT knowledge, Principles and concepts in e- learning.

Derry Samuel *et al.* (2016) revealed that the students of Ghana university had Computer knowledge was high among students at almost (99%). About (83%) owned computers and self-rated computer knowledge was also (87 %).

2.4 Relationship between socio economic characteristics of Agricultural students with their attitude and knowledge of computer use.

2.4.1 Profile characteristics and attitude.

1. Professional education and Attitude.

Donald *et al.* (2000) studied that students of University of Arkanas showed positive attitude towards computer courses.

Gary J. Wingenbach (2000) revealed that students who enrolled in AgEE 62 Computer application course in Agriculture had a significant and positive relationship between attitude and their computer literacy.

Nathan Murithi and Francis Chisikwa Indoshi (2011) revealed that students possess positive relationship between attitude and computer studies curriculum.

Odede Israel (2013) revealed that there was a positive and significant relationship with attitude and professional education.

Oladunjoye Patrick and Benwari Nnenna Ngozi (2014) revealed that students of Nigeria Delta University, Nigeria possess significant relationship between attitude and computer literacy.

Abubakar and Adetimirin (2015) conducted a study in Nigerian University and students possess positive relationship between computer literacy level and attitude of the students.

2. Family type and Attitude

Serf De Megan (2002) revealed that significant relation between attitude and single parent type of family.

Barry Jennifer (2006) revealed that no significant relationship between attitude and size of the family as students have nuclear family means good academic performance.

Jane D. Lanigan *et al.* (2009) revealed that the participants in the extreme family type group positive and significant with attitude of the students towards computer literacy.

Tomul and Polat (2013) revealed that there was no significant correlation between attitude and type of the family.

3. Family size and Attitude.

Serf De Megan (2002) showed that Family size was also found to be significant at the 0.01 level in each of the regressions. The sign of this variable was negative as predicted earlier. These results show that the educational attainment of the respondents decreased as the number of children in the family increased.

Barry Jennifer (2006) revealed that no significant relationship between attitude and size of the family as more number of siblings means poor academic performance.

Mihaila Teodor (2012) revealed that there was a negative correlation between attitude and family size of the students.

Tomul and Polat (2013) revealed that there were no significant correlation between attitude and size of the family.

4. Family education and Attitude

Dhalla *et al.* (2002) revealed that there was positive and significant relation with attitude and family education.

Aytekin *et al.* (2004) revealed that there was positive relationship between attitude and family education.

Ozturk.A. and Singh Kusum (2006) revealed that there was positive relationship with attitude towards computer literacy as father had good education.

Ahmad Kainuwa and Najeemah Binti Mohammad Yusuf (2013) found that there was positive relationship between attitude and parents education of the respondents.

Hossain, Zeheen and Islam (2013) revealed that there was a positively significant relationship between attitude and parental education.

Tomul and Polat (2013) revealed that there was non- significant correlation between attitude and mother education.

Gonzalez *et al.* (2015) revealed that there was a positive relationship between attitude and family education of the students.

5. Family occupation and Attitude

Dhalla *et al* (2002) revealed that there was positive significant relation with attitude and family occupation.

Hossain, Zeheen and Islam (2013) revealed that there was positively significant relationship between attitude and family occupation.

Odede Israel (2013) revealed that there was positive and significant relationship with attitude and family occupation.

Tomul and Polat (2013) revealed that there was a significant and positive relationship between attitude father occupations.

6. Extent use of computer and Attitude

Emily b. Rhoades *et al* (2008) revealed that there was a positive relationship between attitude and extent use of computer.

G. R. Angadi (2012) concluded that students should align their potential for significant and positive relationship between attitude and use of the Internet and frequently using the Internet for study and related work.

Odede Israel (2013) study revealed that there was a positive significant relationship with attitude and extent use of computer.

Ahmad Fauzi Mohd Ayub *et al.* (2014) study revealed that students of agriculture, computer sciences, engineering had no correlation between attitude and time spent on the internet for academic research.

Masoud Rezaei and Ali Shams (2014) study revealed that students of College of Agriculture, Zanzan University Iran who possess negative relationship between attitude and extent of use of computer.

Marjan Sepahpanah *et al* (2015) study revealed that students possess significantly positive relationship between attitude and extent use of computer.

7. Health problems related to computer usage and attitude

Jayalaxmi *et al.* (2011) study revealed that there was significant relation between attitude and health problems as the children face the problems if use the computer long time.

Masoud Rezaei and Ali Shams (2014) study revealed that students of College of Agriculture, Zanzan University Iran who possess negative relationship between attitude and health problems related to computer usage.

Iva Lloyd (2015) in his study observed that significant relation between attitude and health problems as positive attitude for short time of using computer.

Jane Aba *et al.* (2015) conducted study at University of Agriculture, Markudi revealed that there was significant relation between attitude and health problems.

8. Annual Family income and Attitude

Mihaila Teodor (2012) revealed that there was a negative correlation between attitude and family income of the students.

Hossain, Zeheen and Islam (2013) revealed that there was a positively significant relationship between attitude and level of family income.

Odede Israel (2013) revealed that there was a positive significant relationship with attitude and family income.

Okioga Charles (2013) revealed that family income of the students significantly related to attitude.

Oladunjoye Patrick and Benwari Nnenna Ngozi (2014) revealed that students of Niger Delta University, Nigeria possess significant relationship between attitude and family income of the student.

Gonzalez *et al* (2015) revealed that there was a positive relationship between attitude and family income of the students.

2.4.2 Profile characteristics with Knowledge.

1. Professional education and knowledge

Donald *et al.* (2000) conducted study at University of Arkanas revealed that students do not possess positive relationship between knowledge level and professional education of the students.

Kaveri Subrahmanyam *et al.* (2000) revealed that students possess positive relationship between computer literacy level and knowledge because of playing games in computer increase students' ability to read and visualize three dimensional space and multiple images simultaneously.

Kar1, Saha and Mondal (2014) revealed that there was positive relationship between knowledge and computer education.

Oladunje Patrick and B. N. Ngozi (2014) revealed that students of Niger Delta University, Nigeria do not possess significant relationship between computer literacy and knowledge level of the students.

Abubakar and Adetimirin (2015) conducted a study in Nigerian University and students possess positive relationship between computer literacy level and knowledge of the students.

2. Family type and knowledge

Gautam and Tripathi (2001) indicated that family type of respondents do not possess a significant relationship with the knowledge level of the students.

Rangi *et al.* (2002) conducted at Fatehgarh sahib district of Punjab revealed that family type of the students had a positive relationship with the knowledge level of the students.

Ashok.A.Patel and Dharmendra Patel (2006) studied on 'Education through Multimedia among Agriculture Diploma School Students' and results revealed that family type and knowledge do not have significant relationship.

Ommani and Chizari (2007) study on knowledge level of children and adolescents about computer use revealed that there was a significant relationship between family type and knowledge.

Jayalaxmi. Pawar *et al.*(2011) revealed that students possess non-significant relationship between family type and knowledge level of the students.

3. Family size and knowledge

Hijazi and Raza Naqvi (2006) showed that negative relationship between knowledge and size of the family.

Jayalaxmi. Pawar *et al.* (2011) revealed that students possess non-significant relationship between family size and knowledge level of the students.

Mihaila Teodor (2012) revealed that there was a negative correlation between knowledge and family size of the students.

Tomul and Polat (2013) revealed that there were no significant correlation between knowledge and size of the family.

4. Family education and knowledge

Dhalla *et al.* (2002) revealed that there was positive and significant relation with knowledge and family education.

A study by Ashok Patel and Dharmendra Patel (2006) on “Education through Multimedia among Agriculture Diploma School Students: An Impact study” revealed that Parental education and knowledge do not have significant relationship.

Hijazi and Raza Naqvi (2006) showed that positive relation between knowledge and mother education.

Jayalaxmi Pawar *et al.* (2011) revealed that students possess non-significant relationship between family education and knowledge level of the students.

Ahmad Kainuwa and Najeemah Binti Mohammad Yusuf (2013) found that there was a positive relationship between family education and knowledge of the students.

Tomul and Polat (2013) revealed that there were positively significant correlation between knowledge and father education but there was no significant correlation between knowledge and mother education.

Woreta *et al.* (2013) revealed that there was a positive relationship between level knowledge and parental education.

5. Family occupation and knowledge

A study by Ashok Patel and Dharmendra Patel (2006) on “Education through Multimedia among Agriculture Diploma School Students: An Impact study” revealed that Parental occupation and knowledge do not have significant relationship.

Sesane (2010) reported that occupation had highly significant correlation with knowledge possessed by respondents in respect of IPM technology.

Jayalaxmi. Pawar *et al.* (2011) revealed that students possess non-significant relationship between mother occupation and knowledge level of the students but father occupation had a positive correlation with knowledge level of the respondents.

Tomul and Polat (2013) revealed that there was positive and significant relationship between knowledge and father occupations.

6. Extent use of computer and knowledge

Kaveri Subrahmanyam *et al.* (2000) revealed that as increase in the extent usage of internet, play games in computer automatically increase their knowledge level of respondents.

Emily b. Rhoades *et al.* (2008) revealed that there was a positive relationship between knowledge and extent use of computer.

Odede Israel (2013) revealed that there was a positive and significant relationship with knowledge and extent use of computer.

Ahmad Fauzi Mohd Ayub *et al.* (2014) revealed that students possess positive relationship between knowledge and extent use of computer.

Abubakar and Adetimirin (2015) conducted a study in Nigerian University and the students possess positive relationship between knowledge level and extent use of computer by the students.

Marjan Sepahpanah *et al* (2015) revealed that the students possess positive relationship between knowledge and extent use of computer.

7. Health problems related to computer usage and knowledge

Kaveri Subrahmanyam *et al.* (2000) revealed that there was both positive and negative effect in computer usage and knowledge level because as used more internet means increased their knowledge but correspondingly increases loneliness and depression.

Masoud Rezaei and Ali Shams (2014) revealed that students of College of Agriculture, Zanjan University Iran who possess significant relationship between knowledge and health problems related to computer usage.

Iva Lloyd (2015) in his study observed that non-significant relation between knowledge and health problems as positive attitude for short time of using computer.

Jane Aba *et al* (2015) conducted study at University of Agriculture, Markudi revealed that there was significant relation between knowledge and health problems.

8 Annual family income and knowledge

Sonsale (2000) showed that annual income had positive and significant relationship with knowledge.

Ramteke (2001) reported that annual income of the respondents had showed positive and significant relationship with knowledge.

Pandian *et al.* (2002) conducted study in Madhurai district of Tamil Nadu on the impact of video education on knowledge retention revealed that the knowledge level of the respondents has shown significant relationship with the annual income of the respondents.

Chavan (2004) observed that annual income and knowledge level was significant and positively related.

Jayalaxmi. Pawar *et al.* (2011) revealed that students possess non-significant relationship between family income and knowledge level of the students

Oladunjoye Patrick and Benwari Nnenna Ngozi (2014) revealed that students of Niger Delta University, Nigeria didnot possess significant relationship between knowledge level and family income of the students.

2.5. Know the constraints faced by Agricultural students.

Kumari *et al.* (2008) made an effort about the utilization of computer based information technology by undergraduate students. Students of B.Sc. 1st year and 4th year were taken from two colleges i.e. college of Agriculture and College of Home Science. The results revealed that 1st year students felt more constraints than 4th year students in using computer for various activities.

Thangaraja (2008) opined that majority of the students faced problems like getting user name, password, and long time to download article, read only content and limited availability of online journals during access and usage of online journals.

M. S. Al-Shayaa (2011) showed that (50%) of respondents' skills in English were poor, about 67% of them obtained the agricultural diploma: the lack of computers, non-availability of computers at the work place, lack of incentives from management, the lack of knowledge on using the computers, lack of interest in learning computers, the difficulty of the English language.

Olubanke Mofoluwaso Bankole and Oludayo Stephen (2012) showed that They were lack of training on how to use it cited by 64%, high cost of Internet access (32%), lack of computer literacy (25%) lack of time (20%) majority indicated slowness of the server resulting in time wastages (50.0%), the limited institutional Internet facilities (35.2 %), frequent power outage (27.0%) high cost of usage (25.5%), difficulty in gaining access to full texts (10.2%).

Pravin Kumar Singh and H.N.Prasad (2013) revealed that out of 263 respondents, 83 (31.56%) respondents said it was lack of infrastructure, 96 (36.50%) respondents attributed it to slow downloading, 91 (34.60%) respondents attributed it to insufficient e-resources in their subject area, 148 (56.27%) respondents said to lack of knowledge and training and 74 (28.10%) respondents said to other problem.

Jane Aba *et al.* (2015) study revealed that Problems encountered included longtime to view or download web pages and insufficient computers. The study revealed that the use of Internet had led to decreased in the use of traditional library facilities but only (94%) were fully satisfied with the Internet facilities.

Thomas *et al.*(2015) revealed Postgraduate Students University of Science and Technology faced some problems while using computer. They were lack of search skills; Inaccessibility of some online

materials, Teachers did not use ICT during lectures, slow internet connectivity, difficulties in navigation of some websites and slow speed due to virus.



METHODOLOGY

CHAPTER III

METHODOLOGY

Methodology is the detailed plan of investigation and the blue print of procedure about how the research was conducted out. This chapter deals with description of procedure followed for carrying out the investigation. It contains tools and techniques used for data collection, the sampling procedure adopted as well as devices used for analysis of data are also explained. This chapter also incorporated the explication procedure for measurement of dependent and independent variables under study. The methodology adopted for achieving the objectives is described in this chapter under following heads.

Whole chapter is described as following

- 3.1 Locale of the study and selection of districts
- 3.2 Selection of College
- 3.3 Selection of respondents
- 3.4 Variables of the study and their measurements
- 3.5 Instrument for data collection
- 3.6 Procedure of the study
- 3.7 Statistical tools

3.1 Locale of the study and selection of districts.

This study was carried out in the Latur and Parbhani district of Marathwada region of Maharashtra state. Latur district is located on 18.40° N and 76.56° E. Parbhani is located at 19.27° N and 76.78° E. It has an average elevation of 347 meters.

3.2 Selection of College

For the purpose of the study, two colleges i.e College of Agriculture, Parbhani and College of agriculture, Latur were selected purposively because of the main campus and sub campus of the University.

College of Agriculture, Parbhani



Fig 2. College of Agriculture, Parbhani



Fig. 3 College of Agriculture, Latur

3.3 Selection of respondents

From each agricultural college 60 students (30 boys & 30 girls) were selected randomly, thus total respondents i.e.120 were selected for the study.

3.4 Variables of the study and their measurements

The following important independent and dependent variables were selected and measured as indicated below.

Sl.No.	Variables	Measurement Procedures
i)Independents variables		
1.	Professional education	Schedule was developed.
2.	Family type	Schedule was developed.
3.	Family size	Procedure followed by Hosamani (1993)
4.	Family education	Procedure followed by Badigar (1995)
5.	Family occupation	Procedure followed by Badigar (1995)
6.	Extent of computer usage	Procedure followed by Malgar (2007)
7.	Health problems related to computer usage	Procedure followed by Mestri (2002)
8.	Annual family income	Procedure followed by Krishnamurthy (1999)
Dependent variables		
1.	Knowledge	Procedure followed by Belgavimath (1994)
2	Attitude	Schedule was developed.

A) Measurement of independent variables

3.4.1 Professional education :

Professional education includes any kind programs improve the Knowledge, skills and attitude. According to the level and importance of computer courses ,scoring was done as follows.

Sl.No	Courses	Scores
1	MS-CIT	1
2	DOEACC	2
3	CCC, C++	3
4	No courses taken	0

3.4.2 Family type

The respondent's families were grouped in two categories viz., nuclear and joint based on the composition of the family and scoring was done as follows.

Sl. No	Category	Scores
1	Nuclear	1
2	Joint	2

3.4.3 Family size

This referred to a group of closely related persons, living together under the single roof. Information was obtained from the respondents about the total number of members living in the family. The procedure was followed by Hosamani (1993).The families were classified in to small, medium and large on the following criteria.

Sl. No	Category	Members
1	Small	Upto 4
2	Medium	5-7
3	Large	8 & above
	Mean= 6.35	S.D.= 2.35

3.4.4 Family education

Education of the parents referred to the number of years of formal education that the parents (both father and mother) have received. Education of both father and mother were grouped into the following categories. The procedure was followed by Badigar (1993).

Sl. No	Category	Score
1	Illiterate	1
2	Primary school	2
3	High school	3
4	Pre university/diploma	4
5	Degree and above	5

3.4.4 Family occupation

Family occupation means what the parents(father or mother) are doing work for their life. The procedure was followed by Badigar (1993).Based on the occupation of the parents, respondents they were classified as

Sl. No	Category	Score
1	Non worker/ unemployed.	1
2	Skilled worker- tailor, carpenter, potter	2
3	Semi- professionals- school teacher, businessmen, agriculturists, clerk, accountant, librarian, assistant	3
4	Higher professionists- engineer, doctor, professor, manager, law administrator	4

3.4.6 Extent of computer usage

Extent of computer usage means the students who use the computers by daily or weekly, frequency of internet browsing and how much time spends in using computer. The procedure was followed by Malgar (2007).

Sl. No	Extent of computer usage	Score
1	Daily	4
2	Fortnightly	3
3	Monthly	2
4	Rarely	1
	Frequency of internet browsing	
1	Regularly	3
2	Occasionally	2
3	Never	1
	Total time spent (in hours)	
I	Minimum	1 hr
Ii	Maximum	2hr&above

3.4.7 Health problems related to computer usage

It refers to the students who faced any health problems while using computer. Some groups were made as follows. The procedure was followed by Mestri (2002).

Sl. No	Category	Score
1	Eye related- eye strain, burning or irritation	1
2	Muscle related- backache, body pain	2
3	Headache	3
4	Never faced any problem	4

3.4.8 Annual family income

It is referred to the total income earned by the parents in the family. The procedure was followed by Krishnamurthy (1999). Based on the total annual income, they were categorized into three groups.

Sl. No	Category	Range
1	Normal	< Rs.1,25,000
2	High	Rs.1,26,000- Rs.4,99,000
3	Very high	> Rs.5,00,000
	Mean = 3.15	S.D. = 1.90

Measurement of dependent variables

1. Knowledge

English and English (1958) defined knowledge as a body of understood information by an individual or by a culture. This variable was operationalized as the level of knowledge possessed by agriculture students about computer. In the present study, teacher made test was followed to measure the knowledge level of the respondents. Accordingly statements based on certain important aspects of computer use were formulated and pre-tested in non-sample area. Finally on the basis of the experience gained in pre testing, 10 statements were selected. They were presented to the respondents with 4 possible answers and selecting the correct answer. A score of one was given to the right answer and zero to the wrong answer. The possible obtainable scores ranged between 10 and 0 respectively. Based on the total scores, the respondents were classified into three categories namely low, medium and high. This procedure was followed by Belgavimath (1994).

Sl.No	Knowledge level	Score
1	Low	Upto 4
2	Medium	5-7
3	High	8-10
	Mean = 6.15	S.D. = 1.23

2. Attitude

Attitude of Agriculture students towards computer usage was measured by computing the attitude score. Twenty statements related to computer had ten positive meaning and ten negative meaning were developed in consultation with the experts. For positive meaning statement to a response of strongly agree 5, agree 4, neutral 3, disagree 2 and strongly disagree 1 and scoring procedure was reversed in case of negative meaning statements. Final score was calculated by combining all scores and made as category non comfortable, comfortable and most comfortable.

Sl. No	Attitude category	Score
1	Non comfortable	Upto 65
2	Comfortable	66-77
3	Most comfortable	78 & above
	Mean = 71	S.D. = 6.45

3.5 Instrument for data collection

An interview schedule was prepared by keeping in view the objectives of the study and also based on the information available in the review of literature. The structured schedule was used for data collection by following interview method.

3.6 Procedure

The interview schedule was administered and distributed among one hundred and twenty respondents. Before giving the schedule, all questions were explained to the respondents so they can easily complete the schedule and relevant results. Data were collected by distribution of schedule to each respondent and by randomly sampling method. Data had been collected from 30 boys and 30 girls by total 60 respondents in each college.

3.7 Statistical tools

Frequency and percentages were calculated for attitude and knowledge by the respondents. Mean and standard deviation were calculated to

arrange the variables into categories. Correlation test was used to analyze the relationship between demographic characteristics of agricultural students..

3.7.1 Frequency and percentage

Frequency and percentage were used for making simple comparisons. The frequency of the particular category was multiplied by hundred and divided by total number of respondents in that particular category to get percentage.

3.7.2 Mean

Mean of sample was calculated by summing all the individual score and dividing it by number of cases. The formula is

$$\bar{X} = \frac{\sum Xi}{N}$$

Where,

\bar{X} = Arithmetic mean

$\sum xi$ = Sum of individual score

N = Number of observations

3.7.3 Standard deviation

Standard deviation is a measure of variability calculated around mean. It was denoted by Greek letter (sigma) and calculated with the following formula.

$$S. D. = \sqrt{\frac{\sum (xi - \bar{x})^2}{N}}$$

Where,

σ = standard deviation

Xi = score of i^{th} respondent

\bar{x} = mean

N = number of respondents

3.7.4 Karl Pearson's coefficient of correlation

This technique was used to find out the relationship between two variables. Following formula was used for computation of 'r' value.

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{\sum (x - \bar{x})(y - \bar{y})}{\sqrt{\sum (x - \bar{x})^2 \sum (y - \bar{y})^2}}$$

Where,

r = co-efficient of correlation

x = independent variable

y = dependent variable

3.7.5 Multiple regression analysis

The analysis was done to know the combined effects of all the independent variable in explaining in the dependent variable. Thus influence of independent variable was found out by using the equation.

$$Y = a + b_1x_1 + b_2x_2 + \dots + b_nx_n + \mu$$

Where,

Y = Dependent Variable

X₁ = Independent Variable

b₁ = Partial regression coefficient

A = Constant

N = Total number of variables

μ = Error terms

RESULTS



CHAPTER IV

RESULTS

The main focus on the present investigation was on Attitude of Agricultural students towards computer usage. The results of the study are presented in this chapter under the following heads.

4.1 Profile characteristics of agricultural students.

4.2 Knowledge of agricultural students towards computer usage.

4.3 Attitude of agricultural students towards computer usage.

4.4 Relationship between profile characteristics of the agricultural students with their knowledge and attitude towards computer usage.

4.5 Constraints faced by the agricultural students in computer usage.

4.1 Profile characteristics of Agricultural students.

4.1.1 Professional education

The data pertaining to the professional education of the respondents have been analyzed and presented as below in Table 1.

Table 1 : Distribution of the respondents according to their professional education

Sl. No.	Category	Frequency	Percentage
1	MS-CIT	59	49.16
2	DOEACC	1	00.83
3	CCC,C++	34	28.33
4	No courses taken	33	27.50

The data presented in Table 1 revealed that 49.16 per cent of the students had MS-CIT course, 28.33 per cent of the students did CCC, C++ courses, only 00.83 per cent of the student did DOEACC course and 27.50 per cent of the student were not taken any computer courses.

4.1.2 Family type

The data pertaining to the type of family of respondents have been analyzed and presented as below in Table 2.

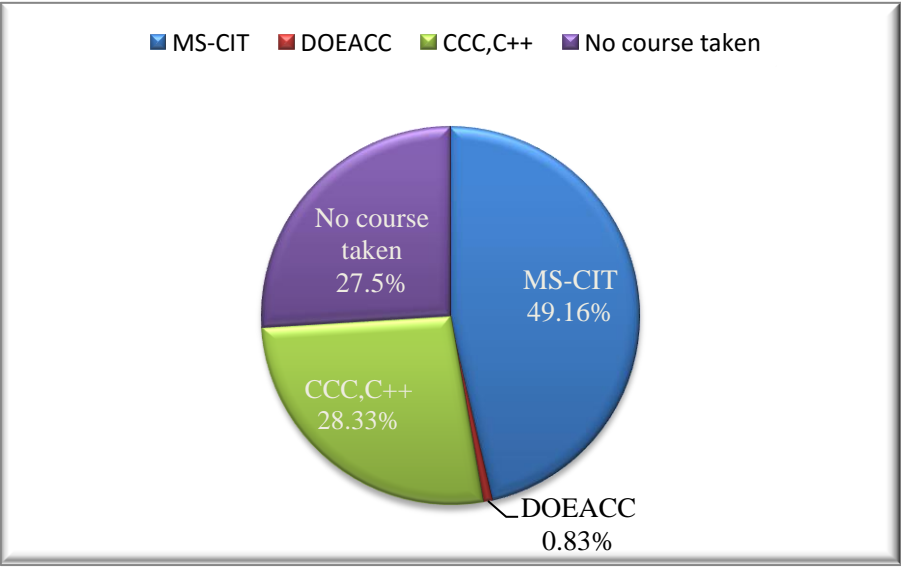


Fig. No 4 Distribution of respondents according to professional education.

**Table 2 : Distribution of the respondents according to their family type
(N=120)**

Sl.No.	Category	Frequency	Percentage
1	Nuclear	73	61.00
2	Joint	47	39.00
	Total	120	100.00

The data recorded in Table 2 showed that majority of the students (61%) were comes under the category of nuclear type whereas (39%) were under the joint type.

4.1.3 Family size

The data pertaining to the size of family of students have been analyzed and presented as below in Table 3.

**Table 3: Distribution of the respondents according to their family size
(N=120)**

Sl. No.	Category	Frequency	Percentage
1	Small	24	20.00
2	Medium	69	57.50
3	Large	27	22.50
	Total	120	100.00

The data could be seen from table 3 that most of the students (57.5%) were belonged to medium family size, 22.5 per cent of the students were belonged to the large family size and 20.00 per cent of the respondents were belonged to the small family size.

4.1.4 Family education

The data pertaining to the family education of respondents have been analyzed and presented as below Table 4.

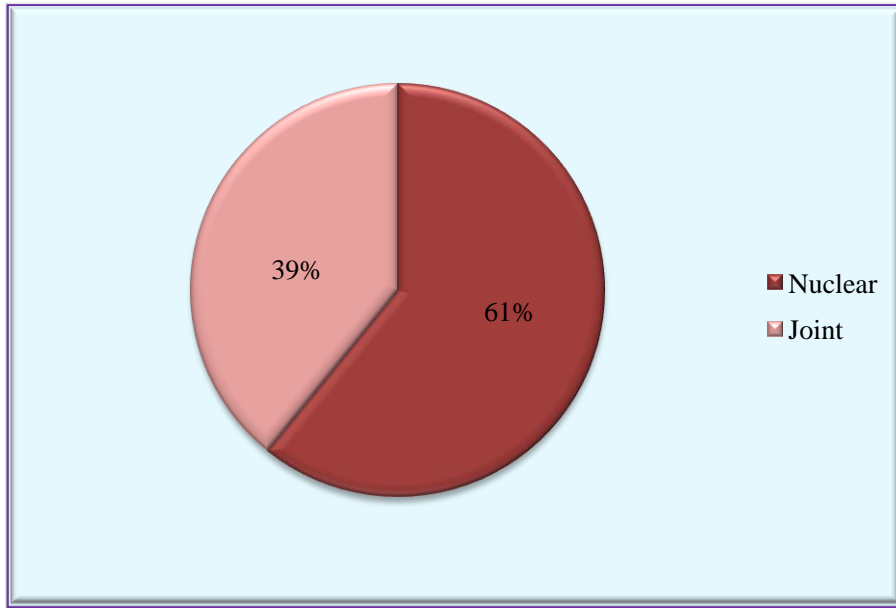


Fig. No 5 Distribution of respondents according to family type.

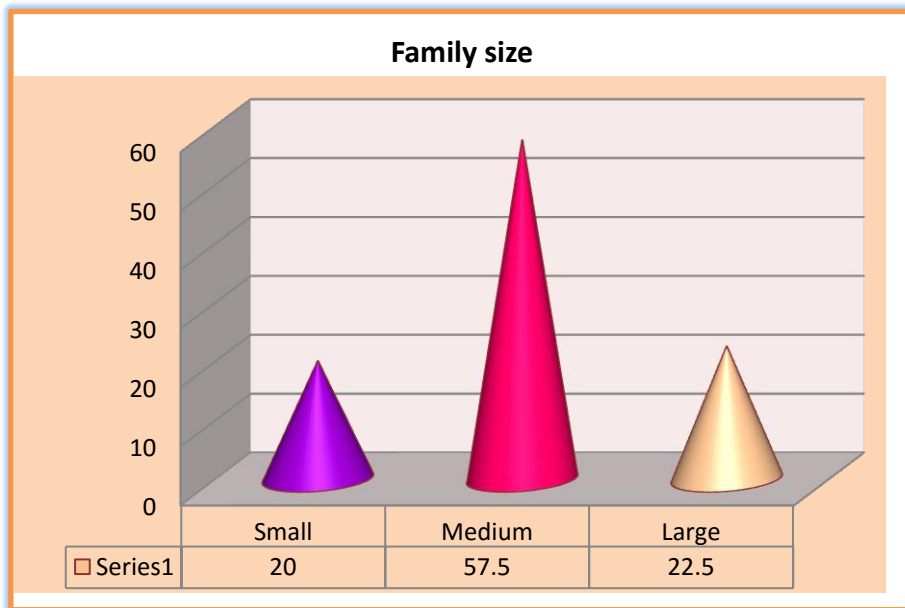


Fig. No 6 Distribution of respondents according to family size.

Table 4: Distribution of the respondents according to their family education (N=120)

Sl. No.	Category	Frequency	Percentage
1	Illiterate	05	04.00
2	Primary school	16	13.00
3	High school	30	25.00
4	Pre university/diploma	24	20.00
5	Degree and above	45	38.00
	Total	120	100.00

The data highlighted in the Table 4 which showed that about 4.00 per cent of the parents were illiterate, 13.00 per cent of the parents had primary level of education, 25.00 per cent of the parents had high school level of education, 20.00 per cent of parents had pre university and about 38.00 per cent of the parents had degree or above degree education.

4.1.5 Family occupation

The data pertaining to the family education of respondents have been analyzed and presented as below Table 5.

Table 5: Distribution of the respondents according to their family occupation (N=120)

Sl. No.	Category	Freq.	Percentage
1	Non worker / unemployed	11	09.17
2	Skilled worker-tailor, carpenter, potter etc	14	11.64
3	Semi professionalists- school teacher, businessmen, agriculturist, clerk, accountant, librarian, assistant.	68	56.68
4	Higher professionalists- engineer, doctor, professor, manager, law administrator.	27	22.51
	Total	120	100.00

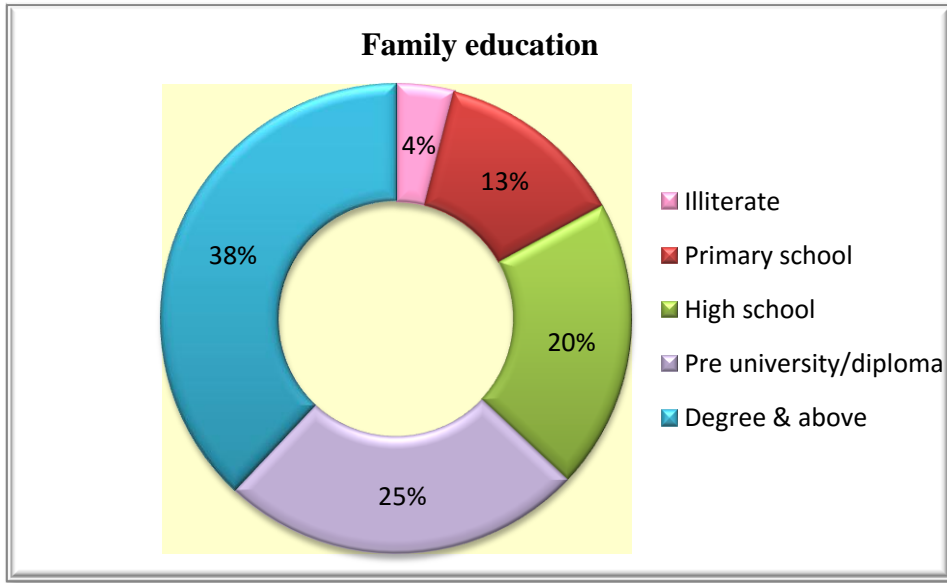


Fig. No 7 Distribution of respondents according to family education.

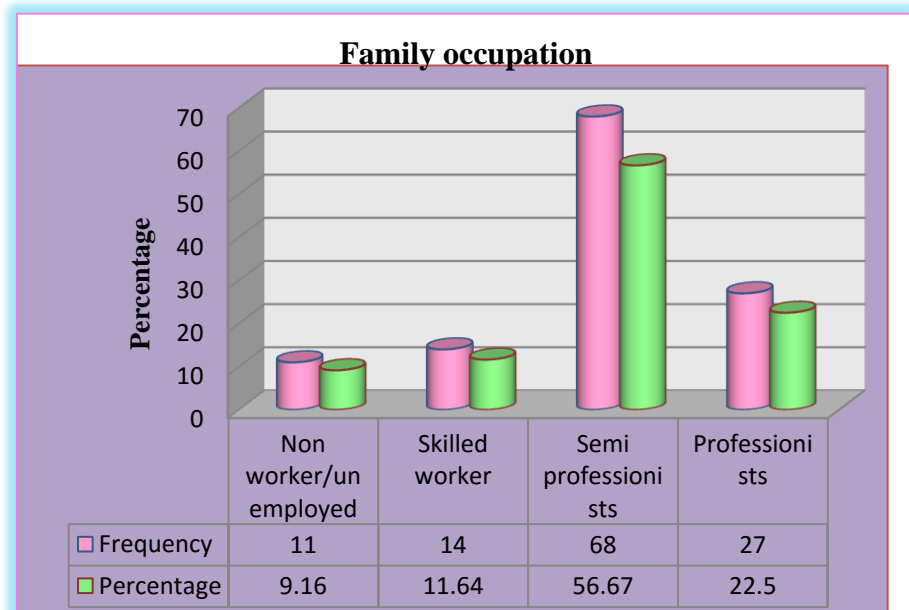


Fig. No 8 Distribution of respondents according to family occupation.

The data noticed in the Table 5. Showed that majority of the respondents parents (56.67%) were semi professionalists (teacher, businessmen and agriculturists), 22.50 per cent of the parents were higher professionalists (professor, manager and engineer), 11.64 per cent of the parents were skilled workers and only 9.16 per cent of the parents were unemployed.

4.1.6 Extent of computer usage

The data pertaining about extent of using computer by students of agricultural college. From Table 6 revealed that 40 per cent of the respondents were daily users, 25per cent of students were used computer fortnightly, 20 per cent of respondents were used computer monthly and 15 per cent of the respondents were rarely users.

Table 6: Distribution of the respondents according to their extent use of computer.

(N=120)

Sl. No	Category	Frequency	Percentage
1	Daily	48	40.00
2	Fortnightly	30	25.00
3	Monthly	24	20.00
4	Rarely	18	15.00
	Total	120	100.00

Table 7:Distribution of the respondents according to their frequency of internet browsing

Sl. No	Category	Frequency	Percentage
1	Regularly	81	67.50
2	Occasionally	39	32.50
3	Never	00	00.00
	Total	120	100.00

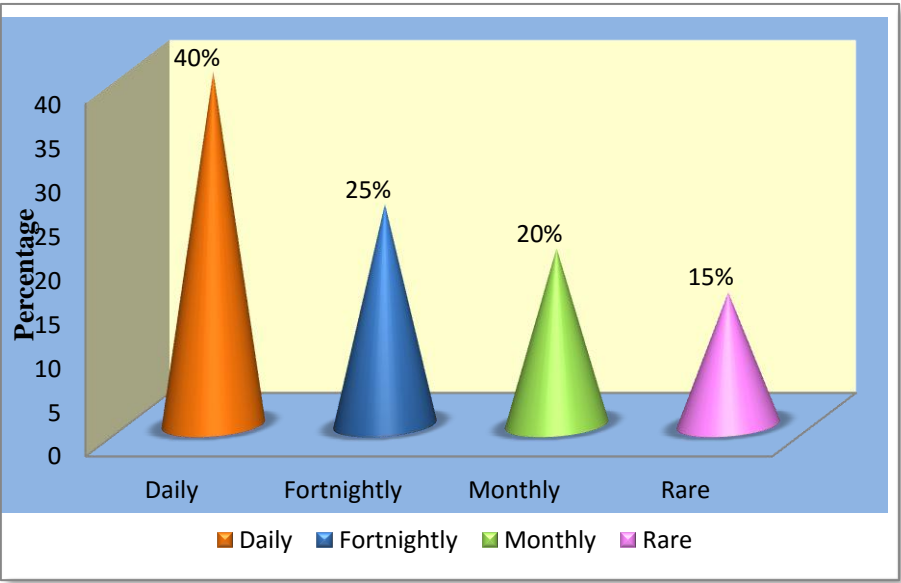


Fig. No 9 Distribution of respondents according to extent of computer usage.

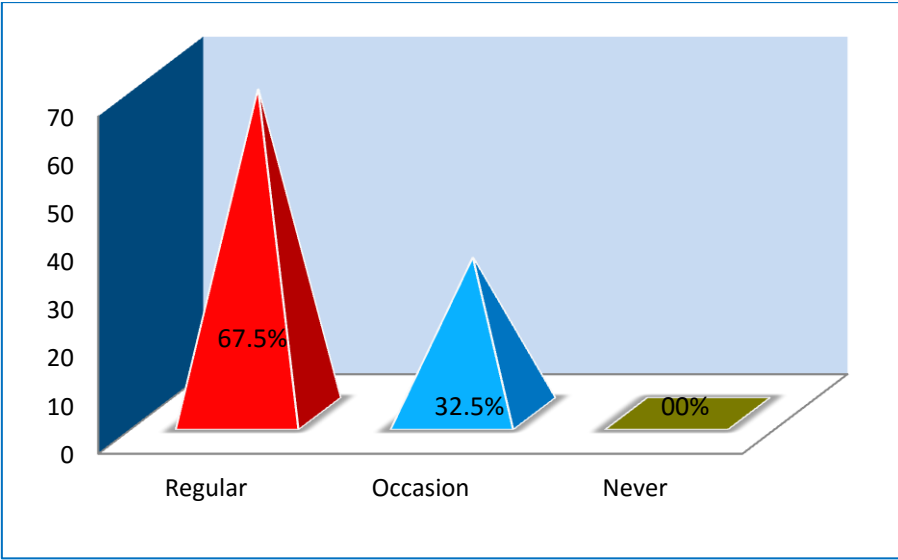


Fig. No 10 Distribution of respondents according to frequency of internet browsing.

The data recorded in the Table 7 showed that 49.17 per cent of the students were the regular users, 40.83 per cent of the students were occasional users and no one student was there without using internet.

Table 8: Distribution of the respondents according to their total time spent (N=120)

Sl. No	Category	Frequency	Percentage
1	Minimum(1 hr)	33	27.50
2	Maximum (2 hr& above)	87	72.50
	Total	120	100.00

The data mentioned in the Table 8 showed that 72.50 per cent of students were spent time for more than 2 hours and above and only 27.50 per cent of the students were spent 1 hour for computer usage.

4.1.7 Health problems related to computer use.

Table 9: Distribution of the respondents according to their health problems

Sl. No	Category	Frequency	Percentage
1	Eye related- eye strain, burning or irritation	37	30.83
2	Muscle related- backache, bodypain	23	19.16
3	Headache	31	25.83
4	Never faced any problem	41	35.00

The data could be concluded that in Table 9 showed 30.83 per cent of the students were faced eye related problems like eye strain, burning or irritation, 25.83 per cent of the students were faced headache, 19.16 per cent of the students were faced muscle related like backache, body pain and but majority (35.00%) of the students were never faced any problem.

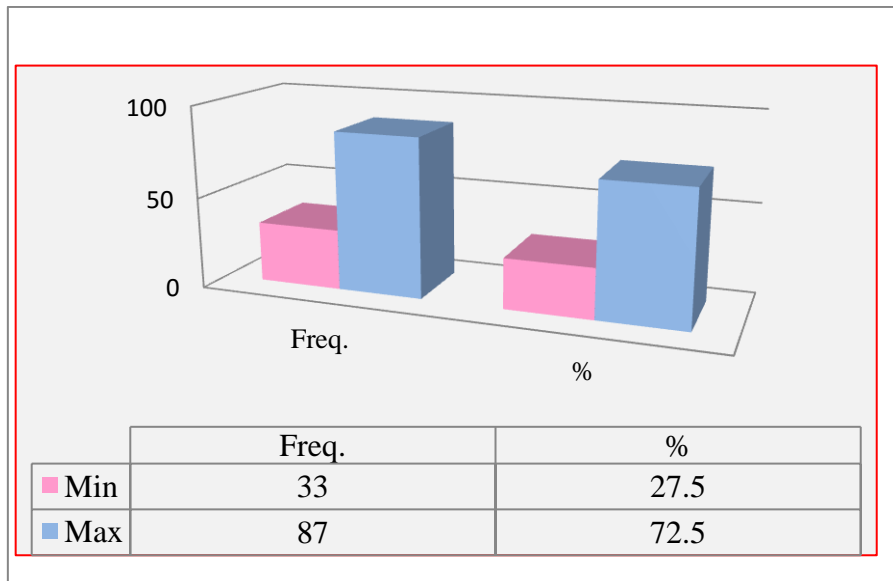


Fig. No 11 Distribution of respondents according to frequency of internet browsing.

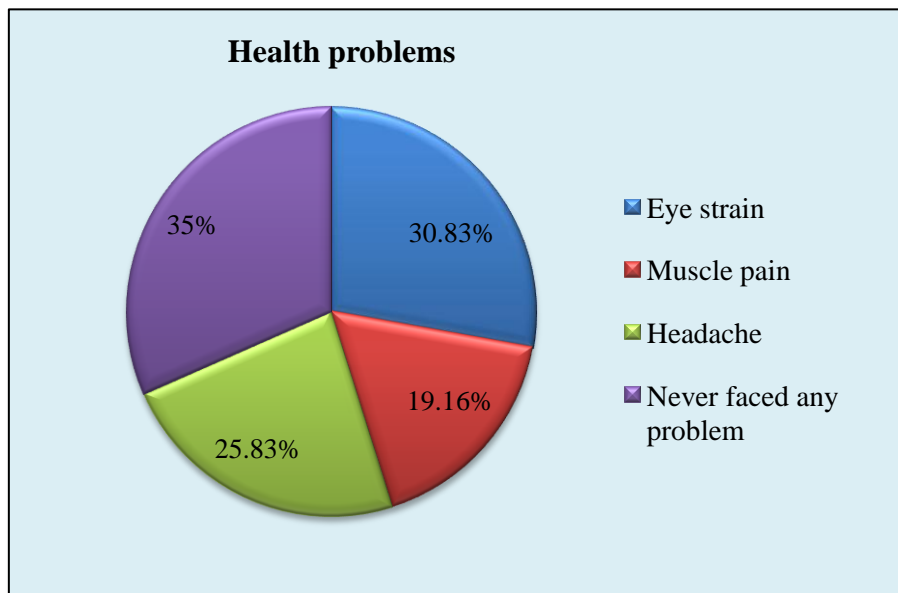


Fig. No 12 Distribution of respondents according to health problems related to computer usage.

4.1.8 Annual family income

The data pertaining to the annual family income of the respondents have been analyzed and presented as below Table 10.

Table 10: Distribution of the respondents according to their annual family income (N=120)

Sl .No.	Income Category	Frequency	Percentage
1	Normal (Rs. 1,25,000)	21	17.51
2	High (Rs.1,26,000-4,99,000)	79	65.83
3	Very high(above 5,00,000)	20	16.66
	Total	120	100.00

As with regard to annual family income, majority (65.83%) of the parents had high level of income, 17.51 per cent of the parents had normal level of income (Rs. <1, 25,000) and 16.66 per cent of the parents had very high level of income.

4.2 Knowledge of Agricultural students towards computer usage

Table 11: Distribution of the respondents according to extent of computer knowledge question wise.

Sl.NO	Statements	Complete knowledge		No knowledge	
		Freq.	%	Freq.	%
1	Computers were invented by Charles Babbage	119	99.16	1	00.83
2	Uses of computers are games,painting, research,chatting etc.	120	100.00	00	00.00
3	Computer languages are Basic, C++,java	70	58.33	50	41.66
4	Short key for Undo is Ctrl + Z	80	66.66	40	33.33

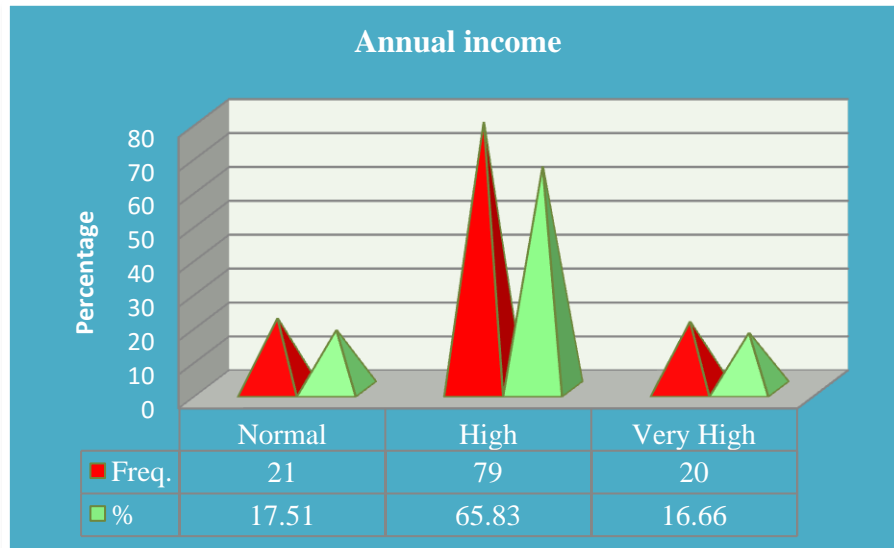


Fig. No 13 Distribution of respondents according to annual income.

5	Ctrl, Shift, Alt are used as short keys.	83	69.16	37	30.83
6	Parts of computer are mouse, key board, C.P.U	120	95.83	00	00.00
7	C.P.U. abbreviation is Central Processing Unit	108	90.00	12	10.00
8	Information can be copied through C.D. hard disk, pen drive.	107	89.16	13	10.83
9	Abbreviation of C.D. is Compact Disk	110	91.66	10	08.33
10	Parts of computer output devices are both monitor and printer.	64	53.33	56	46.66

Table 11 portrayed that 99.16 per cent of the students were known about inventor of computer and only 00.83 per cent of the students were unaware about it. All the students (100%) were known about usage of computer. 58.33 per cent of the students were known about computer languages while 41.66 per cent of the students don't know about it. 66.66 per cent of the students were known short key of Undo while 33.33 per cent of the students unaware about it. 69.16 per cent of the students were known short keys of computer while 30.83 per cent of the students don't know about it. All the students (100%) were known parts of the computer. 90 per cent of the students were known about abbreviation of C.P.U while 10 per cent of the students were don't know about it. 89.16 per cent of the students were known through how the information has to be copied while 10.83 per cent of the students don't know about it. 91.66 per cent of the students were known about abbreviation of C.D. while 8.33 per cent of the students were unaware about it. 53.36 per cent of the

students were aware about parts of computer output units while 46.66 per cent of the students were unaware about it.

Table 12:Distribution of the respondents according to overall knowledge of computer.

Sl. No.	Category	Frequency	Percentage
1	Low	13	10.83
2	Medium	52	43.34
3	High	55	45.83
	Total	120	100.00

The data manifested from the Table 12 showed that 43.34 per cent of the students had medium level of computer knowledge, 45.83 per cent of the students had high level of computer knowledge and only 10.83 per cent of the students had low level of computer knowledge.

4.3 Attitude of Agricultural students towards computer usage.

Table 13:Distribution of the respondents according to their attitude towards computer use

Sl. NO.	Statement	SA (f, %)	A (f, %)	N (f, %)	D (f, %)	SD (f, %)
1.	I would feel comfortable while using computer	78 (65%)	34 (28.33%)	8 (6.67%)	-	-
2.	I find the Internet found as informative as teachers	81 (67.5%)	27 (22.5%)	12 (10%)	-	-
3.	I enjoy getting information more from written material than Internet	71 (59.16%)	36 (30%)	13 (10.84%)	-	-
4.	I like to read books for getting information about computers.	49 (40.83%)	31 (25.84%)	37 (30.83%)	3 (2.5%)	-

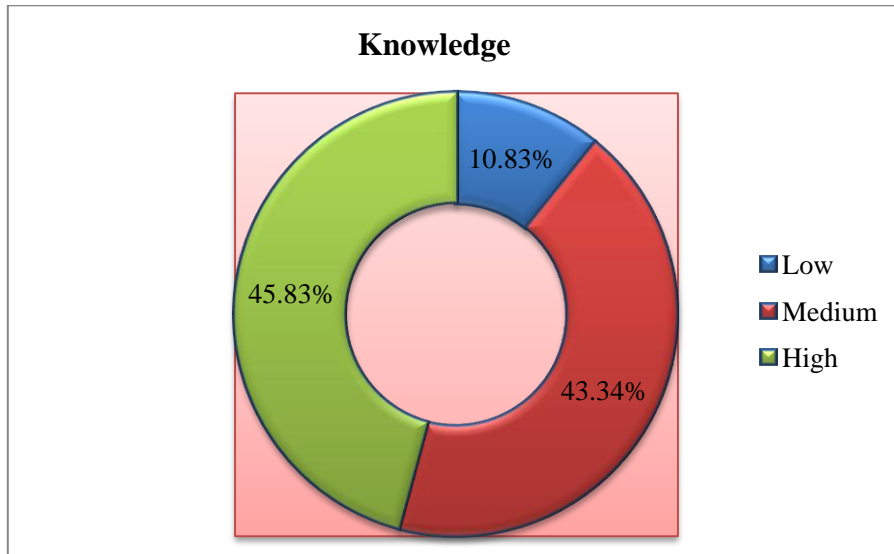


Fig. No 14 Distribution of respondents according to overall students knowledge level.

5.	I use computer as learning fun	83 (69.17%)	28 (23.33%)	9 (7.5%)	-	-
6.	I involve computers to my life at all fields	64 (53.34%)	23 (19.16%)	20 (16.66%)	13 (10.82%)	-
7.	I access the computer more at college than at home	90 (75%)	18 (15%)	12 (10%)	-	-
8.	Computer is important like other research tools	80 (66.67%)	11 (9.18%)	29 (24.15%)	-	-
9.	Internet is easier to use than library	87 (72.5%)	19 (15.83%)	14 (11.67%)	-	-
10	Knowledge of computer and internet is essential for students	112 (93.33%)	8 (6.67%)	-	-	-
11.	Computer is difficult to use	-	4 (3.33%)	24 (20%)	30 (25%)	62 (51.66%)
12.	Internet contains useless information	-	-	-	10 (8.34%)	110 (91.66%)
13.	I feel aggressive and hostile towards computer.	-	-	8 (6.67%)	52 (43.33%)	60 (50%)
14	It is not interesting to solve problems with computers.	26 (21.66%)	13 (10.84%)	38 (31.67%)	24 (20%)	19 (15.83%)
15	Learning computers is only loosing time for me.	-	-	-	37 (28.33%)	83 (69.17%)
16	I hate computers.	-	-	-	43 (35.84%)	89 (74.16%)
17	Engaging with computers make me angry	-	-	-	39 (32.5%)	81 (67.5%)
18	Using computer and Accessing, surfing and browsing the Internet confuses my mind.	-	-	20 (16.67%)	52 (43.33%)	48 (40%)
19	I get sinking feeling when I think of trying to use a Internet	-	8 (6.67%)	84 (70%)	16 (13.33%)	12 (10%)

20	I believe that I will not be good user of computer.	6 (5%)	17 (14.16%)	40 (33.34%)	34 (28.35%)	23 (19.15%)
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Note: SA-Strongly Agree, A-Agree, N-Neutral, D-Disagree, SD-Strongly Disagree

The results showed that ten positive statements towards computer usage. In that most of the students (93.33%) were strongly agreed to knowledge of computer and internet is essential for students and no one was disagreed to it. (75%), (15%) and (10%) of the students were strongly agreed, agreed and neutral respectively to access the computer more at college than home. (72.5%) of the students were strongly agreed that internet is easier to use than library. (69.17%) and (23.33%) of the students were strongly agreed and agreed respectively for computer is used as learning fun. (66.67%) of the students strongly agreed that computer is most important as research tools. (67.5%) of the students were believed that the Internet to be as informative as teachers. Strongly agreed (65%), agreed (28.33%) and neutral (6.67%) of the respondents were felt comfortable in using computer. 53.34% (strongly agreed), agreed(19.16%), neutral(16.66%) but few disagreed (10.82%) for computer has involved in their life at all fields.

Respondents were responded to negative statements also. Strongly disagreed (51%), agreed (25%) of the students were reacted that computer is not difficult to use and neutral (20%) and (3.33%) agreed to it. (91.66%) of the respondents were strongly disagreed to useless information in internet. (50%), (43.33%) and (6.67%) of the respondents were strongly disagreed, disagreed and neutral respectively were felt aggressive and hostile towards computer usage. (74.16%) of the students love to use the computers. Strongly disagreed (67.5%), disagreed (32.5%) of the students were not made them angry for using computers. (33.34%) of the students were neutral in accepting that they are not good users of computers, (5%) of the students were strongly agreed to it. Strongly disagreed (40%), disagreed (43.34%) and neutral (16.67%) of the

students accepted that using computer, browsing confuses their mind. No one student was agreed for wasting time in learning computers.

Table 14: Distribution of the respondents according to overall attitude of respondents towards of computer usage.

Sl. No	Category	Frequency	Percentage
1	Non comfortable	18	15.00
2	Comfortable	80	67.00
3	Most comfortable	22	18.00
	Total	120	100.00

The data apparent from the Table 13 showed that majority of the students (67.00%) were felt comfortable while using computer, 18.00 per cent of the students were felt most comfortable and only 15.00 per cent of the students were felt non comfortable to use computer.

4.4 Relationship between profile characteristics of the agricultural students with knowledge and their attitude towards computer usage.

The data from Table 15, 16 & 17 showed that, regarding relationship between profile of Agriculture students with their knowledge and attitude towards computer usage were subjected to correlation and multiple regression analysis.

4.4.1 Correlation analysis

Correlation coefficient was computed to ascertain the relationship between knowledge and attitude and the selected independent variables. The results are furnished in Table 15.

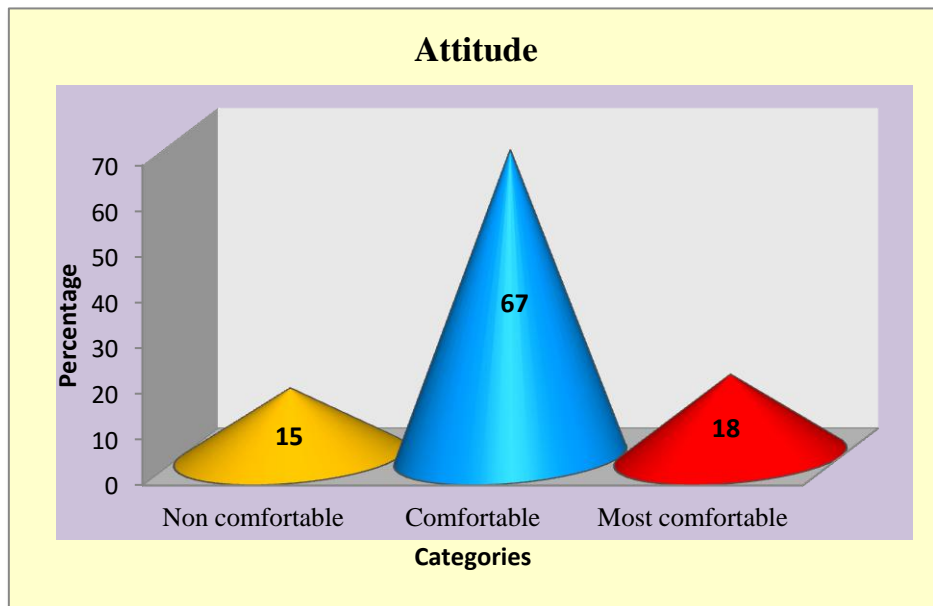


Fig. No 15 Distribution of respondents according to overall students attitude towards computer usage.

Table 15: Distribution of the respondents according to their relationship between profile characteristics with knowledge and their attitude towards computer usage.

Sl.No	Variables	Knowledge	Attitude
1	Professional education	0.1963*	0.2078*
2	Family type	0.0012 ^{NS}	0.2258*
3	Family size	0.1022 ^{NS}	0.1176 ^{NS}
4	Family education	0.1950*	0.1219 ^{NS}
5	Family occupation	0.2671**	0.2012*
6	Extent of computer usage	0.3278**	0.4776**
7	Health problems related to computer usage	0.0017 ^{NS}	0.1421 ^{NS}
8	Annual family income	0.0993 ^{NS}	0.1992*

*&** correlation is significant at the 0.05 and 0.01 level respectively.

NS- Non significant

In order to understand the relationship between independent variables and dependent variables of Agriculture college students towards computer usage, the correlation coefficients computed to know the relationship are presented in the Table 15.

The results revealed that out of eight independent variables, four variables had exhibited positive significant relationship with existing knowledge level of the respondents. Professional education, family education and family occupation, extent of computer usage had positive correlation with knowledge level of the respondents at 5 per cent and 1 per cent significant level respectively. Family type, family size, health problems and annual family income were non-significant.

The results revealed that out of eight independent variables, five variables had exhibited positive significant relationship with attitude of the respondents. Professional education, family type, family occupation, annual family income and extent of computer usage had positive significant at 5 per cent and 1 per

cent level respectively. Remaining variables like family size, family education and health problems were non-significant.

4.4.2 Regression analysis

Multiple regression analysis of independent variables with the dependent variables.

4.4.2.1 Knowledge

Table 16: Multiple regression analysis of independent variables with the knowledge.

Sl. No.	Independent variables	Regression coefficient	Standard error	“t” value
1	Professional education	0.2034	0.1492	2.3627*
2	Family type	-0.2259	0.4588	-0.4923
3	Family size	0.1078	0.0806	1.3371
4	Family education	0.0808	0.1726	0.4680
5	Family occupation	0.5824	0.2751	2.1168*
6	Extent of computer usage	0.3987	0.4387	1.9720*
7	Health problems	0.0307	0.1343	0.2290
8	Annual family income	-0.0858	0.1038	-0.8261

$R^2 = 38.83$, F-value = 07.724

*= Significant at 0.05 level of probability

**= Significant at 0.01 level of probability

The table 16 indicates that, R value 0.3883 indicated that all the selected independent variables put together explained about 38.83 per cent variation in the knowledge was explained by eight independent variables.

It was also observed that out of eight independent variables professional education, family occupation and extent of computer usage had positive and significant effect on knowledge of respondents towards computer usage.

4.4.2.2 Attitude

Table 17: Multiple regression analysis of independent variables with the attitude.

Sl. No.	Independent variables	Regression coefficient	Standard error	“t” value
1	Professional education	1.0697	0.4596	2.3274*
2	Family type	4.0581	1.5885	2.5546*
3	Family size	-0.2036	0.2856	-0.7128
4	Family education	0.3095	0.6006	0.6501
5	Family occupation	-0.1390	0.9532	-0.1458
6	Extent of computer usage	1.3413	1.6641	2.2911*
7	Health problems	0.9518	0.4730	2.0121*
8	Annual family income	0.2872	0.3686	0.7793

$R^2 = 41.02$, F value= 09.241

*= Significant at 0.05 level of probability

**= Significant at 0.01 level of probability

The table 17 indicates that, R value 0.4102 indicated that all the selected independent variables put together explained about 41.02 per cent variation in the attitude was explained by eight independent variables.

It was also observed that out of eight independent variables professional education, family type, extent of computer usage and health problems had positive and significant effect on attitude of respondents towards computer usage.

4.5. Constraints faced by the Agricultural students in computer usage.

Table 18: Distribution of the respondents according to constraints faced in computer use.

Sl. No.	Constraints	Yes		No	
		Freq	%	Freq	%
1	High cost of internet access	120	100.00	0	0
2	Lack of computer & internet facilities	116	96.66	4	3.33
3	Irregular electricity supply	109	90.83	11	9.16
4	Lack of time	105	87.5	15	12.5
5	No proper working of computer & no MS office, PDF converter.	44	36.66	70	58.33
6	Lack of computer literacy	28	23.30	92	76.70
7	Lack of training on how to use computer	16	13.00	104	87.00
8	Lack of interest	12	10.00	108	90.00

The data mentioned in the Table 18 showed that 76.7 per cent of the students had computer literacy while 23.30 per cent of the students were lack in computer literacy. 87 per cent of the students had training or courses of computer while only 13 per cent of the students were lack in training or courses. All the students (100%) were felt that there was a lack of time. 90 per cent of the students had interest while only 10 per cent of the students had no interest in computer usage. 109 per cent of the students had faced problem of irregular electric supply while only 9.16 per cent of the students were not faced. 96.66 per cent of the students were lacking of computer & internet facilities and 36.66 per cent of the students were faced that most of the computers were not working properly and not having basic applications like MS word, Excel and PDF converter.

DISCUSSION



CHAPTER V

DISCUSSION

The study was designed to know the Attitude of Agricultural students towards computer usage. Keeping the objectives and conceptual framework of the study in view, the data was analyzed and the results are discussed under the following sections.

- 5.1 Profile characteristics of agricultural students
- 5.2 Knowledge of agricultural students towards computer usage.
- 5.3 Attitude of agricultural students towards computer usage.
- 5.4 Relationship between profile characteristics of agricultural students with their knowledge and attitude towards computer usage.
- 5.5 Constraints faced by agricultural students in computer usage.

5.1 Profile characteristics of Agricultural students

5.1.1 Professional education

Majority of the students (49.16%) had MS-CIT computer course, 28.33 per cent of the students had CCC, C++, 27.5 per cent of the students were not taken any computer course and only 00.83 per cent of the student had DOEACC which is India level course. This might be due to students had basic knowledge of computer like use of MS office and Google search. These findings are consistent with Abubakar and Adetimirin (2015).

5.1.2 Family type

Majority of the students were belonged to nuclear families i.e. (61%) whereas (39%) of the students were had joint families. As with regard to children future , most of the parents has desire to lead independent life to provide proper accommodation, good education and various facilities they were selected nuclear family. Also to provide advanced technologies like computer, laptop, to get bright future to their kids. The findings are in line with Jayalaxmi Pawar (2009).

5.1.3 Family size

As regard to family size, majority of family was belonged to medium size (57.5%), 20 per cent of the family was belonged to small size and

22.5 per cent of the students were belonged to large family size. This might be due to the grandparents are also living in urban area with their children and grandchildren. These findings are in support with Shwetha *et al.* (2007).

5.1.4 Family education

With regard to family education, the parents mainly father had good education. Most of the parents (38.00%) had degree and above, 25 per cent of parents had pre university/diploma, 24 per cent of the students had high school, 16 per cent of the parents had primary school and only 4 per cent of the parents were illiterate. This may be due to the giving importance to education, village parents send their children for higher education and if family background is better then children will get proper education. Also to occupy better future for their life they go for higher education. The findings are in line with DeBell and Chapman (2006).

5.1.5 Family occupation

Majority of family had semi professionalists like agriculturist/farmer, businessmen, school teacher, librarian, assistant (56.67%). 22.5 per cent of the family had professionalist like professor, manager, engineer. 11.64 per cents of the family belongs to skilled work like tailor, etc and only 9.16 per cent of the family were non workers. As mentioned above profile, if family education is good then their occupation is also good. The findings are matched with Jayalaxmi Pawar *et al.*(2009).

5.1.6 Extent of computer usage.

Majority of the students (40%) used computer daily, 25% per cent of the students used computer fortnightly, (20%) of the students were used computer monthly and only 15 per cent of the students were used computer rarely. (67.50%) of the students were regular internet browsers, (32.5%) of the students were occasional internet browsers and no one students were there never browsed internet.

Majority (72.5%) of the students were spent their maximum time in computer usage i.e., 2 hours and above and only (27.5%) of the students spent minimum 1 hour for computer usage. This might be due to we are in 21

century by making digital India, every small works also can be done through internet. Now a days computer, laptops are very much necessary for daily routine works. Students were worked by using computer for different activities like searching study material, making presentation, playing games etc. They had more attachment with social media like Gmail, facebook, youtubes, watsapp etc. The findings are in line with Emily B. Rhoades (2008), Jayalaxmi *et al.* (2011).

5.1.7 Health problems related to computer usage.

As regard with health problems, 30.83 per cent of the students experienced eye strain, burning or irritation, (25.83%) of the students experienced headache, (19.16%) of the students had experienced muscle related like backache, bodypain but majority of the students (35.00%) were never faced any health problems. As majority of the students were never faced any problems because by using more computer or laptop they relieves tension, depression and nervousness. The findings are in support with Jayalaxmi *et al.* (2011).

5.1.8 Annual family income.

Majority of the students (65.83%) had high annual family income(below 1,25,000), 17.51 per cent of the students had normal family income(4,90,000) and 16.66 per cent of the students had very high level of annual family income(above 5,00,000). As majority of the family were semi professionals their income was also good. The findings are matched with Jayalaxmi. Pawar *et al.*(2009).

5.2 Knowledge of computer possessed by Agricultural students towards computer use.

Majority of the students (45.83%) had high level knowledge, 43.34 per cent of the students had medium level knowledge and only 10.83 per cent of the students had low level knowledge. As being computer is compulsory course, they had good knowledge in computer and even most of the students did MS-CIT to know basic knowledge of computer. The findings are supported with Abubakar and Adetimirin (2015).

5.3 Attitude of Agricultural students towards computer use.

Majority of the students (67.00%) felts comfort in using computer, while 18.00 per cent of the students felts most comfort in using computer and only 16.00 per cent of the students felts non comfortable in using computer. Majority of students had positive, favourable attitude and comfort in using computer because they had computer knowledge and were known about usage of computer. Most of the students feel happy by using computer because it relieves tension, depression and nervousness. The findings are in line with Opoku *et al.* (2014).

5.4 Relationship of independent variables with selected dependent variables of Agricultural Students.

5.4.1.1 Knowledge and professional education

Professional education had positive and significant relationship with knowledge of the respondents towards computer usage. This means professional education is needed for getting computer knowledge. Knowledge can get in anywhere through anything. The findings are in supportive with Abubakar and Adetimirin (2015).

5.4.1.2 Knowledge and family type

Family type had positive and highly non- significant relationship with knowledge of the students towards computer usage. This means family might be nuclear or joint it does not depend on respondent's knowledge. These findings are matched with Ashok Patel and Dharmendra Patel (2006).

5.4.1.3 Knowledge and family size

Family size had positive and non- significant relationship with knowledge of the students towards computer usage. This means size of the family does not depend on knowledge. If they have interest in learning computer, they go through it. These findings are matched with Jayalaxmi. Pawar *et al.* (2011).

5.4.1.4 Knowledge and family education

Family education had positive and significant relationship with knowledge of the students towards computer usage. This means if parents had good education then they teach their child to how the computer and laptop has been used. These findings are similar with Tomul and Polat (2013).

5.4.1.5 Knowledge and family occupation

Family education had positive and significant relationship with knowledge of the students towards computer usage. If the parents have good job means they support and fulfil their children's requirements. The findings are in support with Tomul and Polat (2013).

5.4.1.6 Knowledge and extent of computer usage.

Extent of computer use had positive and highly significant relationship with knowledge of the students towards computer usage. As respondents had high level of knowledge in computer or laptop then they spend their more time with computers. They use computers daily and regularly. The findings are in similar with Marjan Sepahpanah *et al.* (2015).

5.4.1.7 Knowledge and health problems related to computer usage.

Health problems related to computer use had positive and highly non-significant relationship with knowledge of the students towards computer usage. This variable does not depend on knowledge because they might have been spent less time with the computer also due to the age factor. These findings are in line with Kaveri Subrahmanyam *et al.* (2000).

5.4.1.8 Knowledge with annual family income.

Annual family income had positive and non-significant relationship with knowledge of the students towards computer usage. Knowledge is not related on family income. The finding is matched with Patrick and Ngozi (2014).

5.4.2 Attitude

5.4.2.1 Profession education and Attitude

Profession education had positive and significant relationship with attitude of students towards computer usage. This means if the students had any degree or any computer course then they had positive, favourable and comfortable attitude towards computer use. These findings are in consistent with Abubakar and Adetimirin (2015).

5.4.2.2 Family type and Attitude

Family type had positive and significant relationship with attitude of students towards computer usage. This means if the family has nuclear type i.e. four to five members in home then they get good support from their parents. The findings are in line with Jane D. Lanigan *et al.* (2009).

5.4.2.3 Family size and Attitude

Family size had positive and non-significant relationship with attitude of students towards computer usage. The size of the family does not depend on attitude of the respondents. The finding is in support with Tomul and Polat (2013).

5.4.2.4 Family education and Attitude

Family education had positive and non-significant relationship with attitude of students towards computer usage. Now a day, if the parents might be a illiterate but their thinking is that their children should have good education. So the family education does not depend on attitude of the students. The size of the family does not depend on attitude of the respondents. The finding is in line with Tomul and Polat (2013).

5.4.2.5 Family occupation and Attitude

Family occupation had positive and significant relationship with attitude of students towards computer usage. As the parents have good occupation then they provide facilities whatever the children needs. The findings are in line with Hossain, Zeheen and Islam (2013).

5.4.2.6 Extent of computer usage and Attitude

Extent of computer usage had positive and significant relationship with attitude of students towards computer usage. If the students have comfort, favourable and positive attitude means they spend their more time with computer daily and regularly. These findings are similar with G. R. Angadi (2012).

5.4.2.7 Health problems related to computer usage and Attitude

Health problems related to computer usage had positive and non-significant relationship with attitude of students towards computer usage. As being the graduates due to age factor they didn't faced any health problem like headache, muscle pains. These findings are matched with Iva Lloyd (2015).

5.4.2.8 Annual family income and Attitude

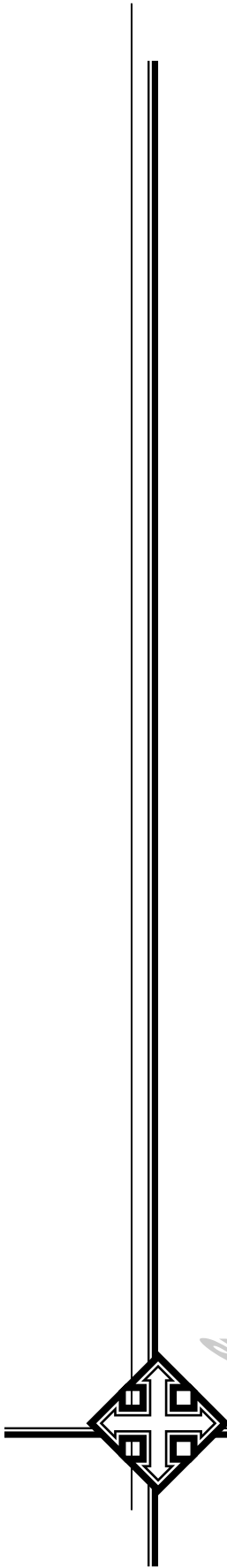
Annual family income had positive and significant relationship with attitude of students towards computer usage. This means if the student's family has high income then they have good academic performance and they get computer facilities at home also. The findings are in consistent with Patrick and Ngozi (2014) and Gonzalez *et al.* (2015).

5.5 Constraints faced by agricultural students in computer usage

As from the results, most of the students (100%) faced constraint of high cost in internet access, 96.66 per cent of the students faced that lacking of computer and internet facilities in college and home. 90.83 per cent of the students faced irregularity in electricity supply due to load shedding. As more importance given to other courses, 10.00 per cent and 87.50 per cent of the students had lack of interest and lack of time using in computer, respectively. 23.30 per cent and 13.00 per cent of the students had lack in computer literacy and lack of training on how to use computer respectively may be due to no computer courses are available in college. 36.66 per cent of the students mentioned about the non availability of basic softwares.

Suggestions for future research

More applicable, comprehensive studies covering wider geographical area taking into consideration other independent variables which are not used in this study can be conducted in future. Other communication media can be considered for future research like effect of mobile phones or use of social medias on both rural and urban mass.



SUMMARY AND CONCLUSION

CHAPTER VI

SUMMARY AND CONCLUSIONS

India is a large and diverse country with an equally sizeable and varied media. The spurt of growth in media has a tremendous impact on shaping development values as it informs, educates and entertains. The computer has been gaining popularity among young people, though at a much slower rate than television and radio. In recent years, the use of computer has far reaching effect on language, education and communication. Now a days Indians are more advanced in taking advantage of the computer revolution to improve their language and education .There is a significant impact in different language use brought out by the use of email viz Kannada, Marathi, Telugu and Tamil.

As little 10 to 12 years ago everyone would have laughed for asking the question about importance of computer. Many of the old timers still would, but the computers use in agriculture has become irreplaceable as with most modern industry. It is used in record keeping, fertilizer application, determining which crops to plant, to make a maximum profit, and determine what and how much medication to give livestock. In dairy farming it is used to give the exact amount of feed to each cow based on the amount of milk the cow gives. You determine when to market your products to give you the best advantage. The uses of computer in agriculture are too many to list each one, but the difference between profit and loss in agriculture that the computer can make the difference in success and failure. Computers have been a significant part of the average student's education since the early few decades. Although computer technology has become much more pervasive since then, people often wonder why we need to learn computer use in school. Some studies showed that those who learn on a computer perform better academically than their peers. Jobs of the future will demand computer literacy from just about every individual. Hence the study on “Attitude of Agricultural students towards computer usage” is conducted with the following objectives:-

Objectives :

- 6.1 Study the profile of agricultural students
- 6.2. Know the knowledge of agricultural students towards computer usage
- 6.3 Study the attitude of agricultural students towards computer usage
- 6.4 Delineate the relationship between profile of agricultural students with their knowledge and attitude towards computer usage
- 6.5 Know the constraints faced by agricultural students in computer usage

The study was conducted in Latur and Parbhani districts of Marathwada region. Population for the study comprised of Agriculture students who were undergraduates. Two agriculture colleges have been selected for survey i.e, College of Agriculture, Latur and College of Agriculture, Parbhani. Each college I have selected 60 students (30 boys and 30 girls) and total sample size was one hundred and twenty. This required sample size was selected through purposive random sampling method.

In the light objectives set for the study, the dependent variables were knowledge and attitude of Agriculture students towards computer usage, independent variables were professional education, family type, family size, family education, family occupation, extent of computer use, health problems related to computer, annual family income.

The variables were quantified by developing appropriate scoring pattern or by using scale developed by earlier researchers. The statistical tools used for analysis of data were frequency, percentage, mean, standard deviation and correlation.

6.1 Profile of the Agricultural students

Majority (61.00%) of the respondents belongs to nuclear family. 57.50 per cent of the students were medium sized family. 49.16 per cent of the students had taken MS-CIT computer course.38.00 per cent of the respondents

had family education above degree.56.67 per cent of the parents were semi professionalists like school teacher, businessmen, agriculturists, clerk, and accountant. 40.00 per cent of the respondents were daily users, 67.50 per cent of the respondents were regularly internet browsers with 72.50 per cent of the respondents were spent time above two hours. 35.00 per cent of the respondents were never faced any health problems while using internet and 65.83 per cent of the students family had high level of annual income.

6.2 Knowledge of Agricultural students towards computer usage

Majority (45.83%) of the students had high level of knowledge, 43.34 per cent of the respondents had medium level and only 10.83 per cent of the respondents had normal level of knowledge.

6.3 Attitude of Agricultural students towards computer usage

Majority (67.00%) of the respondents were felt comfortable for using computer, 18.00 per cent of the respondents were felt most comfort and only 15.00 per cent of the respondents were felt non-comfortable for using computer.

6.4.1 Relationship between profile of Agricultural students with their knowledge and attitude towards computer usage.

6.4.1.1 Knowledge

The results concluded that out of eight independent variables, professional education, family education, family occupation and extent of computer usage had positively significant with knowledge. Family type, family size, health problems and annual family incomes were non- significant.

6.4.1.2 Attitude

The results concluded that out of eight independent variables, professional education, family type, family occupation, extent of computer use, and annual family income had positively significant with attitude of students. Family size, family education, health problems were non-significant with attitude of the students towards computer use.

6.4.2 Multiple regression analysis

6.4.2.1 Knowledge

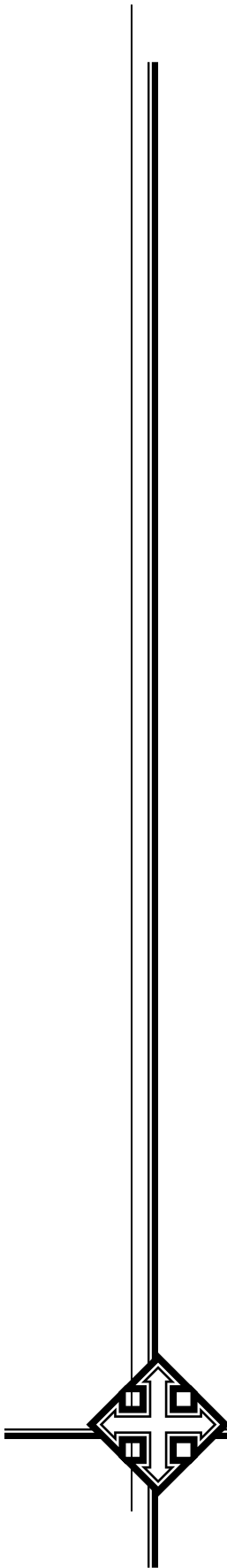
Multiple regression analysis showed that 38.83 per cent variation in the knowledge of respondents towards computer usage caused by eight independent variables. It is also observed that out of eight independent variables, professional education, family occupation and extent of computer usage had positive and significant effect on knowledge of respondents towards computer usage.

6.4.2.2 Attitude

Multiple regression analysis showed that 41.02 per cent variation in the attitude of respondents towards computer usage caused by eight independent variables. It is also observed that out of eight independent variables, professional education, family type, extent of computer usage and health problems had positive and significant effect on attitude of respondents towards computer usage

6.5 Constraints faced by Agricultural students in computer usage

The results concluded that 23.3 per cent of the respondents were lack in basic computer knowledge, 13 per cent of the respondents were unaware of how to use computer, cent per of the students unable to use computer due to high cost, 87.5 per cent of the students were not used computers due to lack of time, 10 per cent of the students had lack of interest due to more using of mobile, 90.83 per cent of the students were faced problem of irregular electricity supply, 96.66 per cent of the students accepted that lack of computer and internet facilities due high cost and the students(36.66%) were faced problem that most of computers were not working properly and even not had basic applications like MS Word, Excel and PDF converter.



IMPLICATIONS

CHAPTER VII

IMPLICATIONS

In the light of the findings of the study and researchers observation, while distributing of interview schedule to the respondents, following implications and recommendations are made and detailed as below.

1. The relationship established in the study between the selected independent variables and dependent variable would serve as a guideline for the extension personnel in manipulating the extension related variables, characteristics of Agriculture students with knowledge and attitude towards computer usage.
2. The majority of respondents were not benefited by computers, as basics of computers and their application are not introduced in the entire college curriculum. Hence there is a need for introducing computer courses in the curriculum so that they acquire computer skills and computer technology.
3. To enhance the use of computer with an ease some modifications in the computer technology has to be made like use of computers with higher configuration, providing a better internet facilities, etc.
4. For further research some more independent variables may be studied in detail statistical analysis may be computed to find out direct and indirect effect of various factors like students scholarship, possessing computer in home.
5. As showed in the results, 36.66% of the students specified that they were not having good computers and no basic applications. So as they are undergraduates please provide properly working computers and install basic computer applications like MS office and PDFconverter.

6. In recent around 10-12 years feels like the life is nothing without computer, laptop and internet. So each and every student should study and know about the computer atleast parts of computer and its functions, functions of keyboard symbols and their short keys which are very necessary for exams in banking sectors, many companies. So provide computer training to each and every student of the college.

SUGGESTIONS FOR FUTURE RESEARCH

As study covered all aspects related family of students but in future research has to cover the independent variables related to students. Due to time inconvenient, schedules were distributed so, in future by making time convenient, personal interview method has to be followed.



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(*- originals have not seen)

ABSTRACT



Department of Extension Education
College of Agriculture, Latur
Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani
THESIS ABSTRACT

Thesis Title

Attitude of Agricultural students towards Computer usage.

Name of the student: **Miss. Priyanka** Research Guide: **Dr. D. D. Suradkar**

Reg. No: **2015A/ 86 ML**

Degree : **M. Sc. (Agri)** Major Subject: **Extension Education**

The present study was conducted in Parbhani and Latur districts of Marathwada region. Population for the study comprised of students who were undergraduate of Agricultural students in Parbhani and Latur district. From each district one agricultural college were selected for the survey. From each college 60 students (30 boys & 30 girls) were selected and the total sample size was one hundred and twenty. This required sample size was selected through purposive random sampling method. One shot case study method of ex-post-facto medium research design was adopted for this study.

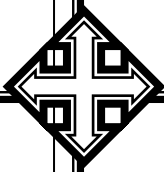
Results shows that, majority 49.16 per cent of the students had taken MS-CIT computer course. Majority 61.00 per cent of the respondents belongs to nuclear family. 57.5 per cent of the students were medium sized family. 38.00 per cent of the respondents had family education above degree. 56.67 per cent of the parents were semi professionalists like school teacher, businessmen, agriculturists, clerk, and accountant. 40.00 per cent of the respondents were daily users, 67.5 per cent of the respondents were regularly internet browsers with 72.5 per cent of the respondents were spent time above two hours. 35.00 per cent of the respondents were never faced any health problems while using internet and 65.83 per cent of the students family had high level (Rs.1.26-4.99 lakh) of annual income.

Knowledge of students towards computer use shows that, Majority of the students 45.83 per cent had high level of knowledge, 43.34 per cent of the respondents had medium level and only 10.83 per cent of the respondents had normal level of knowledge. Attitude of the students towards computer usage shows, 67 per cent of the respondents were felt comfortable for using computer, 18 per cent of the respondents felts most comfort and only 15 per cent of the respondents felts non-comfortable for using computer.

The results concluded from the constraints that, 23.3 per cent of the respondents were lack in basic computer knowledge, 13 per cent of the respondents were unaware of how to use computer, cent per of the students unable to use computer due to high cost, 87.5 per cent of the students were not used computers due to lack of time, 10 per cent of the students had lack of interest due to more using of mobile, 90.83 per cent of the students were faced problem of irregular electricity supply, 96.66 per cent of the students accepted that lack of computer and internet facilities due high cost and the students(36.66%) were faced problem other than these that most of computers were not working properly and even not had basic applications like MS Word, Excel and PDF converter. Regarding knowledge, out of eight independent variables, professional education, family education, family occupation and extent of computer usage had positively significant with knowledge. Family type, family size, health problems and annual family incomes were non- significant.

Regarding attitude of the respondents out of eight independent variables, professional education, family type, family occupation, extent of computer use, annual family income had positively significant with attitude of students. Family size, family education, health problems were non-significant with attitude of the students towards computer use.

APPENDIX



Appendix -1
Department of Extension Education
College of Agriculture, Latur
VasanthraoNaikMarathwadKrishiVidyapeeth, Parbhani

Interview Schedule

Title of Research project: Attitude of Agricultural students towards computer usage.

Name of Investigator: Priyanka.

Reg. no: 2015A/86 ML

Advisor: Dr. D. D. Suradkar

Department: Extension Education

PART – 1

Respondent No:

1. Name of student :
2. Reg. No :
3. Class :
4. College Name :
5. Sex : Male/ Female
6. Professional education :

SI. NO	Courses	
1	MS_CIT	
2	CCC	
3	Others	
4	No courses taken	

6. Family education :

Category	
Illiterate	
Primary school	
High school	
Pre university / diploma	
Degree and above	

7. Family type : Nuclear / Joint

8. Family size :

Male	Female	Total

9. Annual family income :

10. Family occupation : (tick the mark \checkmark)

Category	
Non worker / unemployed	
Skilled worker- tailor,carpenter, potter	
Semi professionals – school teacher, businessmen, agriculturist, clerk, accountant, librarian, assistant.	
Higher professionalists – engineer, doctor, professor, manager, law administrator	

11. Extent of computer usage : (Tick the mark \checkmark)

Frequency of use of computer	
Daily	
Fortnightly	
Monthly	
Rarely	
Frequency of internet browsing	
Regularly	
Occasionally	
Never	
Total time spent (in hours)	
Minimum	
Maximum	

11. Health problems related to computer usage :(tick the mark \checkmark)

Problems	
Eye related – eye strain, burning or irritation	
Muscle related – backache , pain	
Headache	
Never faced any problem	

PART – II

I. Knowledge of Agricultural students towards computer usage.

1. Computers were invented by
 - a) Charles Darwin
 - b) Charles Babbage
 - c) Both a & b
 - d) none of these
2. Uses of computer are
 - a) Games, movies
 - b) Chatting
 - c) Painting , Typing
 - d) All of the above
3. The languages of computer are
 - a) Basics
 - b) C++
 - c) Java
 - d) All of the above
4. Short key for Undo
 - a) ctrl X
 - b) ctrl S
 - c) ctrl Z
 - d) All of the above
5. Short keys of computer
 - a) ctrl
 - b) alt
 - c) shift
 - d) All of the above
6. Parts of Computer are
 - a) Mouse
 - b) C.P.U.
 - c) Keyboard
 - d) All of the above
7. Abbreviation of the C.P.U.
 - a) Compact Processing Unit
 - b) Central Processing Unit
 - c) Central Programming Unit
 - d) None of the above
8. Information can be copied through
 - a) C.D.
 - b) Pendrive
 - c) Floppy disk
 - d) All of the above

9. Abbreviation C.D.
- a) Compact Disc
 - b) Camera Display
 - c) Computer Design
 - d) None of the above

10. Which of following pair of computer output unit
- a) Monitor
 - b) Printer
 - c) Both a & b
 - d) None of the above

II. Attitude of Agricultural students towards computer usage.

SI . NO.	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1.	I would feel comfortable in using computer					
2.	I find the Internet to be as informative as teachers					
3.	I enjoy getting information more from written material than Internet					
4.	I like to read books for getting information about computers.					
5.	I use Internet as learning fun					
6.	I involve computers to my life at all fields					
7.	I access the computer more at college than at home					
8.	Internet is Important like other research tools					
9.	Internet is easier to use than library					
10	Knowledge of computer and Internet is essential for students					
11.	Computer is difficult to use					
12.	Internet contains useless information					
13.	I feel aggressive and hostile towards computer					
14	It is not interesting to solve problems with computers					
15	Learning computers is only loosing time for me.					
16	I hate computers					
17	Engaging with computers make					

	me angry					
18	Using computer and accessing, surfing and browsing the Internet confuses me					
19	I get sinking feeling when I think of trying to use a Internet					
20	I believe that I will not be good user at computer.					

PART- III

Constraints faced by students towards computer usage. (tick the mark √)

Sl. NO	Constraints /problems	Yes	No
1.	Lack of computer literacy		
2.	Lack training on how to use Internet		
3.	High cost of Internet access		
4.	Lack of time		
5.	Lack of interest		
6.	Irregular electricity supply		
7.	Lack of computer & internet facilities		
8.	Other than these specify..		