ISSN: 2321-2152

IJMECE

International Journal of modern electronics and communication engineering

E-Mail
editor.ijmece@gmail.com
editor@ijmece.com

www.ijmece.com

ISSN 2321-2152
www.ijmece.com
Vol 12, Issue 4, 2024

An Investigation of the Level of Lab Satisfaction among Computer Science Department Master of Computer Application and Master of Science (IT) Students

G. Vijaya
Head of the Department
MCA Department
Srinivasa Institute of Management Studies
Poturu Saivani
MCA, Srinivasa inistitute of management studies

Abstract— Information and communication technology has seen tremendous growth in recent years, and this growth is far from over; the present trend and market indicators attest to this. Universities play a crucial role in meeting the market need for IT professionals by producing highly skilled individuals. The issue that naturally arises from this is the degree to which the present lab facilities meet the needs of the students, who are the intended consumers and beneficiaries of these resources. In order to find the answer to this question, we conducted a survey-type study by administering tests to lab users. We then analyzed a number of parameters, including the following: infrastructure, arrangement, timings, internet facility, literature on laboratory practicals, availability of assistant teachers, availability of updated software, accessibility of all practicals in parallel with theory class, faculty feedback on practicals, and most importantly, the impact of lab subject syllabus design on students' careers. The findings presented in this article shed light on the existing practice of the Department of Computer Science and provide answers to the challenges that arose throughout the research project, all of which were derived from the data that was collected.

Keywords— Lab satisfaction scale, Google Drive, Google Form, SPSS Software – Software Package for Statistical Study.

I. INTRODUCTION

The advancement of information and communication technologies has been phenomenal in recent years. Its practical uses permeate almost every facet of human existence. Businesses and their associated ICT have so progressed. Different courses are designed at the undergraduate and graduate levels of education in order to produce qualified personnel. In addition to theoretical coverage, these courses also provide hands-on instruction and practical applications. Businesses and sectors connected to information and communication technology are placing a premium on the practical elements. The current concern is the level of satisfaction that students have with the lab facilities that are offered. With this in mind, we report the results of research conducted at our computer science department's lab.

II. OBJECTIVES OF THE STUDY

a. To develop lab satisfaction scale.

To know the selection level of lab based on factors like

- 1. Infrastructure, (2) Arrangement, (3) Timings,
  (4) Internet facility, (5) laboratory practical literature,
  (6) Updated version of all software, (7) User rights,
  (8) Assistant teacher's availability, (9) all practical in parallelwith theory class,
  (10) Faculty response for the practical,
  (11) Will practical work increase your knowledge for the field work in future.

III. IMPORTANCE OF THE STUDY

The purpose of this survey is to determine how satisfied students are with the computer lab amenities. The number of pupils who are happy or unhappy with the amenities that are offered will be determined based on the criteria outlined in the goals. Action might be done based on the findings collected.

IV. OPERATIONAL DEFINITION OF THE TERMS

The operational definitions of the term used in the study are…

a. **Lab satisfaction scale:** The main objective of this study was to know lab satisfaction of the students of Computer Science Department. To measure the lab satisfaction, no ready to use tool was available. So researchers constructed lab satisfaction 5 points rating scale, which was known as lab satisfaction scale.
b. **Lab satisfaction:** Students' positive responses on lab satisfaction 5 point rating scale were considered as lab satisfaction. Response pattern were (1) Strongly agree, (2) Agree, (3) Neutral, (4) Disagree, and (5) strongly disagree.

V. SAMPLE SELECTION

The present study was a survey type research study. To collect the data regarding lab satisfaction of the students a sample was selected utilizing purposive sampling method [3][4]. All the students of the department were requested to give their

ISSN 2321-2152
www.ijmece.com
Vol 12, Issue 4, 2024

opinions on lab satisfaction scale. The scale was digitally developed. So the students had to give their response online. Out of 180 students 64 responded. Thus the sample size of the study was limited to 64 students. Due to time constraints no more time was allowed for giving responses

a. **Construction of lab satisfaction scale**

To construct Lab satisfaction scale Dr. Anil Ambasana, Professor of Department of Education, Saurashtra University was consulted for guidance. The guidance provided by Lab satisfaction scale was constructed following the steps as under.

b. Determination of components

Eleven components of Lab satisfaction were decided after discussions with faculties of Computer Science Department. They were

1. Infrastructure
2. Arrangement
3. Timings
4. Internet facility
5. Laboratory practical literature.
6. Updated version of all software.
7. User rights.
8. Assistant teacher's availability.
9. All practical in parallel with theory class.
10. Faculty response for the practical.
11. Practical work will increase your knowledge for the field work in future.

c. Construction of the scale

A preliminary five-point grading system was developed from eleven separate factors. How happy are you with these components? That was the question put to the students. Each component's response was given as an option. Strongly agree, agree, neutral, disagree, and strongly disagree were the available choices. Following the determination of the degree of satisfaction for each component, the student was required to react by simply choosing one of the provided alternatives.

d. Experts opinion

The constructed pre five point rating scale was shown to the experts for its appropriateness according to their review. Dr. Anil Ambasana and Dr. Atul Gosai were referred [2]. They suggested to obtained free responses regarding lab facilities in form of student's suggestions. Accepting this point question no. 12 was added in the scale.

e. A digital format of the scale

It was decided to gather data on lab satisfaction scale in form of online. So the digital format of the scale was developed on Google online form [6]. There facility is provided by Google that is called Google drive [7]. Google drive provides facility to gather any sort of data. In this drive facility is provided to create a form for filling the data online. This form allows us to add various kinds of questions and answer's options in different forms like True/False, selecting one from available options, etc. Multiple choice options in form of answers/ responses were selected. Eleven questions as statements with five options were framed. Options were in form of radio buttons.

At the end of scale question was inserted as: Question
12. Give your suggestions regarding lab facilities in the space below.

To give responses on Lab Satisfaction Scale URL [1] was provided:

f. Try out

After formatting the Lab Satisfaction Scale on Google, the try out was done to test its proper functionality. Researcher her selves did the try out. The try out study was found highly satisfactory. Now the scale was ready to use. Lab Satisfaction Scale is attached as an appendix-1.

g. Instructions for providing responses

Following instructions were given for filling Lab Satisfaction Scale.

- This scale is meant only for knowing your satisfaction level so far as lab facilities are provided. There is nothing like right answer or a wrong answer. Feel free to give your opinions.
- Total 11 questions are as MCQs. Question are as statements with each one having five options:
  (1) Strongly agree, (2) Agree, (3) Neutral, (4) Disagree, and (5) Strongly disagree.
- One has to read each statement and give your opinion by simply clicking one of the radio buttons according to his/her believes.
- Question-12 is for giving free suggestions regarding lab facilities.
- This is not an examination. Feel free to react. This is only a part of our study.

VI. METHOD OF SCORING RESPONSE

Lab Satisfaction scale was constructed in the form of
5 point rating scale. It consist 11 statements. Respondents were instructed to read carefully each question and provide response to the statement by clicking the radio button provided.

A digital format of the scale was constructed on Google drive[7] in such a way that response provided by the student respondents were automatically stored as an excel data file. Allotment of responses category: Strongly Agree, Agree, Neutral, Disagree, Strongly disagree where coded as 5,4,3,2 and 1. These were considered as weighted scores.

ISSN 2321-2152
www.ijmece.com
Vol 12, Issue 4, 2024

The 12th question of the scale was in the form of free response. Respondents were requested to write down suggestion according to their views. Frequencies were counted of key content points of the statements.

VII. DATA COLLECTION

Data were collected according to the convenience of computer laboratory availability. The students were instructed and explained how to fill the responses of lab satisfaction scale. Total 64 students of computer science department were involved in this process. Thus lab survey.xls file was generated.

VIII. DATA ANALYSIS AND INTERPRETATION

All of the information gathered was numerical. The statistical package for social sciences, often known as SPSS, was used to analyze the data [5]. We used a non-parametric chi-square test since our data were on a nominal scale.

Table-1 displays the results of the data analysis as determined by the chi-square test. All of the assertions in Table 1 have chi-square values that are significant at the 0.01 level, with the exception of statement 6. With the exception of statement 6, every statement shows a higher than anticipated frequency of answers in the agree or strongly agree category.

Almost all of Saurashtra University's Master of Computer Application and Master of Science in Information Technology students are pleased with the lab facilities offered by the Department of Computer Science. When it comes to the lab's infrastructure, organization, timing, internet access, practicing user rights, availability of an assistant teacher, scheduling of practicals in tandem with theory classes, faculty feedback on practicals, and the likelihood that they will gain knowledge useful for future fieldwork, they appear to be satisfied. Besides chi-square analysis descriptive statistics was also calculated. Result of this analysis is given in Table - 2.

Table – 1
Observed and Expected Frequencies According To the Statements of Lab. Satisfaction Scale

(Expected frequency = 12.8)
(SA: Strongly Agree, A: Agree, N: Neutral, D: Disagree, and SD: Strongly Disagree)

No.	Statement	SA	A	N	D	SD	Chi. Sq.
1	Infrastructure	15	40	6	2	1	81.78**
2	Arrangement	17	38	5	4	0	46.86**
3	Timings	30	23	9	2	0	30.63**
4	Internet facility	9	23	17	10	5	16.00**
5	Laboratory practical literature.	17	30	14	2	1	44.59**
6	Updated version of all software.	10	10	12	22	10	8.50

ISSN 2321-2152
www.ijmece.com
Vol 12, Issue 4, 2024

7	User rights.	8	26	10	14	6	19.75**
8	Assistant teacher's availability.	17	26	11	8	2	26.16**
9	All practical in parallel with theory class.	10	24	13	16	1	22.09**
10	Faculty response for the practical.	15	30	13	5	1	39.13**
11	Practical work will increase your knowledge for the field work in future.	27	27	6	4	0	30.38**

** Significant level 0.01

Graph1: Observed and Expected Frequencies According To the Statements of Lab. Satisfaction Scale

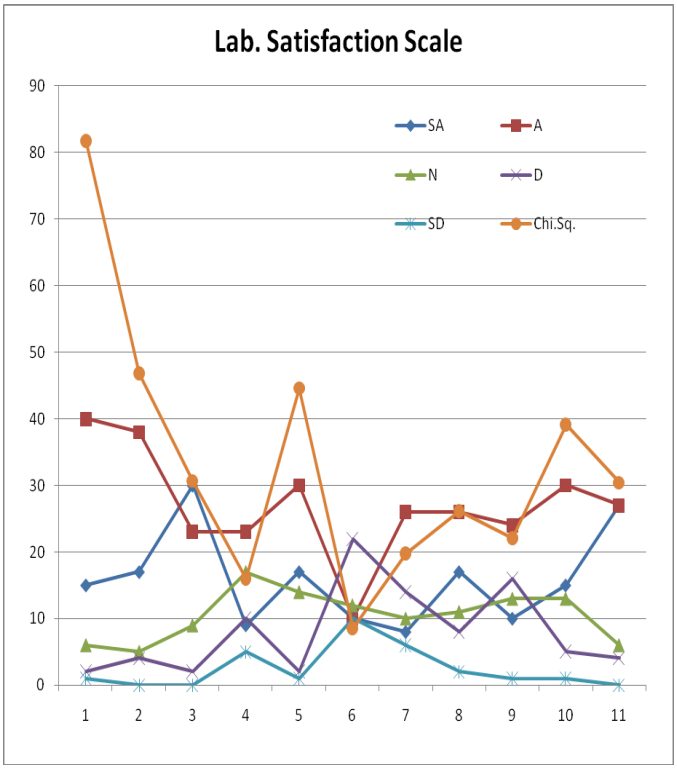

Table-2
Descriptive statistics of weighed scores on Lab satisfaction scale

N	Mean	Min	Max	SD
64	40.87	28	52	4.90

ISSN 2321-2152
www.ijmece.com
Vol 12, Issue 4, 2024

From Table-2 The mean weighted score of 64 students is 40.87, which is higher than the mean score of 33 (the neutral answer), as shown in Table 2. The weighted score ranges from 28 to 52, with 52 being the highest and 28 being the minimum. The value of standard deviation is 4.90. In terms of overall lab satisfaction, this score shows good sentiments. Graph 1 shows that overall satisfaction levels are lower than expected across all scales, from S to Chi-Sq. Additionally, this has a detrimental effect on the ease and enthusiasm of pupils learning in the present setting, which is undoubtedly influencing their long-term growth.

Question-12 replies were also subjected to content analysis. In the form of recommendations, which exposed the student's wants and expectations. Here are the details:

The fast internet connection

(1) More number of computer system in internet lab.
(2) The lab faculty which is able to solve error during practical session must be available.
(3) Students should be able to take daily backup from lab using their pen drives.
(4) The new Air Conditions are required in older lab.
(5) Provide all the rights which are required to run their practices, tasks or applications.

IX. CONCLUSIONS OF THE STUDY

After data analysis and interpretation of the results, conclusions were drawn out which are as follows.

1. The students of MCA and MSc.(IT) are almost satisfied with the present lab facilities provided by the of Department of Computer Science of Saurashtra University.
2. They are satisfied so far as Infrastructure of lab, Arrangement of lab, Timings i.e. time schedule , Internet facility, Practicing User rights, Availability of Assistant teacher, Arrangement of practical in parallel with theory class, Getting faculty response for the practical, and Designed Practical work will increase their knowledge for the field work in future are concern.
3. There is no clear opinion regarding satisfaction of facility of Updated version of all software.
4. The fast internet connection. With more number of computer system in internet lab.
5. The lab faculty who is able to solve error during practical session is a must.
6. Allowed students to take daily backup from lab using their pen drives.
7. The new Air Conditions are required in older lab.
8. Provide all the rights which are required to run their practices, tasks or applications.

This investigation took the form of a survey. A purposive selection strategy was used to choose a sample in order to get data about students' lab satisfaction[3][4]. We asked all of the department's students to fill out a lab satisfaction survey. We created the scale digitally. Thus, the pupils were required to submit their answers digitally. Only 64 out of 180 pupils returned the survey. This meant that just 64 pupils could be included for the study's sample. No more time was allotted for answers because of time constraints.

REFERENCES

A. M. Gonsai, who is one of the writers of this article and whose lab survey was conducted at the given URL. Link: https://sites.google.com/site/atulgosai/lab-survey July 9, 2013.

[2] The Technical Writer's Handbook of the Department of MCA, Saurashtra University, 2012.

[3] "Estimating Forage Yield by the Double Sampling Method" was published in March 1944 in the Access Digital Library and was written by H.G. Wilm, David F. Costello, and G.E. Klipple.

[4] The book "A Method of Sampling Course, Riven Bed Material" is available. Written by Gordon Wolman and published in 1954 in the Transactions of the American Geophysical Union, volume 35, issue 6.

[5] The book "SPSS: AN OVERVIEW" was written by Seema Jaggi and published by P.K. Batra I.A.S.R.I. in New Delhi, India.

[6] Instructional Guide: Data Collection using Google Docs Forms, last updated on July 9, 2013, available as a PDF at http://teacherlink.ed.usu.edu/tlresources/training2/google/googleforms.p df.

[7] As of 07/09/2013, the following is the URL of the Google Drive tutorial: https://sites.google.com/a/alpenaschools.com/google-drive/.