

Use of ICT Tools and Learning Resources for Quality Education Enhancement by Faculty Members of Management Institutions

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Abstract:

Learning is a continuous process. It is dynamic in nature. The use of Information and Communication Technology (ICT) has brought major changes in the field of higher education. Today, teaching and learning are no longer limited to traditional classroom methods. ICT tools help faculties explain topics more clearly and make learning more interesting and interactive for students. This research paper focuses on how faculty members in management institutions in Solapur use ICT tools and digital learning resources in their teaching. It also studies how these tools help in improving the overall quality of education. This helped in understanding their experiences, opinions, and challenges related to the use of ICT. The findings of the study show that ICT tools such as Learning Management System (LMS), Video Conferencing Platforms, Digital Libraries, and Online Assessment tools have a positive impact on teaching and learning. These tools help teachers to deliver content more effectively, make classes more engaging, and provide quick feedback to students.

Keywords: *ICT tools, quality education, management institutions, faculty, learning, Learning Management System*

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1. Introduction:

The management education is highly influenced by the digitalization, globalization, government reforms and changing expectations from various stakeholders (Choudhury et al., 2024). The teaching and learning are more participatory adaptable and accessible because to information and communication Technology ICT tools such as computer the internet smart board and online platform have altered how classed are taught students are evaluating and teachers and students interact school and colleges employing are also using these tools to improve their systems and monitor the level of education they offer. Around the world, there is significant emphasis on providing quality education to all (Bhanot & Gaikwad, 2025). This goal is underlined in the sustainable development goals which seek to guarantee that all people have access to inclusive and equitable learning opportunities thought out their lives ICT Contribution to this by making education more flexible facilitating improve teaching methods are allowing for regular monitoring of students' progress.

2. Background of Study:

In today's world technology is rapidly evolving and it has altered the way education operates information and communication technology has become a critical component of teaching and learning particularly in

management education ICT Tools assist teachers in explaining concepts more effectively making lessons more engaging and improving students' comprehension faculty members play an important role in implementing these tools in classrooms. They use a variety of digital tools to make education more effective and entertaining in towns like Solapur management institutions are utilizing ICT Technology's such as LMS (Google Classroom, Moodle), Video conferencing (Zoom, Teams), E-assessment tools and Digital presentations. These tools contributed to the creation a flexible learning environment in which students can learn at any time from any location, they also make learning more engaging and student centered. However, the overdependence, privacy concerns lead to the digital stress for the users at times (Gaikwad & Bhattacharya, 2024).

3. Rationale of Study

The quality education is a learning process that ensure students acquire the relevant knowledge skills and values required for personal and professional development. It emphasizes effective teaching methods the use of current resources such as ICT Inclusive learning opportunities and ongoing assessment to improve results. Quality education not only improves academic performance but it also fosters critical thinking creativity and lifelong learning all of which contribute to societal growth Quality education based on ICT tools and diverse digital learning materials aims to improve teaching learning through technology driven methodologies learning management systems video conferencing e-resources and online platforms all contribute to a more participatory adaptable and accessible Education environment digital resources such as eBooks online journals and Video Lectures facilitate self-spaced and continual learning (Gaikwad, 2024). The Incorporation of ICT increases knowledge fosters critical thinking and allows for tailored learning experiences therefore bossing the overall effectiveness and quality of education.

4. Literature Review:

The various studies emphasize on the integration of ICT technologies in the teaching-learning process. Consequently, the teaching learning process is shifting from chalk and talk to online mode (*Mufeed & Ahmad, 2022*). The research highlights the role of technology in bridging the digital divide, particularly in rural and semi-urban areas. (*Rahod, 2025*). Twenty-first-century teaching learning skills emphasize the need to transform the conventional teacher-centered pedagogy to more learner-centered methodology. Active and collaborative learning conditions facilitated by ICT helps to develop a knowledge-based student community (*Bindu, 2016*), The Government of India has consistently promoted policies to encourage technology-driven innovations in education and encourage ICT integration among educators. *Saha & Binayak Dey (2025)* investigated how a wide range of tools including learning management systems, collaborative platforms, multimedia resources, and new technologies like artificial intelligence and virtual reality are changing traditional classrooms into interactive and learner-centered settings. These digital technologies have made a paradigm shift in the entire education system. It is not only a knowledge provider but also a co-creator of information, a mentor, and an assessor. Technological improvements in education have made life easier for students (*Abid Haleem, 2022*). Digital learning tools like Kahoot, Google Classroom, Mind map, Seesaw, Edu clipper have a great impact in making teaching-learning more interesting to the learners. Free online resources and several MOOCs platforms enable teachers and learners to enhance their skills continuously affordably and flexibly (*Dwivedi 2022*).

5. Problem Statement:

Although ICT Tools are widely available in many institutions their effective use by faculty member is variable while some teachers use them frequently others utilize them sparingly due to factors such as adequate training insufficient infrastructure and aversion to adopting new technologies as a result the full potential of information and communication technology is not fulfilled as a result the purpose of this study is for better understanding the extent to which faculty use ICT and its role in improving educational quality

6. Objectives of Study:

The objectives of this research study are:

1. To study how faculty members in management institutions in Solapur use ICT tools.
2. To understand how ICT tools, improve teaching learning process.
3. To identify the problems faced by faculty members while using ICT tools.
4. To suggest ways to improve the use of ICT Management Institutions in Solapur City.

7. Scope and Limitations of Study:

The Current study titled “Use of ICT Tools and Learning Resources for Quality education enhancement by faculty members of management Colleges in Solapur City” is confined to faculty members working in Management colleges within the Solapur city.

8. Research Methodology:

The study is based on a mixed-method approach, which includes both quantitative and qualitative methods. Data was collected through questionnaires and interviews with faculty members (Using Google Form and Personal Interview using excel sheet of data for hypothesis using Chi-square test) total population 252 faculties using Morgan Stanley table for sample size 152 respondent were respond the questionnaire and interview. Researcher have analyzed the table according the Designation, gender, qualification, impact and challenges ICT Tools and learning resources.

• Hypothesis:

H0: “There are positive perceptions among faculty members regarding the use of ICT tools and learning resources for enhancing quality education in management institutions in Solapur city.”

Ha: There are positive perception among faculty members regarding the use of ICT tools and learning resources for enhancing quality education in management institutions in Solapur city

9. Data Analysis & Interpretations:

Table 1: Gender Wise Distribution

Gender	No of Respondents	Percentage %
Male	102	67.10
Female	50	34.10
Total	152	100.00

The gender-wise distribution of respondents indicates a strong majority of male participants in the survey. Out of a total of 152 respondents, 102 (67.10%) are men, while 50 (34.10%) are women. This indicates that nearly two-thirds of the respondents are male, whereas female participation accounts for about one-third.

Table 2: Age Group Wise Distribution

Age	No of Respondents	Percentage%
Above 51	25	16.44
41-50	70	46.05
31-40	52	34.21
Above 25-30	05	3.28
Total	152	100.00

The age-wise distribution shows that the majority of respondents belong to the 41–50 age group with 70 respondents (46.05%), followed by 31–40 with 52 respondents (34.21%). Together, these two groups account for 80.26% of the total sample, indicating a strong concentration in the middle-age category. The Above 51 group includes 25 respondents (16.44%), while the 25–30 age group has the lowest representation with only 5 respondents (3.28%). Statistically, there is a wide gap of 65 respondents (42.77 percentage points) between the highest and lowest age groups, showing a clear dominance of middle-aged participants and underrepresentation of younger respondents.

Table 3: Designation wise Respondents

Designations	No of Respondents	Percentage %
Professor/Director	5	3.28
Associate Professor	25	16.44
Assistant Professor/visiting Faculties	122	80.26.
Total	152	100.00

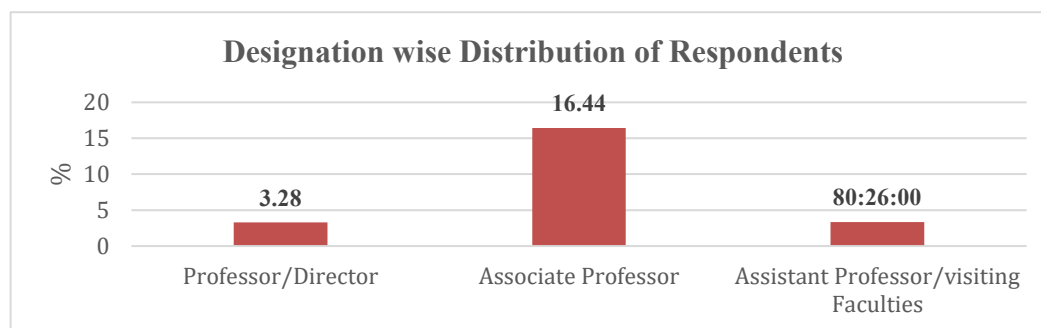


Figure 1: Designation Wise Distribution of Respondent

The designation-wise distribution shows that the majority of respondents are Assistant Professors/Visiting Faculties with 122 respondents (80.26%), indicating strong dominance of junior-level faculty. Associate

Professors account for 25 respondents (16.44%), while only 5 respondents (3.28%) are Professors/Directors. Statistically, there is a large gap of 117 respondents (about 77 percentage points) between the highest and lowest categories, showing that lower and mid-level academic staff, with very limited representation from senior positions, mainly influence the study.

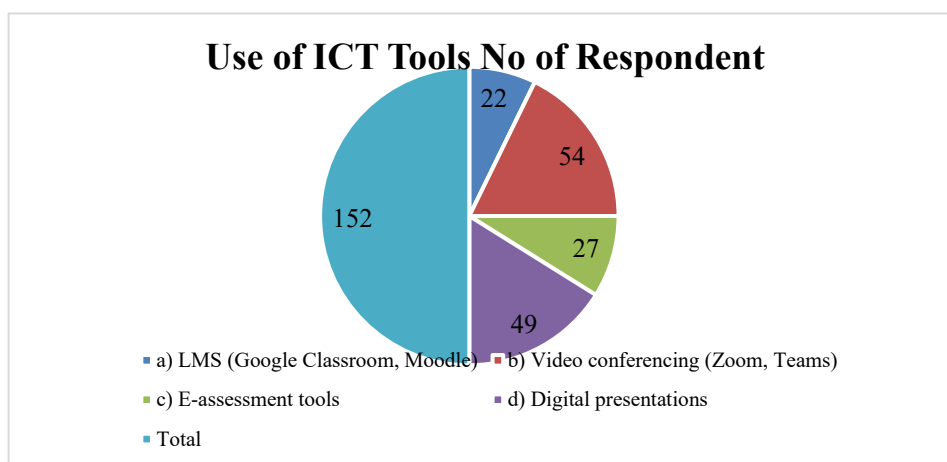
Table 4: Teaching Experience

Designations	No of Respondents	Percentage%
Above 30	25	16.44
21-30	75	49.34
11-20	35	23.02
5-10	22	14.47
Total	152	100.00

The teaching experience distribution indicates that the majority of respondents have 21–30 years of experience, with 75 respondents (49.34%), showing a strong dominance of highly experienced faculty. This is followed by 11–20 years (35 respondents, 23.02%) and above 30 years (25 respondents, 16.44%), while the lowest representation is in the 5–10 years' category with 22 respondents (14.47%). Statistically, nearly half of the respondents fall in the 21–30 years' group, and there is a gap of 53 respondents (34.87 percentage points) between the highest and lowest categories, highlighting that the study is largely influenced by experienced professionals.

Table 5: Use of ICT Tools

ICT Tools	F	%
a) LMS (Google Classroom, Moodle)	22	33.44
b) Video conferencing (Zoom, Teams)	54	35.52
c) E-assessment tools	27	18.01
d) Digital presentations	49	32.00
Total	152	100

**Figure 2: Use of ICT Tolls**

The use of ICT tools shows that video conferencing tools (Zoom, Teams) are the most commonly used, with 54 respondents (35.52%), followed by digital presentations (49 respondents, 32.00%) and LMS tools (22 respondents, 33.44%). E-assessment tools are the least used, with 27 respondents (18.01%). Statistically, there is a difference of 27 respondents (17.51 percentage points) between the highest and lowest categories, indicating that communication and presentation tools are more widely adopted than digital assessment methods.

How do ICT tools and digital learning resources influence your learning experience in terms of usage, interactivity, and understanding?

Table 6: Digital presentations

ICT Tools	No of Respondents	Percentage %
i) Strongly Positive (Always use; highly interactive; greatly improves understanding)	48	31.6
ii) Positive (Frequently use; interactive; improves understanding)	52	34.2
iii) Neutral (Sometimes use; moderately interactive; somewhat improves understanding)	28	18.4
iv) Negative (Rarely use; less interactive; little improvement in understanding)	16	10.5
v) Strongly Negative (Never use; not interactive; does not improve understanding)	8	5.3
Total	152	100

The above table shows that digital presentation is generally acknowledged as a useful ICT education tool. The vast majority of faculty members 65% (31.6% highly positive and 34.2% favourable) use digital presentations frequently or always and think they improve student's comprehension and increase involvement 18.4% of respondents on the other hand have a neutral opinion and use them infrequently with a moderated impact. A smaller percentage 15.8 % (10.5% Negative and 5.3% very Negative) On the other hand rarely or never use digital presentations and believe there is little to no advantage.

Table 7: Faculty Perceptions towards ICT Tools

Description	Strongly Agree (Respondent & %) 5	Agree (Respondent & %) 4	Neutral (Respondent & %) 3	Disagree (Respondent & %) 2	Strongly Disagree (Respondent & %) 1
ICT tools improve student academic performance	50 (32.9)	54 (35.5)	22 (14.5)	16 (10.5)	10 (6.6)
ICT is effective in higher education	52 (34.2%)	50 (35.90)	20 (13.2%)	18 (11.8%)	12 (7.9%)
Institution provides sufficient ICT support.	38 (25%)	46 (30%)	32 (21%)	20 (13%)	16 (11%)
Institute should increase investment in ICT Tools	42 (28%)	48 (32%)	28 (18%)	18 (12%)	16 (10%)
Faculty should be training regularly in digital Tools	50 (33%)	45 (30%)	25 (16%)	20 (13%)	12 (8%)

The above table shows that faculty members in higher education have a very favorable opinion of ICT Tools a sizeable majority 68.4% Concur that ICT enhances students' academic achievement and 70.1% think it work well in higher education underscoring its crucial role in improving instruction there is a lack

of resources and infrastructure as only 55% respondent believe their universities offer adequate ICT Support Simultaneously 63% stress the necessity of frequently staff training in digital technologies and 60% think that institutions should invest more in ICT Tools.

Table 8: Challenges Faced by Faculties while using ICT tools

Challenges	No of Respondents	Percentage %
a) Lack of training	93	61.18
b) Poor internet connectivity	10	6.57
c) Lack of infrastructure	40	26.31
d) Resistance to change	9	5.92
Total	152	100.00

The data show that the most significant problem experienced by faculty members while adopting ICT Tools is a lack of training as express by a strong majority of 61.18% if respondents highlight an urgent need for skill development and capacity building initiatives. This followed by a lack of infrastructure 26.31% implying that insufficient facilities and resources further impede effective ICT adoption in Contrast fewer respondents cited inadequate internet connectivity 6.57% and opposition to change 5.92% as challenges indicating that these are minor impediments

Table 9: Commonly Usage of learning Resources

Learning Resource	No. of Respondents	Percentage (%)
MOOC Platforms	100	65.79
SWAYAM	100	65.79
NPTEL	100	65.79
INFLIBNET Resources	89	58.55
National Digital Library	100	65.79
Coursera	50	32.89
E-books	90	59.21
Online Journals	110	72.36
Digital Libraries	110	72.36
Video Lectures / YouTube	115	75.66

The multiple answer analysis of learning resources shows that video lectures/YouTube 75.66 are the most popular resources among respondents emphasizing the importance of visually appealing and quickly accessible content. This is followed by online journals and digital libraries 72.6% indicating a strong preference for academic and research-based materials, MOOC platform SWAYAM NPTEL and the National Digital library are also popular with each receiving 65.79% utilization indicating widespread acceptance of structed online learning platform e-books 59.21% and INFLIBNET resources 58.55% have moderated usage whereas coursera 32.89% is the least accessed resources.

Table 10: Difficulties affect your use of ICT tools

Difficulties affect your use of ICT tools	Slightly	Severely	Moderately	Not at all
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Lack of Skills	40 (26.32%)	45 (29.61%)	35 (23.03%)	32 (21.05%)
Internet Use	38 (25.00%)	42 (27.63%)	36 (23.68%)	36 (23.68%)
Cost of ICT Tools	30 (19.74%)	40 (26.32%)	50 (32.89%)	32 (21.05%)
Lack support /Training	35 (23.03%)	44 (28.95%)	41 (26.97%)	32 (21.05%)
Total	152	152	152	152

According to the data, faculty members experience a number of challenges when using ICT tools, with the majority ranging from moderate to severe lack of skills being highlighted as a serious worry, with 52.64% (29.61% severely and 23.03% somewhat) reporting a substantial impact of ICT usage. Similarly, lack of assistance/training affects 55.92% (28.95% severely and 26.97% moderately), emphasizing the importance of ongoing training and institutional support. Difficulties with internet use are also notable, with 51.1% reporting moderate to severe impact, indicating that connectivity and effective usage remain challenges. In terms of the cost of ICT, the largest number 32.89% indicated considerable difficulty, while 59.21% encounter moderated to serve challenges.

Table 11: Need to Improve ICT Usage

Need to Improve ICT Usage	No of Respondents	Percentage %
Training Programs	100	21.05%
Better Infrastructure	38	25.00%
Technical Support	30	19.74%
All of the Above	52	34.21%

The results demonstrate that improving ICT Use requires a number of factors. The vast majority of respondents (34.21%) selected "All of the Above," suggesting that effective ICT adoption necessitates training initiatives, enhanced infrastructure, and technical assistance. Training programs (21.05%) and technical support (19.74%) are the next most important requirements, after improved infrastructure (25.00%).

Table 12: Impact of faculty member while using ICT and Digital Learning Resources

Impact of faculty member while using ICT and Digital Learning Resources	No of Respondents	Percentage %
Make Teaching Better and Easy to Under Stand	20	13.16%
Help students learn faster	16	10.53%
Make classes more integrative	15	9.87%
Provide easy access to study material	18	11.84%
Improve communication between student and Teacher	14	9.21%
Save Time in Teaching	13	8.55%
Make Learning more interesting	17	11.18%
Help in better Understanding of Topics	16	10.53%
Encourage of self-learning	23	15.13%

The data shows that faculty members' utilization of ICT and Digital learning tools improves teaching and learning process. The most important benefit is facilitating self-learning 15.13% demonstrating that ICT fosters depends and active learning among students This is followed by making teaching better and easier to grasp (13.16%), which emphasizes greater instructional clarity. Other noteworthy impacts include offering simple access to study materials (11.84%) and making studying more entertaining (11.18%), both of which increase student engagement. Furthermore, helping students learn faster and with a better knowledge of topics (each 10.53%) demonstrates ICT's usefulness in boosting learning outcomes. Making classrooms more participatory (9.87%), enhancing communication between teacher and students (9.21%), and saving time in the classroom (8.55%) all have rather moderate impacts.

- **Hypothesis Testing:**

1. ICT tools improve student academic performance

Observed (O):

50, 54, 22, 16, 10 → Total = 152

Expected (E) = $152 / 5 = 30.4$ each

$$\chi^2 = \sum (O - E)^2 / E$$

$$= (50-30.4)^2/30.4 + (54-30.4)^2/30.4 + (22-30.4)^2/30.4 + (16-30.4)^2/30.4 + (10-30.4)^2/30.4$$

$$= 12.63 + 18.30 + 2.32 + 6.82 + 13.69$$

$$\chi^2 = 53.76$$

Result: Significant ($p < 0.05$)

Reject H_0

The Chi-square analysis of all statements reveals that the majority of faculty members have a significantly positive perception toward the use of ICT tools and learning resources. In all cases, the calculated distribution is highly skewed toward agreement categories, indicating that ICT plays an important role in enhancing quality education. Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted.”

10. Findings, Observations Suggestion and Conclusion:

The research study's findings show that two-third of respondents are male with female involvement limited to about one third indicating a gender imbalance. There is definite preference for middle age participants with reduced representation from younger responded and minimal engagement from senior level teachers. The data also show that communication and presentation tools are more often used than digital assessment methods, indicating a preference for simple ICT applications. Faculty members have a strong positive attitude toward digital presentation yet a tiny fraction still requires encouragement and support for successful implementations. While the benefit of ICT in improving teaching and learning is widely recognized, the research study emphasizes the need for enhanced institutional support, more investment, and ongoing training to ensure optimal implementation. Inadequate training, infrastructural

restrictions, a lack of skills, insufficient support systems, cost-related concerns, and mild internet-related challenges have all been recognized as important obstacles. The findings indicate that ICT tools can significantly improve teaching efficacy, boost student involvement, and promote self-directed learning making the educational process more efficient and meaningful.

11. Suggestions:

The research recommends that institutions adopt a comprehensive strategy to improve the efficient use of ICT Tools. Efforts should be made to improve gender balance and encourage involvement by both younger and senior faculty members. Institutions must strengthen ICT infrastructure, provide proper technical support, and expand investment in digital resources. Regular training and skill development programs should be implemented to address skill shortages and resistance to new technologies. Furthermore, emphasis should be placed on increasing the use of modern instruments, such as digital evaluation methods. By addressing these issues, institutions can improve teaching efficiency, increase student engagement, and promote self-directed learning via ICT.

12. Conclusion:

The research study shows that ICT Technologies and digital learning resources greatly improve educational quality in management institutions in Solapur City. Faculty members have a positive attitude toward ICT, recognizing its potential to improve instructional efficiency, student comprehension, and academic performance through interactive and adaptable techniques. However, obstacles such as a lack of training, insufficient infrastructure, limited institutional backing, and financial limits prevent its broad use. The findings also point to the importance of involving both younger and senior professors in ICT adoption efforts. With improved training, infrastructure, and support, ICT has the potential to significantly improve teaching outcome engagement and higher education quality.

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