



E-ISSN: 2707-6628
P-ISSN: 2707-661X
www.computersciencejournals.com/ijcit
IJCIT 2022; 3(2): 18-21
Received: 15-05-2022
Accepted: 20-06-2022

Nasratullah Kakar
Ph.D. Scholar, Department of
Agricultural Extension
Education, College of
Agriculture, University of
Agriculture
Sciences, Dharwad,
Karnataka, India

Manjula N
Professor, Department of
Agricultural Extension
Education, College of
Agriculture, University of
Agriculture
Sciences, Dharwad,
Karnataka, India

Mohammad Akbar Nadeerpoor
Ph.D. Scholar, Department of
Agricultural Economics,
College of Agriculture,
University of Agriculture
Sciences, Dharwad,
Karnataka, India

Israrullah Yousafzai
Ph.D. Scholar, Department of
Agribusiness Management,
College of Agriculture,
University of Agricultural
Sciences, Dharwad,
Karnataka, India

Corresponding Author:
Nasratullah Kakar
Ph.D. Scholar, Department of
Agricultural Extension
Education, College of
Agriculture, University of
Agriculture
Sciences, Dharwad,
Karnataka, India

Competencies of agricultural universities teachers in the application of information and communication technology (ICTs)

Nasratullah Kakar, Manjula N, Mohammad Akbar Nadeerpoor and Israrullah Yousafzai

DOI: <https://doi.org/10.33545/2707661X.2022.v3.i2a.51>

Abstract

Twenty-first century is known as the information age. The introduction of effective technological innovations has equipped information technology. The information revolution has had a profound impact on many aspects of life. To be competent in this globalized era, teachers must keep up to date with current events. All of this is possible with the proper facilities. The incorporation of ICTs into educational classroom teaching has reached a new peak in recent years. ICT has also had an impact on students' ability to search for information that was previously unavailable to them. The present study was conducted on "Competencies of agricultural universities teachers in application of information and communication technology (ICTs)" at University of Agricultural Sciences, Dharwad with the sample size of 100 teachers. Ex-post facto research design was used for the present study. Findings of the study showed that the overall competency of ICTs by teachers (43.00%) was found high. Hence teachers had high competency in utilization of MS Word (60.00%) followed by MS Power Point (56.00%).

Keywords: Competencies, ICT tools, teachers, technology

1. Introduction

Competence in a given context refers to the appropriate prior knowledge, skills, attitudes, and abilities that adjust and develop with time and needs in order to effectively and efficiently complete a task. In other words, the greater an instructor's competencies, the greater the likelihood that courses taught by that instructor will result in positive outcomes for a greater number of students (Amutha & Ramganes, 2013) [1]. Since the 1990s, the rapid advancement of technology has altered how teachers teach. Because the world is rapidly moving toward digital media, the role of technology in education is becoming increasingly important. Technology-enhanced learning was used to solve problems with end-users (teachers and students) and the need to study learning phenomena in the real world rather than in a laboratory (George, 2019) [4]. The role of technology in the teaching stage, technology can meet the needs of teachers. Digital learning education provides numerous opportunities to teach in a variety of ways. Creative visualization is a great way to see and move toward a possible future. Using technology, teachers can easily express their ideas specific teacher roles in the instructional process can either help or hinder students' ability to learn content and skills (Zayim *et al.*, 2005) [7]. Changes in educational situations, reorganization of learning environments, and the development of technology-based instructional systems have all resulted from technological advancements.

Learning outcomes are critical in developing educational patterns and improving teaching quality. The teacher can easily deliver their lectures, and students can visualize the practice of that lecture and become more interested in learning education. ICT tools has aided the expansion of interactive learning. All aspects of learning are controlled and directed by the teacher. The measurement of a user's beliefs and attitudes toward a technology was used to determine the adoption of new technology. Adoption of new technology by teachers, in particular, will improve teaching quality. If teachers use educational technology in the classroom, they give students more options and responsibilities for their own learning. The use of ICT tools in the teaching process will result in the following benefits: high quality, cost effective professional development in the workplace, upgrading of employee skills, increased productivity, development of a new learning culture, cost and training time sharing with employees, and increased portability of training.

It has changed the way knowledge is disseminated today, particularly in terms of how teachers interact and communicate with students (Uttam, 2014 and Mac *et al.*, 2014) [6, 5]. Andronescu and Solomon (2010) [2] and Boon *et al.* (2015) [3] proposed that teachers should have knowledge and skills in information and Communication Technologies (ICTs).

2. Material and Methods

2.1 Research Design

In the present investigation, *Ex-post facto* research design was used. This design was considered as appropriate because the phenomenon has already occurred. *Ex-post facto* research is the most systematic empirical enquiry in which the researcher does not have control over independent variables as their manifestation has already occurred as they are inherent and can't be manipulatable.

2.2 Sampling Technique

The study was conducted in University of Agricultural Sciences, Dharwad (UASD), Karnataka, India. UAS, Dharwad includes five colleges' viz., College of Agriculture Dharwad, College of Agriculture Vijayapur, College of Agriculture Hanumanmatti, College of Community Science Dharwad and College of Forestry Sirsi which were selected for the study. From a total of 209 population size, a sample of 100 faculty from all five colleges were selected as respondents by following proportionate random sampling method.

2.3 Data collection procedure and period enquiry

The study was based on primary data. The primary data was collected with help of pre-tested structural schedule by personal interview method. Taking into consideration the various existing factor e.g. time and extent of available amongst the respondents, it was decided to adopt personal interview method along with schedule for the purpose of collection of data. A detailed schedule was prepared for collection of needed information. The schedule was developed in the light of the objective of the present study. The schedule was pre-tested in the sampling population to the extent of about 5 percent of the total respondents and modified according to the need of study. The purpose of study was clearly explained to the respondents at the time of data collection.

2.4 Analysis of data and statistical tools applied

Information was arranged in tabular forms and interpretation and analysis were done usually in terms of frequency, percentage, mean and standard deviation.

2.4.1 Frequency: This measure was used to know the distribution pattern of students and faculty for each variable wise and to categorize the data.

2.4.2 Percentage: Percentage was used for making the simple comparison. For calculating percentage, frequency of particular cell was multiplied by 100 and divided by total number of observation or respondents. For example out of 90 respondents, 50 respondents used internet as source of information, percentage will be-
Percentage (%) = $50/90 \times 100 = 55.56\%$

2.4.3 Mean: The arithmetic mean is the sum of the score

divided by their number. This measure was used to categorize the dependent and independent variables into low, medium and high categories.

2.4.4 Standard deviation: This measure was used to categorize the dependent and independent variables into low, medium and high categories.

3. Result and Discussion

3.1 Over all ICT competencies of the teachers

Data in Table 1 and Fig 1 pertaining to overall ICT competencies revealed that about (43.00%) of the teachers fell under high level of competencies category, followed by low (36.00%) and medium (21.00%) respectively.

Table 1: Distribution of the teachers based on their overall ICT competencies

Sl. No.	Category	Frequency	Percentage
1	Low	36	36.00
2	Medium	21	21.00
3	High	43	43.00
Mean = 85.91 SD = 20.12			

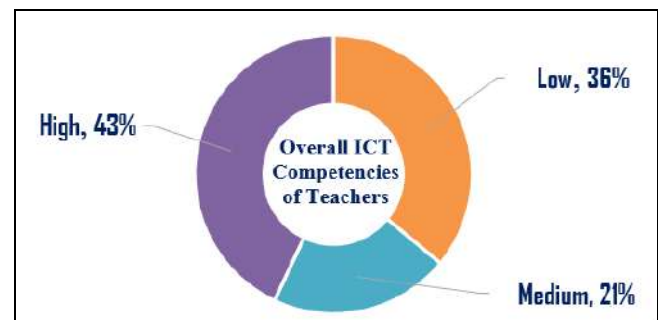


Fig 1: Distribution of the teachers based on their overall ICT competencies

3.2 Competencies of the teachers in application of ICTs

Various competencies under each component of ICTs namely general, software like Microsoft word and Power point slides were studied. The results were depicted in Table 2.

A. General

Nearly one-third (38.00%) of the teachers had intermediate level of expertise in setting up a system, followed by basic (30.00%), advanced (28.00%) and none (4.00%). Nearly half of the teachers had advanced (44.00%) expertise in turning on & off the system, followed by intermediate (34.00%) and basic (22.00%). Most of the teachers (46.00%) had advanced level of expertise in mouse operating skills, followed by intermediate (36.00%), basic (16.00%) and none (2.00%). Nearly half 49.00 percent of the teachers had advanced level of expertise in printing the documents, followed by intermediate (33.00%), basic (16.00%) and none (2.00%) with none level of expertise. Nearly half of the teachers had advanced (47.00%) level of expertise in Scanning text, pictures, and photographs etc., followed by intermediate (41.00%), basic (8.00%) and remaining 4 per cent with none level of expertise. About 46 per cent teachers had advanced level of expertise in scanning with antivirus, followed by intermediate (30.00%), basic (20.00%) and remaining 4.00 per cent with none level of expertise. Most of the teachers had advanced (40.00%)

level of expertise in compressing the file size, followed by intermediate (28.00%), basic (26.00%) and remaining 6.00 per cent none level of expertise.

One third of the teachers perceived that advanced (37.00%) level of expertise in formatting system, followed by intermediate level (35.00%), basic (18.00%) and remaining 10 per cent with none level of expertise. About 41 per cent of the teachers had advanced level of in installation and uninstallation of software, followed by intermediate (25.00%), basic (24.00%) and remaining 10.00 per cent none level of expertise. Nearly half of the teachers perceived that advanced (48.00%) level of expertise in Creating a file and folder, followed by intermediate and basic (24.00%) and remaining 4.00 per cent with none level of expertise.

B. MS Word

Majority of the teachers had advanced (60.00%) level of expertise in “preparing a word documents”, followed by intermediate (20.00%), basic (16.00%) and remaining 4.00 per cent with none level of expertise. Majority of the teachers had advanced (60.00%) level of expertise in “editing text”, followed by intermediate (20.00%), basic (18.00%) and remaining 2.00 per cent with none level of expertise.

More than half 56.00 per cent of the teachers had advanced level of expertise in “Formatting of the text”, followed by intermediate (20.00%), basic (20.00%) and remaining 4.00 per cent with none level of expertise. More than half of the teachers perceived that they had advanced (53.00%) level of expertise in “Page setup”, followed by basic (22.00%), intermediate (21.00%) and remaining 4.00 per cent with none level of expertise. Half of the teachers had advanced (50.00%) level of expertise in “Using header and footer”, followed by (22.00%) intermediate (22.00%), basic (20.00%) and remaining 8.00 per cent with none level of expertise.

More than half (52.00%) of the teachers had advanced level of expertise in “Inserting page number, pictures, graphs and diagrams in a text document”, followed by intermediate (26.00%), basic (18.00%) and remaining 4.00 per cent with none level of expertise. More than fifty per cent of the teachers perceived that they had advanced (54.00%) level of expertise in “Creating tables”, followed by basic (24.00%),

intermediate (20.00%) and remaining 2.00 per cent with none level of expertise. A good number of the teachers had advanced (43.00%) level of expertise in “Creating hyperlink to the document”, followed by basic (28.00%), intermediate (23.00%) and remaining 6.00 per cent with none level of expertise.

C. Power Point Slides

More than half of the teachers had advanced (52.00%) level of expertise in “Selecting appropriate slide layout”, followed by intermediate (28.00%), basic (16.00%) and remaining 4.00 per cent with none level of expertise. More than half of the teachers perceived advanced (56.00%) level of expertise in “Preparing slides”, followed by intermediate (26.00%), basic (16.00%) and remaining 2.00 per cent with none level of expertise.

A good number 56.00 per cent of the teachers perceived that they had advanced expertise in “Giving appropriate color back ground to the slide”, followed by intermediate (24.00%), basic (16.00%) and remaining 4.00 per cent with none level of expertise. More than of the teachers had advanced (54.00%) level of expertise in “Formatting the slides”, followed by intermediate (20.00%), basic (18.00%) and remaining 8.00 per cent with none level of expertise.

More than half of the teachers had advanced (53.00%) level of expertise in “Creating graphics”, followed by intermediate (21.00%), basic (16.00%) and remaining 10.00 per cent with none level of expertise. Half of the teachers had advanced (51.00%) level of expertise in “Animation”, followed by basic (30.00%), intermediate (13.00%) and remaining 6.00 per cent with none level of expertise.

The table 2 shows that 53.00 per cent of the teachers had advanced level of expertise in “Preparation of flow charts”, followed by intermediate (21.00%), basic (20.00%) and remaining 6.00 per cent with none level of expertise. More than half of the teachers had advanced (55.00%) level of expertise in “Inserting pictures, graphs, diagrams, names, date and numbers in a slide”, followed by intermediate (21.00%) basic (20.00%) and remaining 4.00 per cent with none level of expertise. About 47.00 per cent of the teachers had advanced expertise in “Creating hyperlink to the slide”, followed by basic (28.00%), intermediate (19.00%) and remaining 6.00 per cent with none level of expertise respectively.

Table 2: Distribution of teachers based on their ICT competencies n=100

SI. No.	ICT Competency	Teachers			
		None	Basic	Intermediate	Advanced
A. General					
1	Setting up a system (connecting accessories to the system)	4 (4.00)	30 (30.00)	38 (38.00)	28 (28.00)
2	Turning on and off the system	0 (0.00)	22 (22.00)	34 (34.00)	44 (44.00)
3	Mouse operation skills	2 (2.00)	16 (16.00)	36 (36.00)	46 (46.00)
4	Printing the document	2 (2.00)	16 (16.00)	33 (33.00)	49 (49.00)
5	Scanning text, pictures, photographs etc	4 (4.00)	8 (8.00)	41 (41.00)	47 (47.00)
6	Scanning with antivirus	4 (4.00)	20 (20.00)	30 (30.00)	46 (46.00)
7	Compressing the file size	6 (6.00)	26 (26.00)	28 (28.00)	40 (40.00)
8	Formatting system	10 (10.00)	18 (18.00)	35 (35.00)	37 (37.00)
9	Install and uninstall of software	10 (10.00)	24 (24.00)	25 (25.00)	41 (41.00)
10	Creating a file and folder	4 (4.00)	24 (24.00)	24 (24.00)	48 (48.00)
B. MS Word					
1	Preparing a word documents	4 (4.00)	16 (16.00)	20 (20.00)	60 (60.00)
2	Editing text	2 (2.00)	18 (18.00)	20 (20.00)	60 (60.00)
3	Formatting of the text	4 (4.00)	20 (20.00)	20 (20.00)	56 (56.00)
4	Page setup	4 (4.00)	22 (22.00)	21 (21.00)	53 (53.00)
5	Using header and footer	8 (8.00)	20 (20.00)	22 (22.00)	50 (50.00)

6	Inserting page number, pictures, graphs and diagrams in a text document.	4 (4.00)	18 (18.00)	26 (26.00)	52 (52.00)
7	Creating tables	2 (2.00)	24 (24.00)	20 (20.00)	54 (54.00)
8	Creating hyperlink to the document	6 (6.00)	28 (28.00)	23 (23.00)	43 (43.00)
C. Power Point Slides					
1	Selecting appropriate slide layout	4 (4.00)	16 (16.00)	28 (28.00)	52 (52.00)
2	Preparing slides	2 (2.00)	16 (16.00)	26 (26.00)	56 (56.00)
3	Giving appropriate color back ground to the slide	4 (4.00)	16 (16.00)	24 (24.00)	56 (56.00)
4	Formatting the slides	8 (8.00)	18 (18.00)	20 (20.00)	54 (54.00)
5	Creating graphics	10 (10.00)	16 (16.00)	21 (21.00)	53 (53.00)
6	Animation	6 (6.00)	30 (30.00)	13 (13.00)	51 (51.00)
7	Preparation of flow charts	6 (6.00)	20 (20.00)	21 (21.00)	53 (53.00)
8	Inserting pictures, graphs, diagrams, names, date and numbers in a slide	4 (4.00)	20 (20.00)	21 (21.00)	55 (55.00)
9	Creating hyperlink to the slide	6 (6.00)	28 (28.00)	19 (19.00)	47 (47.00)

Figures in parenthesis indicate percentage

4. Conclusion

On the basis of findings and observations made, it may be concluded that, (43.00%) of the teachers had high ICT competencies followed by low (36.00%). Teachers had high competency about MS Word (60.00%) followed by MS PowerPoint (56.00%).

5. References

1. Amutha S, Ramganes E. Empowerment of science teaching competence of B. Ed. trainees in the rural areas through e-content with a metacognitive instructional design. *International Journal of Analysis and Applications*. 2013;1(2):123-127.
2. Andronescu E, Solomon G. Considerations on the quality of the educational process in higher education. *Quality Management in Higher Education*. 2010;2:3-6.
3. Boon AT, Lutz DJ, Marburger KM. Eliminating postdoctoral training as a requirement for licensure: Perceptions and anticipated impacts. *Professional Psychology: Research and Practice*. 2015;46(1):62-69. DOI:10.1037/a0038198.
4. George S. Lessons learned from the development of a mobile learning game authoring tool. In *Games and Learning Alliance: 8th International Conference, GALA*. 2019, Athens, Greece, November 27-29, 2019, Proceedings. Springer Nature; c2019. p. 201.
5. Mac Callum K, Jeffrey L, Kinshuk. Factors impacting teachers' adoption of mobile learning. *Journal of Information Technology Education: Research*. 2014;13(1):141-162. Retrieved from <http://www.jite.org/documents/Vol13/JITEv13ResearchP141-162MacCallum0455.pdf>.
6. Uttam KP. Information and communication technology in higher education in India: Challenges and opportunities. *International Journal of Information and Computation Technology*. 2014;4(5):513-518. ISSN 0974-2239 <http://www.irphouse.com/ijict.htm>.
7. Zayim N, Yıldırım S, Saka O. Instructional technology adoption of medical faculty in teaching. *Studies in Health Technology and Informatics*. 2005;116:255.