

# Usage Of Digital Technology And The Metacognition Level Among Student-Teachers

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## Abstract

Digital Technology means the use of technological devices for the communication process, etc. Digital Technology is very helpful in the modern teaching and learning process. Nowadays, it is one of the important teaching aids to support the learning process within educational institutions. Metacognition is an important mechanism to increase student learning. It helps to get an immediate response from the students and also to understand their own learning process. Student-teachers are the future educators in educational institutions. So every student-teachers must have the technical knowledge and also know about the student's level of metacognition. In modern education, teachers must use technological teaching aids in their teaching and learning process for the implementation of quality education. So the present study is very important to discuss the usage of digital technology in teacher education with respect to their metacognition. The research design is of the normative survey method, and the sampling technique used for the study is a stratified random sampling technique. The sample consists of 354 student-teachers (161 male and 193 female) drawn from various government, government-aided and private colleges of education in rural and urban areas of Chennai and the Kancheepuram district. The data collected in the present study were analyzed using a t-test and one-way Analysis of Variance (ANOVA). According to the study findings, Female student-teachers have a high level of metacognition and usage of digital technology when compared to Male student-teachers. It is inferred that urban student-teachers have better usage of Digital Technology and the metacognition level than rural student-teachers and there is no significant difference between government, government-aided and private colleges of education in their usage of digital technology and the metacognition level among student-teachers. Digital technology and metacognition skill make the student-teachers teach effectively, innovatively, and interestingly to create the future pillars of our nation.

**Keywords:** Digital Technology, Metacognition, Modern Education, Student-teachers, Teachers, Students, Teaching and learning process.

## 1. INTRODUCTION

Metacognition provides various skills to improve students' learning. Metacognitive skills allow the students to organize and analyze their own thought processes related to learning and problem-solving. Metacognitive skills help the students to recall their knowledge in a particular subject. There are many educational apps in digital technology to increase students' metacognitive skills. Some of them are Zoom, Google Drive, Google Calendar, Google Scholar, YouTube, etc. Digital Technology and Metacognition play a major role in modern education. And so it must be included in the teacher education for a better outcome for society.

## 2. NEED OF THE STUDY:

In the 21st century, Modern education is successfully implemented in an educational institution with the help of digital technology. We must need quality education for the students to face their future challenges. For implementing quality education, we must need digital technology and also metacognitive skills in the teaching and learning process. So, technological knowledge and metacognitive skills must need for all teachers and students to get success in Modern education. And so the need is felt by the investigator for this study "**Usage of Digital Technology and the Metacognition level among Student-teachers**".

### 3. OBJECTIVES:

To find whether there is any significant difference in the usage of digital technology and the metacognition level among student-teachers with respect to their

- Gender
- Location
- Type of management of colleges.

### 4. HYPOTHESES OF THE STUDY:

1. There is no significant difference in the usage of digital technology and the metacognition level among student-teachers with respect to their gender.
2. There is no significant difference in the usage of digital technology and the metacognition level among student-teachers with respect to their locality.
3. There is no significant difference in the usage of digital technology and the metacognition level among student-teachers with respect to their type of management of colleges.

### 5. METHODOLOGY:

The research design is of the normative survey method, and the sampling technique used for the study is a stratified random sampling technique.

#### 5.1 SAMPLE:

The sample consists of 354 student-teachers (161 male and 193 female) drawn from various government, government-aided and private colleges of education in rural and urban areas of Chennai and the Kancheepuram district.

#### 5.2 INSTRUMENTS USED:

The investigator used the "Digital Technology & Metacognition Scale (DTMS)". Digital Technology & Metacognition Scale was developed by the investigator and it consists of 40 statements. Tools are used to collect data with respect to the usage of digital technology in relation to metacognition among student-teachers. The scales were administered to the student-teachers with the following instructions, "Please read the statements carefully, because some are phrased positively and others negatively. Respond

by putting a tick mark (✓) against the appropriate one which you feel suitable, according to the Likert scale, (Strongly Agree, Agree, Uncertain, Disagree, Strongly Disagree)". The maximum score value for each statement is 5 and the minimum score value is 1. The maximum score of the tool is 200 and the minimum is 40. Care was taken to collect the data from student-teachers studying in colleges of education situated in rural and urban areas.

### 5.3 ANALYSIS AND INTERPRETATION OF DATA:

The data collected in the present study were analysed using a t-test and Analysis of Variance (ANOVA).

### 6. TESTING OF HYPOTHESIS

#### HYPOTHESIS-1

There is no significant difference in the usage of digital technology and the metacognition level among student-teachers with respect to their gender.

#### Table-1

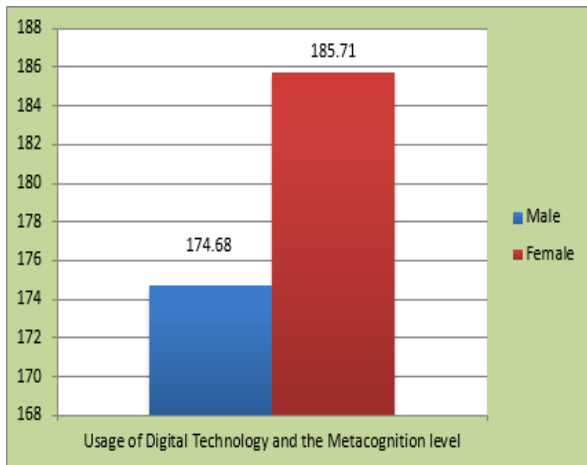
The difference in the usage of digital technology and the metacognition level among student-teachers with respect to their gender

| Title   | Gender | N   | Mean   | SD     | CR value | Level of significance |
|---|--------|-----|--------|--------|----------|-----------------------|
| Usage of Digital Technology and the Metacognition level | Male   | 161 | 174.68 | 39.237 | 4.125    | 0.01                  |
|   | Female | 193 | 185.71 | 42.305 |          |                       |

- ❖ From table 1, the calculated 'CR' value (4.125) is greater than the table value (2.58) at a 0.01 level of significance. Hence, it is concluded that there is a significant difference in the usage of digital technology and the metacognition level with respect to their gender. Moreover, from the mean value, it is inferred that female student-teachers have a high level of metacognition and usage of digital technology when compared to male student-teachers. This might be due to the reason that female student-teachers use more digital technological apps for the teaching and learning process because of the curiosity in the new way of learning when compared to male student-teachers.

**Figure 1**

The significant difference between male and female student-teachers with respect to usage of digital technology and the metacognition level



**HYPOTHESIS-2**

There is no significant difference in the usage of digital technology and the metacognition level among student-teachers with respect to their locality.

**Table-2**

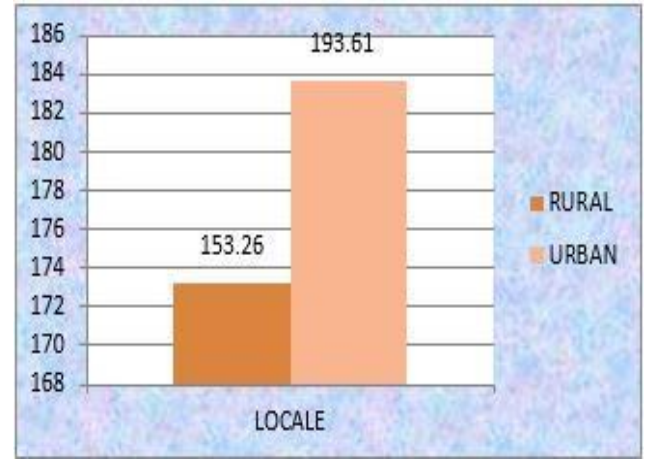
The difference in the usage of digital technology and the metacognition level among student-teachers with respect to their locality

| Title   | Locality | N   | Mean   | SD     | CR value | Level of significance |
|---|----------|-----|--------|--------|----------|-----------------------|
| Usage of Digital Technology and the Metacognition level | Urban    | 180 | 193.61 | 28.892 | 2.375    | 0.05                  |
|   | Rural    | 174 | 153.26 | 36.017 |          |                       |

❖ From table 2, the calculated 'CR' value (2.375) is greater than the table value (1.96) at a 0.05 level of significance. Hence, it is concluded that there is a significant difference between urban and rural student-teachers in their usage of digital technology and the metacognition level. Moreover, from the mean value, it is inferred that urban student-teachers have better usage of Digital Technology and the metacognition level than rural student-teachers. This might be due to the reason that urban student-teachers have more awareness about the usage of digital technology and the importance of metacognition in the teaching and learning process than rural student-teachers.

**Figure 2**

The significant difference between Rural and Urban Locale student-teachers with respect to the usage of digital technology and the metacognition level



**HYPOTHESIS-3**

There is no significant difference in the usage of digital technology and the metacognition level among student-teachers with respect to their type of management of colleges.

**Table-3**

The difference in the usage of digital technology and the metacognition level among student-teachers with respect to their type of management of colleges

| Title   | Type of management of colleges | Df  | Sum of squares | Mean squares | F-value | Level of Significance |
|---|--------------------------------|-----|----------------|--------------|---------|-----------------------|
| Usage of Digital Technology and the Metacognition level | Between Groups                 | 2   | 327.089        | 163.544      | 0.654   | NS                    |
|   | Within Groups                  | 351 | 58988.861      | 249.953      |         |                       |

➤ It is observed from the above table that there is no significant difference in the usage of digital technology and the metacognition level among student-teachers with respect to their type of management of colleges. Hence, It is inferred that there is no significant difference between government, government-aided and private colleges of education in their usage of digital technology and the metacognition level among student-teachers. This may be due to the fact that all the student-teachers in the Chennai and Kancheepuram district schools got equal opportunities for using digital technology and the metacognition level in education.

## 7. EDUCATIONAL IMPLICATIONS

Digital technology plays an important role in the teaching and learning process. Integration of digital technology and metacognition ability with education gives enormous innovative changes in the modern education system. Some of the recommendations are:

- In the modern world, there is a need to arouse interest in the usage of digital technology and metacognition skill in colleges of education.
- Training programs can be organized in the colleges of education to improve the usage of digital technology and metacognition skill in education.
- Workshops can be organized in the colleges of education to improve the knowledge of innovative digital technology and metacognition thinking in education.
- Create an opportunity to present the seminar on different platforms of digital technology with metacognition for collaborative learning in education.
- Implement some activities of digital technology with metacognition thinking among student-teachers to realize the usage of social media platforms. For eg: Whatsapp, Facebook, Quora, etc

## 8. CONCLUSION

Digital technology helps educators to implement what they are taught innovatively among the learners. Metacognitive skills help educators to enforce the teaching and learning process in a systematic manner. Integration of digital technology and metacognitive skills with education gives technical changes in the modern education system. Nowadays, we could not do anything without technology in all the activities in this modern world. In the education field, technology plays an important role in the modern teaching and learning process. And so student-

teacher and present teachers have to develop their digital skills and utilize digital technology and metacognitive skills in their teaching and learning process making them effective teachers.

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