DEVELOPING ON-LINE QUESTION CREATION AND EVALUATION SKILL AMONG SECONDARY LEVEL TEACHERS IN KARUR DISTRICT

Research Project Report

2023-2024

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Submitted to

STATE COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING,

CHENNAI-600 006, TAMILNADU

DECLARATION

I T.Geetha, Lecturer, District Institution of Education and Training, Mayanur, Karur district declare that the research project entitled ***"DEVELOPING ON-LINE QUESTION CREATION AND EVALUATION SKILL AMONG SECONDARY LEVEL TEACHERS IN KARUR DISTRICT"*** is the bonafide record of the original research work and submitted to in partial fulfilment for the project of District Institute of Education and Training, Mayanur, Karur district is first hand research work carried out by me during the year 2023– 2024. This report or part of this report has not been submitted earlier either to this Department or to any other Institution for the fulfilment of the requirement of a course of study or project or published/presented for any other purpose.

Place : Mayanur

Date :

Signature of the Investigator,

(T.Geetha)

CERTIFICATE

This is to certify that the research project titled ***"DEVELOPING ON-LINE QUESTION CREATION AND EVALUATION SKILL AMONG SECONDARY LEVEL TEACHERS IN KARUR DISTRICT"*** is the bonafide record of the original research work carried out by **T.Geetha** during the year 2023– 2024 and it has not been submitted earlier either to this Department or to any other Institution for the fulfilment of the requirement of a course of study or project or published/presented for any other purpose.

Place : Mayanur

Date :

Signature of the Principal

(Mr.A.Manivannan)

ACKNOWLEDGEMENT

A research work is a product of experience and it goes a long way in shaping up a person in his/her respective profession and it is not by himself that he/she gains that experience but a group of kind hearts is behind its success. I take this opportunity to thank the following persons for their valuable guidance to complete my research work. I wish to express my indebtedness and gratitude to **the Director, Joint Directors, Deputy Directors - State Council of Educational Research and Training, Chennai-6**, for granting me the opportunity of doing this research project.

I wish to express my sincere thanks to **Mr.A.Manivannan, Principal, District Institute of Education and Training, Mayanur, Karur District** for his constant encouragement, continuous guidance and motivation for my research work.

My whole hearted thanks to **Dr.N.Johnson, HOD (i/c) and Assistant Professor, Department of Life Long Education, Alagappa University, Karaikudi** for her timely supervision throughout my project study.

I wish to extend my special thanks to **Dr.J.FelicitaVimala, Lecturer, DIET, Mayanur** for her guidance, mode of supervision, valuable encouragement and suggestion.

I would like to thank the **Headmasters, Teachers of, High and Higher secondary schools of Karur District,** for their kind co-operation and also thank all those who have directly and indirectly helped me for executing the research work successfully.

I would like to give my regards to my husband and my children for their fullest cooperation throughout my research project.

(T.Geetha)

CONTENT

List of Tables

List of Figures

LIST OF TABLES

LIST OF FIGURES

CHAPTER – I
INTRODUCTION

CHAPTER – I

INTRODUCTION

- **Introduction**
- **Role of Assessment**
- **Online Assessment**
- **Rationale for Online Assessment**
- **Background of Online Assessment**
- **Benefits of Online Assessment**
- **Types of Online Assessments**
- **Introduction to Online Assessment Tools**
- **Significance of Online Assessment Tools in the era of online education**
- **Most Popular Online Assessment Tools for Students & Teachers**
- **Online Assessment Tools for Students & Teachers**
- **Need of the Study**
- **Significance of the Study**
- **Statement of the Problem**
- **Objectives**
- **Research Questions**
- **Delimitations**
- **Scope of The Study**
- **Chapterization**
- **Conclusion**

1.1 INTRODUCTION

The increasing development of digital technologies and their application in education facilitates new learning ecologies that offer students new web-based learning opportunities and resources. This rapid spread of interactive technologies has facilitated the adoption of innovative approaches in school education that help to promote collaborative learning, exploration, and research in online networked learning environments. It is in this context that alternative approaches to teacher-centered instruction have arisen and made a breakthrough in school education.

Assessment in education employing web tools, also known as e-assessment, deals with the effective use of technology to support successful instruction. In this line, the development of innovative student-centered approaches has encouraged teachers to rethink educational processes to shift the focus from them to the students, facilitate student participation, develop practical thinking, and improve digital skills (Wright, 2011).

The eLearning industry is taking massive steps toward what appears to be a bright future for the entire education sector. For example, over 80% of students report that digital learning opportunities enabled them to improve their test scores. These trends announced a significant increase in the need for online assessment software.

1.2 ROLE OF ASSESSMENT

Assessment is an integral part of the educational process; it promotes learning and confirms that students have achieved the learning outcomes of the subject. In order for both of these requirements to be satisfied, assessment practices need to be aligned with the curriculum and teaching methods, and make use of both formative and summative tasks. Assessment also serves as a motivator of student learning, a number of lower stakes assessments can be used to provide short‐term goals for students. However, inappropriate assessments can also lead to a demotivating effect and an excessive quantity of assessment can be overwhelming.

Formative online or digital assessments have been used extensively in many disciplines, including physiology, anatomy, biochemistry, and others, since the introduction of learning management systems (LMSs) to tertiary education. The key feature of formative assessment is that information is released or fed back to the

learner to help identify areas of strength and weakness and motivate them to improve their learning and future performance. For the instructor it allows the identification of misconceptions or gaps in learning across the cohort, and to reflect on their own practice. Although a crucial element of the leaning process, feedback practice in higher education is an area of dissatisfaction for both students and staff. The online environment is well suited to a variety of asynchronous formative assessments, that can be used as desired by students to gain feedback on their learning and by staff to monitor student engagement and progress. It has been used in this way in online ‐ based higher education facilities and also within traditional on campus modes of study.

Summative assessments, including examinations, play an important role in ensuring students have factual knowledge, technical proficiencies, communication, and higher order cognitive skills. In the context of languages, science, mathematics and social studies that require a satisfactory means of demonstrating students had met key learning outcomes and standards, with summative assessments performing this role.

Bloom's taxonomy provides a hierarchical framework for development and classification of learning objectives and assessments based on six levels of intellectual activity: knowledge, comprehension, application, analysis, synthesis, and evaluation. With careful attention to this framework, an appropriate balance of questions and activities that address lower, intermediate, and higher order cognitive levels can be used to assess and demonstrate key knowledge, proficiencies, and skills.

1.3 ONLINE ASSESSMENT

An online assessment is the evaluation of the knowledge, skill, and aptitude of individuals using digital tools and technologies. Nowadays, it is an essential tool for schools because of the many benefits it provides. Most traditional assessment methods that were time-consuming, expensive, and often subjective have been replaced by their digital and more accurate counterparts. The adoption of online assessment tests has helped companies improve their hiring process as well as identify new talent. An online assessment is the evaluation of the knowledge, skill, and aptitude of individuals using digital tools and technologies. It is a tool for teachers as it helps to evaluate the

skills, knowledge, and aptitude of students. It helps them to identify the best students in the classroom. Online test software also helps schools to identify gaps in expertise and knowledge in their existing students and, with that knowledge, design training programs. It can also help measure the efficacy of those very same training programs. These assessments play a vital role in students' performance. Students performance can be measured objectively using these tools. Potential high-value students can also be identified, and their skills to be honed for future roles.

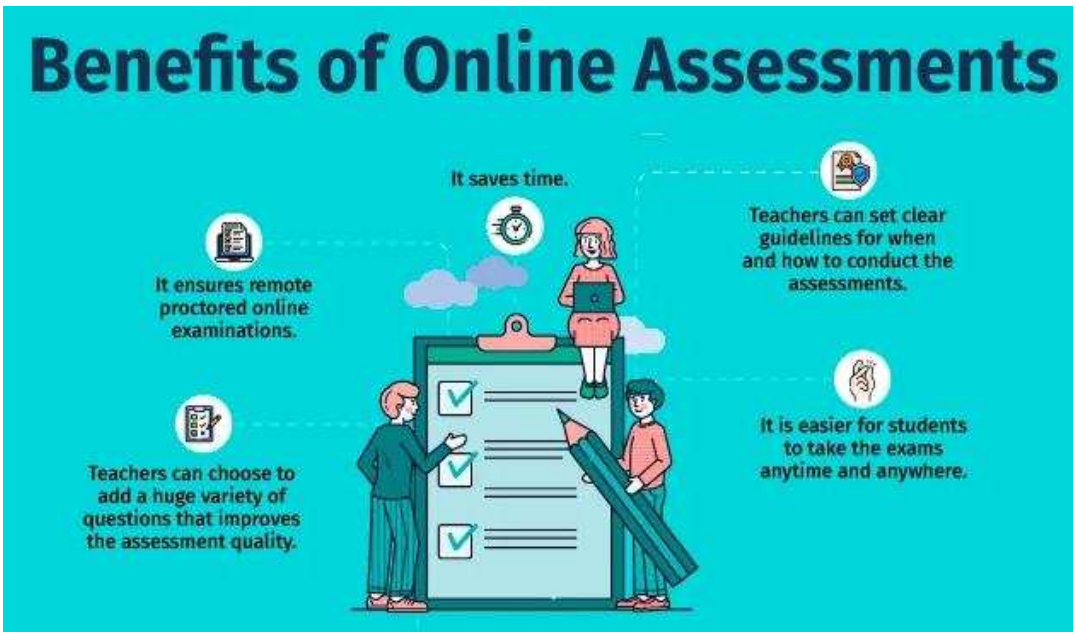
1.4 RATIONALE FOR ONLINE ASSESSMENT

Assessment is a vital part of teaching learning process, both in the brick-and-mortar classroom and in online settings. A recent report on the future of assessment in schools argued that technology could be used to make assessments more authentic, accessible, secure, efficient, and effective. There are both efficiency and pedagogical reasons for the introduction and increasing role of online assessment in all levels of education, however, these are balanced by practical challenges and risks, especially for summative assessments. There arecountless ways to assess student progress and understanding future of online assessment in schools.Out of which there are many best free assessment web tools for teachers. These online web tools will help streamline assessment in the education sector and recruitment. This study will focus on to develop online question creation and evaluation skill among secondary level teachers through selected web tools.

1.5 BACKGROUND OF ONLINE ASSESSMENT

Online education and learning have definitely made an impact post the 2020 pandemic. As per McKinsey's findings, from 2011 to 2021, the number of learners enrolled in online courses increased from 300,000 to 220 million. In the era of digital learning, keeping track of a student's progress comes with its own set of challenges. But that doesn't mean the future of online education is bleak. To make learning in this new environment fun and interactive, we have digital formative assessment tools. These online assessment platforms for students enable teachers and students to assess their learning and understanding of how well they have perfected a particular module or lesson. This provides a more efficient and effective way to assess student learning and get real-time feedback, all while offering a range of benefits such as flexibility, personalization, and engagement.

1.6 BENEFITS OF ONLINE ASSESSMENT



Benefits of Online Assessment

1. Time and cost-saving

One of the immediate benefits online assessment tests give organizations is the ability to save time and costs. Traditional testing methods such as pen and paper tests, in-person interviews, and group discussions are time-consuming and can be expensive to conduct for large groups of applicants. This is eliminated completely by using test software's. There is no need for a physical space, proctors, printed questions, etc, significantly bringing down the cost and time required. These can also be done remotely, allowing companies to reach out to a broader applicant pool and thereby select the best candidates.

2. Scalability

The other big benefit is, of course, scalability. This is an inherent advantage of using digital platforms. The ability to evaluate a large number of candidates simultaneously is a massive advantage for companies. Especially when conducting campus and recruitment drives where a large number of people are hired. These can also be customized based on what the company is recruiting for and for multiple job roles offering customization. The same can be used for large in-house performance reviews, even company-wide, if so desired.

3. Objectivity

Online assessment tests are extremely objective, providing a standardized and science-backed evaluation of a candidate's skills, knowledge, and expertise. This ensures that all candidates are treated and assessed fairly, equally, and technically. The risk of human error is also removed, eliminating any scoring errors known to occur in the traditional grading process. Thus, it provides organizations with reliable and accurate data for decision-making.

4. Flexibility

Online test software's provide a lot of flexibility in determining how assessments are administered. Candidates can complete assessments remotely; this completely eliminates the need for travel and reduces time and cost. This also allows the candidate to complete the assessments at their own pace, which provides them with a comfortable testing environment and also allows them to bring out their best. This also increases their engagement preventing dropouts.

5. Standardization

These tests also provide a very standardized assessment of the candidates' skills and knowledge, making sure that all testers are evaluated fairly and equally. This standardization is science-backed and ensures that organizations will be able to compare candidates accurately and make the right choices. This use of digital testing methods also provides organizations with accurate and reliable data on the candidates' skills, expertise, and knowledge. This will make it much easier to identify the top performers and also identify those requiring additional training. They can then be put in upskilling or training programs.

6. Security

Security matters when dealing with confidential data. Good secure measures like remote proctoring to ensure the assessment data is kept secure and that cheating is kept at bay are important. The use of an online platform will ensure the test taker's privacy. This also allows organizations to monitor the candidate during the assessment, which reduces the risk of cheating.

1.7 TYPES OF ONLINE ASSESSMENTS

There are many different types of online assessment tests. Each has its own specific purpose. The following are some of the ones commonly used.

1. Aptitude Tests

Aptitude tests in test software's are used widely in both hiring and education to test candidates' general abilities and potential. These tests will assess several key areas of cognition, such as problem-solving, critical thinking, numerical reasoning, and spatial reasoning. These are most often used to predict a candidate's success in certain jobs or positions. This makes them incredibly valuable whilst recruiting. They can easily tell if a particular candidate has the skills necessary to perform a particular job.

2. Personality Tests

Some online assessment tests are important in understanding a candidate's traits, such as communication skills, emotional intelligence, and work style. These tests will tell an organization how much of a fit the candidate is to the current work culture of the organization as well as how well they might interact with other employees. Employers use these tests to shortlist the type of person who will serve specific job roles well and to develop training plans for employees.

3. Technical Skills

These are used to test the candidate's domain-specific knowledge and expertise. Technical skills, language skills, software proficiency, etc. These can tell you how qualified a person is in their own field. This can reveal strengths and weaknesses, making them useful in recruitment training and development.

4. Behavioral Tests

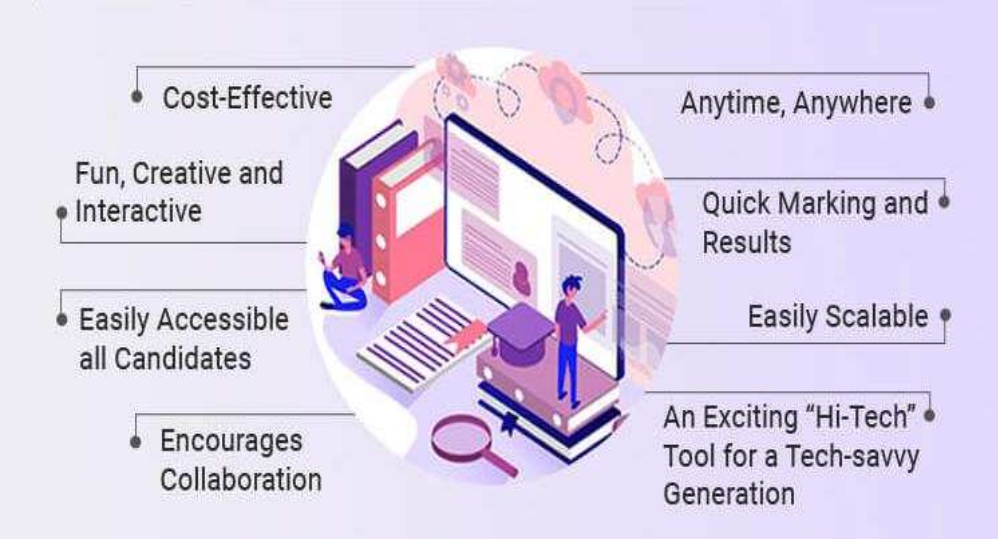
Behavioral tests will indicate how a person is likely to behave in a given situation. This can assess qualities like leadership and decision-making. These tests are designed to test how well an organization and a potential candidate are a good match. Employers use these tests to identify candidates with strong soft skills, making them useful in recruitment and performance management.

1.8 INTRODUCTION TO ONLINE ASSESSMENT TOOLS:

Online assessment platforms are an essential part of the modern classroom. These digital tools for assessment can help teachers to assess student progress, identify areas of weakness, and provide timely feedback. Effective digital assessment tools can also make assessment more engaging and interactive for students.

1.9 SIGNIFICANCE OF ONLINE ASSESSMENT TOOLS IN THE ERA OF ONLINE EDUCATION:

Online assessment tools are crucial in online education as they enable teachers to assess student progress, provide timely feedback, and make learning engaging and interactive. Online assessment tools are transforming how students and teachers approach learning and evaluation. With the rise of technology, traditional assessment methods cannot meet the needs of today's learners. Gone are the days of traditional pen-and-paper examinations as interactive learning takes center stage. These modern tools provide more flexibility, customization, and immediate feedback.



Significance of Online Assessment Tools

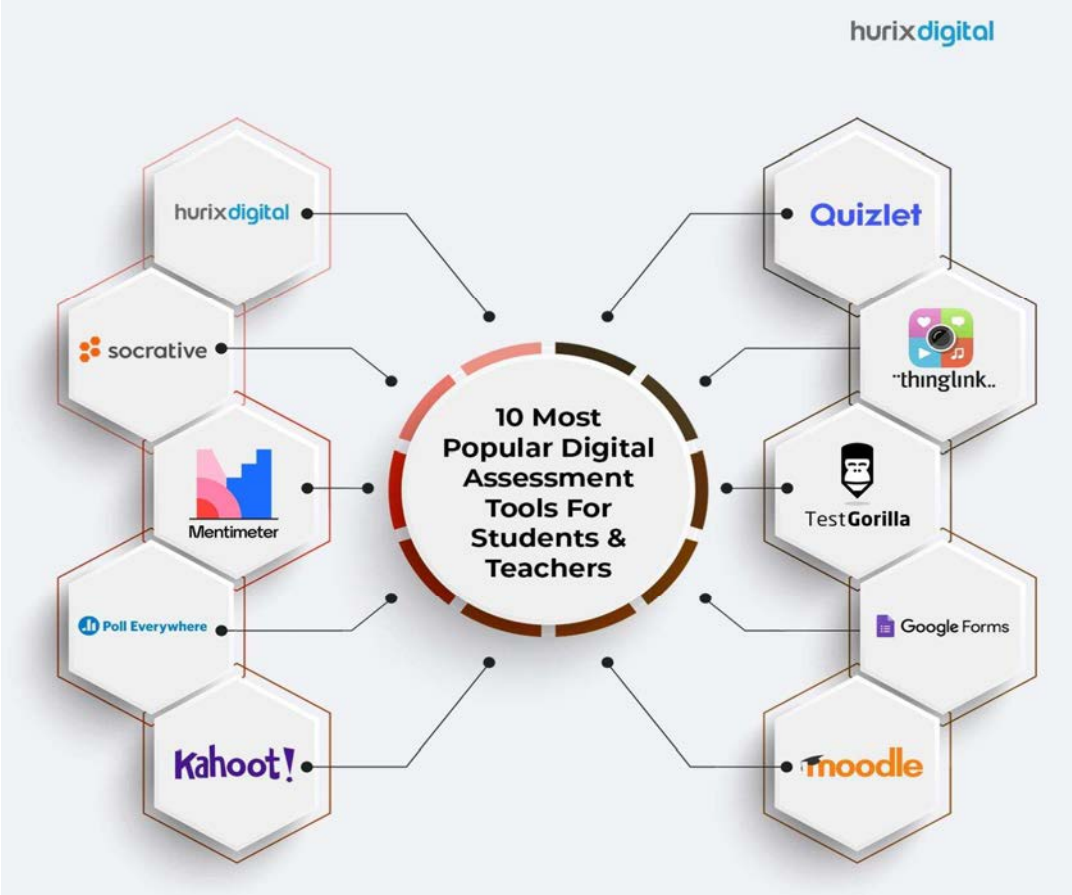
1.10 MOST POPULAR ONLINE ASSESSMENT TOOLS FOR STUDENTS & TEACHERS

Online assessment tools are transforming how students and teachers approach learning and evaluation. With the rise of technology, traditional assessment methods cannot meet the needs of today's learners. Gone are the days of traditional pen-and-

paper examinations as interactive learning takes center stage. These modern tools provide more flexibility, customization, and immediate feedback. Here is a look at the list of digital assessment tools that can improve students' learning experience.

1.11 ONLINE ASSESSMENT TOOLS FOR STUDENTS & TEACHERS

These online formative assessment tools offer excellent features that make it easier for teachers to assess students' knowledge while making online learning fun, interactive, and self-paced. For educators and teachers, it helps them save time and provide instant feedback to students, improving the effectiveness of online education.



The 10 Most Popular online Assessment Tools for Students & Teachers are as follows.

1. Socrative
2. H5P
3. Mentimeter
4. Poll Everywhere
5. Kahoot

6. Quizlet

7. Thing link

8. Test Gorilla

9. Google Forms

10. Moodle

Let us see briefly,

1. Socrative

Socrative is a digital formative assessment tools for teachers, crafted to help them create and deliver assessments in real time. The tool is designed for K-12 classrooms and higher education institutions, offering a variety of question types, including multiple-choice, true or false, and short-answer questions. In addition to the assessment features, the platform also offers real-time analytics that allows teachers to track student progress and performance.

2. H5P

H5P content is responsive and mobile friendly, which means that users will experience the same rich, interactive content on computers, smartphones and tablets alike. H5P enables existing content management systems (CMS) and learning management

systems (LMS) to create richer content. With H5P, teachers may create and edit interactive videos, presentations, games, advertisements and more.

3. Mentimeter

Mentimeter is essentially an interactive presentation tool that also offers features to create engaging and interactive assessments. The platform offers a variety of question types, including multiple-choice, true or false, and open-ended questions. The tool also provides real-time analytics and reporting features that allow teachers to track student progress and performance.

4. Poll Everywhere

Poll Everywhere is a web-based tool that allows users to create live polls, quizzes, and surveys to engage students in real time. It supports various questions, including multiple-choice, open-ended, and rating scales. Students can participate in polls using their smartphones, tablets, or laptops; results are instantly displayed on the teacher's screen. The app can also be integrated with various learning management systems (LMS) and presentation software, such as PowerPoint and Google Slides.

5. Kahoot

Kahoot! as the name suggests, is a game-based learning platform for teachers and students. It enables teachers to create engaging assessments and quizzes, which can include various question types, including multiple-choice, true or false, and open-ended questions. The game-based learning activities help students to learn and retain information in a fun and engaging way.

6. Quizlet

Quizlet is a free-to-use learning platform that's targeted toward making learning fun and interactive. It offers a range of assessment and evaluation tools that allow teachers to create engaging and interactive assessments for their students. The best part of the platform is its ready-to-use Quizlet Solutions section for popular textbooks, which students can use to get additional information on a particular topic.

7. Thing link

Thing link is a digital tool that allows teachers to create interactive images and videos for their students. It provides various multimedia options, including text, images, audio, and video, that can be embedded within an image or video. Teachers can use Thing link to create interactive timelines, maps, infographics, and more, to enhance students' learning experience. In addition, students can interact with these images and videos by clicking on the embedded links, which can lead to additional content or activities.

8. Test Gorilla

Test Gorilla is a well-known online platform that provides pre-employment testing and employee assessments. It includes a library of over 200 pre-built assessments covering various topics such as cognitive ability, personality, and job-specific skills. Although this tool wasn't designed purely for educators, teachers can use Test Gorilla to create custom assessments for their students, allowing them to assess their knowledge and skills in a specific area.

9. Google Forms

Google Forms is a completely free option available. This simple and intuitive tool allows teachers to create and deliver assessments online. The platform offers a variety of question types, including multiple-choice, true or false, and open-ended questions. Google Forms also provides real-time analytics and reporting features that

allow teachers to track student progress and performance. The only downside is that the tool has limited templates, especially for the education sector. So, creating an assessment requires a lot of manual effort.

10. Moodle

Moodle is an open-source learning management system (LMS) that provides a platform for creating and delivering online courses. It includes various assessment tools, such as quizzes, assignments, and workshops, that allow teachers to evaluate students' performance. In addition, the platform supports multiple question types, including multiple-choice, true/false, and essay questions.

Among these 10 most popular online assessment tools 4 of them were selected for this study. They are Mentimeter, H5P, Google Forms, Quizlet. Even though these web tools have manybenefits, there are some pros and cons for teachers and students.

1.12 NEED OF THE STUDY

The purpose of the study was to develop online question creation and evaluation skill among secondary level teachers in Karur district. Technology has almost always been part of the teaching and learning process. The effective integration of technology in the classroom has been the subject of many studies, especially since Internet use has become so common. New terms, such as interactive learning environment (ILE), information and communication technologies (ICT) and blended learning have been introduced. Assessment in education employing web tools, also known as e-assessment, deals with the effective use of technology to support successful instruction. Online assessment tests are an important for all levels of students. They provide a range of benefits that include efficiency, lessened expenditure, scalability, security, flexibility, and standardization. These make it a valuable tool for assessment as well as Evaluation for students. Being new to teachers and students, in this study, the researcher aims to develop online question creation and evaluation skill among secondary level teachers.

1.13 SIGNIFICANCE OF THE STUDY

Technological advances brought applications of innovations to education. Conventional education increasingly flourishes with new technologies accompanied by more learner active environments. In this continuum, there are many learners preferring self-learning materials. Online learning materials yield attractive, motivating and technologically enhanced learning materials. With a suitable online assessment tool, teachers can easily create assessments using different resources. In addition to making assessment creation more efficient, these tools will provide greater flexibility to teachers and students. Online assessment tools are not merely for exam evaluation. Online assessments should include a comprehensive examination of each student's performance and it will help to determine any learning difficulties. By evaluating many students' performance at a time is difficult with traditional assessment. The investigator plans to find out the technological awareness and the usage of online assessment tools among secondary teachers and to develop online question creation and evaluation skill among them.

1.14 STATEMENT OF THE PROBLEM:

The Tamilnadu State Project Director, Samagra Shiksha Abhiyan said in his circular to all chief educational officers that digital infrastructure has been strengthened in government high and higher secondary schools with a focus on their students and high-tech labs would be established in more than 6,000 schools to support the experiential digital learning of the students. It is uncertain whether the teachers have technological awareness to use high-tech labs to teach and assess the students with traditional paper pen test. Hence the investigator plans to find out the technological awareness and the usage of online assessment tools among secondary teachers and to develop online question creation and evaluation skill among them.

1.15 OBJECTIVES

- To assess the level of online question creation and evaluation skill of teachers at secondary level.
- To design a module on web tools for improving the skill of online question creation and evaluation among teachers at secondary level.

- To train the teachers using the module through Hi-tech lab.
- To find out the effectiveness of the module in enhancing the online question creation and evaluation skill of teachers at secondary level.
- To find out the significant difference of skill development after treatment based on gender, locality of school, type of school.

1.16 RESEARCH QUESTIONS

1. Is there any improvement in the online question creation and evaluation skill of teachers after giving training?
2. Do the rural and urban teachers have any basic knowledge about classroom online evaluation?
3. Do the high and higher secondary school teachers have basic knowledge about classroom online evaluation?
4. Is there any difference in the online question creation and evaluationskill between the male and female teachers after giving training on online webtools?
5. Is there any improvement in the technological awareness on online question creation and evaluation after treatment?
6. What is the teachers' level of improvement in the knowledge on online question creation and evaluation skill after treatment?
7. Does the usage of online tools by teachers improved after giving training?
8. Is there any improvement in the teachers' classroom management during online evaluation after treatment?
9. Whether there is any difference in the online question creation and evaluation skill of teachers after treatment?
10. Is there any significant difference in the online question creation and evaluation skill between teachers before and after giving training?
11. Is there any significant difference in the Online Question creation and evaluation skill among teachers after treatment based on Locality of school, Type of school and Gender?
12. Does the treatment has any significant effect in improving the onlinequestion creation and evaluation skill among teachers?

13. Whether there is any significant difference in the dimension-wise scores of teachers' based on locality of schools- after treatment?
14. Does the dimension-wise scores of teachers based on Gender differ significantly after treatment?
15. Whether there is any significant difference in the dimension-wise scores of teachers' based on Type of School - after treatment?

1.17 DELIMITATIONS

This study is limited to 60 Government high and higher secondary school Graduate teachers from 4 blocks of Karur District only. This could be extended to all high and higher secondary schools of Karur district and even to other districts of Tamilnadu.

1.18 SCOPE OF THE STUDY

1. Findings of the study will be useful to know whether

- The secondary teachers have enough technological awareness and usage about the online question creation and evaluation.

2. This study may be helpful to find how the training developed the skill of secondary teachers on online assessment and evaluation.

1.19 CHAPTERIZATION

Chapter I includes the introductory aspects such as introduction, characteristics and types of online assessment tools, uses of online assessment tools in education, objectives, need and scope of the study.

Chapter II includes an introduction to review of related literature, a review of research studies conducted and conclusion.

Chapter III includes method used in the study, population for the study, sample and distribution of sample, tool for the study, pilot study and description of the tool, scoring procedure, validity, reliability, statistical technique used and conclusion.

Chapter IV includes analysis and interpretation of the data, tables and figures to substantiate the result, findings and discussions.

Chapter V includes findings and discussions, recommendations, educational implications, suggestion for further research and conclusion.

1.20 CONCLUSION

The first chapter presented the introductory aspects such as introduction, benefits and types of online assessments, popular online web tools in education, objectives, need and scope of the study. It also brought out the delimitations and organization of the report. The next chapter deals with the review of related literatures.

CHAPTER – II
REVIEW OF RELATED STUDIES

CHAPTER – II

REVIEW OF RELATED STUDIES

- **Introduction**
- **Purpose of Review of Related Studies**
- **Design of the literature review**
- **Results- Exploring online Tests**
- **The rationale for using online tests**
- **Cognitive levels of questions**
- **Online Assessments in context**
- **Online tests and formative learning**
- **The nature of feedback**
- **Student attitudes to online tests**
- **Online tests and twenty-first century learning**
- **Discussion-Challenges and issues around using online tests**
- **Summary of the Studies**
- **Conclusion**

2.1 INTRODUCTION

A good research study in any field of knowledge requires an adequate familiarity with the works, which have already been done in the same area. A summary of the writings of recognized authorities and of previous research provides evidence that the research is familiar with what is already known and what is still unknown and untested. Since, effective research is based on past knowledge; this step helps to eliminate the duplication of what has been already done. Furthermore, critical analysis of related studies provides assistance in formulating the research problem, specifying objectives, making useful hypotheses, developing theoretical background, to suggest promising data gathering devices to appropriate study design, to identify sources of data, to make effective analysis and drawing meaningful conclusions and generalizations. Citing studies that show substantial agreement and those that seem to present conflicting conclusions helps to sharpen and define in depth understanding of existing knowledge in the problem area, provides a background for the research topic

and makes the investigator aware of the status of the issue. Review of related studies, therefore, is the prerequisite for any scientific investigation as it provides direction and guidance to research in the same way as history corrects and guides us from many pit-falls.

2.2 PURPOSE OF REVIEW OF RELATED STUDIES

The major purpose of reviewing the literature is to determine what has already been done that relates to our topic. This knowledge not only prevents us from unintentionally duplicating another person's research, it also gives the understanding and insight needed to place our topic within a logical frame. The review tells what has been done and what needs to be done. Previous studies can provide the rationale for research hypothesis, and indications of what to be done can help to justify the significance of our study. Another important purpose of reviewing the literature is to discover research strategies and specific data collection approaches that have or have not been productive in investigations of similar topics. This information will help to avoid other researchers' mistakes and profit from their experiences. It may suggest approaches and procedures that previously had not been considered. There is no published literature on studies conducted on online question creation and evaluation skill development among secondary in Karur district. However, an effort is made to review the available literature pertaining to the objectives of the study. The literature reviewed which helps to gain insight into the past and present investigations are grouped under the following headings.

Some main aspects of the review of literature are pinpointed as follows:

Review of literature gives an idea of how much research has been done in

- Investigator's area of interest. It helps to delimit the problem.
- It provides necessary insight to the problem.
- It helps to avoid unnecessary duplication of previous research.
- It suggests valuable basis for hypothesis.
- It suggests appropriate method for the problem under study.
- Sometimes it helps to locate the data used in comparative interpretation of results. It widens the horizon of the researcher.

- If any pit falls or loopholes occurred in previous research findings of wirings or recognized experts and if the investigator found the same, he will never allow such pit falls.
- It provides fine background for methodology of the research under study.
- Recommendations or suggestions of previous research studies give valuable clue for the investigator's research study.
- It helps to orient the researcher about the depth of the research.
- It broadens the ideas of the researcher and gives new ways to conduct the study.
- It helps to follow the footsteps of the previous investigator and thus it helps the researcher to enter the field of research and to continue his work in the right paths.

2.3. DESIGN OF THE LITERATURE REVIEW

Firstly, conducted a scoping literature review to identify academic papers and research reports that discuss the use of online tests in higher education. The review of literature focused on academic papers contained in English language journals using key search terms including online assessment, online tests, online quizzes, multiple choice questions and other related aspects, particularly in a higher education context. The search was done through Google Scholar and through our institution’s library databases. The review focused on literature published since the year 2000, which aligns with the widespread take up of the LMS by higher education institutions in the first few years of the twenty-first century, and reinforces the pivotal role the LMS has played in the digitization of learning and assessment in higher education.

The literature search revealed over 50 relevant papers from publications (primarily scholarly journals) focused on general teaching and learning, educational technology or discipline-specific education (e.g. Advances in Physiology Education). The literature review was not discipline specific and online tests were identified that cross a range of disciplines, with the natural sciences and social sciences (including business and economics) quite highly represented, with arts and humanities less so. A significant number of the empirical studies reviewed were in specific discipline areas, including earth sciences, physiology, nursing, medical sciences/biology, psychology

and business (for example, see Angus & Watson, 2009; Brady, 2005; Buckles & Siegfried, 2006; Smith, 2007; Yonker, 2011). The number of articles identified provided a large enough pool to gain insight into the use of online tests in higher education.

In the scan of literature, we identified only a few review studies related to online tests, three of which were in the broad field of e-assessment (Gipps, 2005; Stödberg, 2012; Sweeney et al., 2017) and one with a specific focus on feedback practices in online tests (Nicol & Macfarlane‐Dick 2006). The most recent of these three broad reviews (Sweeney et al., 2017) involved a systematic literature review of scholarly articles about technology-enhanced assessment published in the 3 years 2014 to 2016. This study looked at what technologies are being used in e-assessment and whether they are enhancing or transforming assessment practice; however, while it referred to e-assessment within the LMS, it did not refer specifically to online tests. The wide scope of the Sweeney et al. study contrasts with the targeted focus and review of case studies about feedback in online tests in the Nichol and McFarlane-Dick paper. The identification of so few review studies indicates the need for a synthesis of the disparate body of scholarship in relation to online tests such as presented in this paper.

2.3.1. RESULTS- EXPLORING ONLINE TESTS

In this section, we review the literature around online tests to identify some of the research on their use in higher education contexts including the rationale for their use, their relationship to student learning, and trends in practice.

2.3.2. THE RATIONALE FOR USING ONLINE TESTS

The use of e-assessment generally, and online tests in particular, has increased in higher education over the last two decades. This is a corollary of reduced resources for teaching and increased student numbers, meaning academics are required to do more with less while adapting to the increasing usage of technology in teaching (Donnelly, 2014; Nicol, 2007). The potential of technology has been harnessed to ameliorate the challenge of heavy academic workloads in teaching and for assessment, with the use of e-assessment providing a way to “avoid disjunction between teaching and assessment modes” (Gipps, 2005, p. 173). In other words, the growth in the use of

ICTs as a mode of teaching necessitates their growth as a mode of assessment, which, Gipps' claims, increases the mode validity of the assessment practices.

Additionally, Gipps (2005) also points to efficiency and pedagogic reasons for using online tests. Because of the automated marking and feedback, online tests are viewed as highly efficient, fast and reliable, making them especially useful where large numbers of students are concerned. Consequently, online tests are very common with large first year classes. Their efficiency also emanates from the ability to test a wide range of topics in one test in a short duration as compared to assessment where responses need to be constructed (Brady, 2005). The capability to create, manage, and deploy online tests within an LMS means that a lot of previously manual work is automated (Pifia, 2013). To add to the efficiency, most major textbook publishers, such as Cengage Learning, Pearson Education and McGraw-Hill Education, have linked online question banks to their textbooks, at least in disciplines where the use of online tests is common which easily integrates with the more popular LMSs such as Blackboard™. Instead of academics creating questions from scratch, they can instead select or import them wholesale from these test banks.

While the mode validity and efficiency reasons for using online tests are easily observable, it is the pedagogic reasons for using online tests that are undoubtedly the most critical. It is imperative to unpack whether indeed online tests support and assess student learning in higher education, and if so, what kind of learning they facilitate and in what circumstances. The next few sections explore the literature around these questions.

2.3.3. COGNITIVE LEVELS OF QUESTIONS

Typically, online tests involve the use of multiple-choice questions (MCQs), true/false questions, matching questions as well as predetermined short answer questions. LMSs provide opportunities for these and other different types of questions to be included in the creation and deployment of online tests. Of these, MCQs are the most commonly used question type (Davies, 2010; Nicol, 2007; Simkin & Kuechler, 2005). Hence, the discussion will primarily, but not exclusively, focus on them.

The focus of MCQs can vary from recall type questions to questions that demand higher cognitive levels of engagement (Douglas et al, 2012). Therefore,

MCQs can be used to assess different types of learning outcomes. For example, a two-factor study between study approach and performance (Yonker, 2011) made a distinction between factual MCQs and application MCQs. The distinction was a reflection of the level of difficulty or cognitive demand of the questions as shown by the fact, in this study, that students who employed surface learning approaches were found to have performed relatively poorly in application MCQs as compared to those who used deep learning approaches. Using Bloom's taxonomy, some authors have asserted that MCQs are most suitable for the first three cognitive levels of remember, comprehend and apply (Simkin & Kuechler 2005; Douglas et al, 2012) and, to some extent, the level of analysis (Buckles & Siegfried, 2006; Brady, 2005).

2.3.4. ONLINE ASSESSMENTS IN CONTEXT

The effectiveness of online tests can be realised when they are implemented in the context of the whole learning experience, including using other assessment types. Indeed, Douglas (2012) recommends that online tests can be used to full effect when used in conjunction with other forms of assessment. Smith (2005), in a study that investigated how performance on formative assessment (including online tests) related to learning as assessed by final examination, concluded that frequent and diverse assessment can enhance student engagement and performance. Essentially, each assessment type in a suite of assessment approaches in a particular unit of study, including online tests, should target appropriate learning outcomes and complement other types of assessment. Furthermore, a study by Donnelly (2014) found that case-study-based MCQs led to a higher level of learning and deeper processing of information over MCQs not based on case studies. This led the author to conclude that blending of assessment methods (in this case MCQs and case studies) can lead to enhanced student learning while also addressing challenges of large class sizes. This is consistent with Nicol (2007), who concludes if MCQs are designed creatively and the context of their implementation is managed accordingly, they can be used to achieve the Seven Principles of Good Feedback Practice (Nicol & Macfarlane-Dick, 2006) including clarifying good performance, self-assessment and reflection, and dialogue.

2.3.5. ONLINE TESTS AND FORMATIVE LEARNING

The literature points to online tests being best suited for formative purposes, that is, as assessment for learning. In particular, the studies reveal nuances in the relationship between online formative tests and student learning. Pedagogic reasons for using online tests include the opportunities they provide for automated rich, descriptive, formative feedback which potentially scaffolds the learning process and allows learners to self-evaluate and improve their performance in preparation for summative assessment (Gipps, 2005; Nicol, 2007). Formative online tests can also be used for diagnostic purposes and assisting staff to identify where they should focus their teaching efforts.

Formative online tests contribute to student learning, as measured by summative assessment and particularly examinations (Angus & Watson, 2009; Kibble, 2007; Smith, 2007). This is particularly the case if the same types of outcomes or cognitive abilities are assessed by both the formative tests and the summative assessment (Simkin & Kuechler, 2005). The positive correlation between online formative tests and student learning (as indicated by summative achievement) is enhanced by task design that includes the following specific features.

Firstly, in a study using statistical analysis to compare formative scores to summative scores, Smith (2007) found that increased student learning takes place where there is engaged participation in online tests, which can be encouraged by assigning credit/marks to them.

Secondly, studies using statistical analysis (Angus & Watson, 2009; Smith, 2007) and those which combine statistical analysis with mixed method surveys on student and staff perceptions on the role of online formative tests (Kibble, 2007) show that student learning is enhanced where the online tests are regular and of low stakes credit and not too overwhelming.

Thirdly, surveys of staff and/or students perceptions of online tests (Baleni, 2015; Kibble, 2007) identified student learning is enhanced where multiple attempts (at least two) at a test are available, with qualitative feedback given after each attempt. The multiple attempts not only provide an opportunity for feedback and revision of material but they also play a role in building confidence in taking the online tests and subsequent exams.

2.3.6 THE NATURE OF FEEDBACK

The nature of feedback practice is critical in facilitating the learning process. While online tests are commonly set up to give feedback about the correctness of the student's response to the question, some of the scholarly articles reviewed reported on improved student performance when immediate corrective feedback, or feedback about how to improve performance, was built into the test (Epstein, Lazarus, Calvano, & Matthews, 2002; Gipps, 2005; Kibble, 2007). This corrective feedback could include referring students to a particular module or page in the text for further study.

Feedback can be in the form of quantitative feedback to inform students about their grades and qualitative feedback that allows students to review their understanding of the content. For example, Voelkel (2013) describes a two-stage approach to online tests where the first stage is characterised by a formative test in which prompt qualitative feedback is provided to students. During this stage, students have multiple attempts to achieve at least 80%, and once this is achieved they are given access to the second stage of the test. The second stage is summative in nature and contains variants of the questions used in the first stage. This staged use of online tests reportedly improves performance not only of good students but also of weak ones.

Beyond automated immediate feedback and multiple attempts, Nicol (2007) presents case studies of good feedback practices in online tests (Nicol & Macfarlane‐Dick, 2006). The practices identified include the staging of online tests across the semester to facilitate provision of feedback to students as well as diagnostic feedback to the lecturer to inform teaching (Bull & Danson, 2004); facilitating reflection/self-assessment and enhancing motivation to engage students more deeply with test questions (and answers) through confidence-based marking (Gardner-Medwin, 2006); and using online MCQs and electronic voting systems/polling and subsequent peer interactions to facilitate reflection/self-assessment and dialogue (Boyle &Nicol, 2003; Nicol & Boyle, 2003). The major emphasis of Nicol's (2007) analysis of these cases was to highlight how MCQs can be used to good effect to enhance learner self-regulation.

2.3.7 STUDENT ATTITUDES TO ONLINE TESTS

While a positive correlation generally exists between formative tasks and summative performance, student learning is also dependent on factors that are not directly related to assessment but which nonetheless have a direct bearing on students' participation and engagement with formative assessment. For example, formative assessment will only benefit students who are motivated to achieve high performance (Kibble, 2007; Smith, 2007) and make an effort to engage and learn (Baleni, 2015). Students who do not engage, either because of constraining circumstances such as being time poor or as a result of a lack of interest in excelling, are unlikely to significantly benefit from formative assessment tasks (Smith, 2007).

While most of the studies reviewed focused on comparative analysis between engagement with formative online tests and summative performance, a few studies also investigated student and staff perceptions of online tests. These studies generally revealed a positive attitude towards MCQs by both staff and students (Baleni, 2015; Donnelly, 2014; Kibble, 2007). The reasons for students' positive attitudes towards online tests are varied but seemed to be mostly ascribed to the perceived easiness of MCQs (Donnelly, 2014; Gipps, 2005). In addition, some students liked the idea of multiple attempts and feedback (Baleni, 2015; Kibble, 2007). Other students thought that having a choice of answers in MCQs assisted their memory and thinking process (Donnelly, 2014). The convenience of being able to take online tests anywhere was also a favourable factor for students (Baleni, 2015). However, on the negative side, a reason that students gave for not liking MCQs was that this form of assessment did not allow them to demonstrate their level of knowledge (Donnelly, 2014).

2.3.8 ONLINE TESTS AND TWENTY-FIRST CENTURY LEARNING

Overall, the literature reviewed reveals that online tests should be fit for purpose, assess appropriate learning outcomes and be used in conjunction with other forms of formative and summative assessment targeting different types of outcomes if they are to effectively lead to student learning (Brady, 2005; Smith, 2007; Yonker, 2011). Online tests should be used strategically to facilitate learner engagement and self-regulation. Online tests are used predominantly to assess the foundational knowledge domain; however, with some creative thought, effort, time, and appropriate tools

within and outside the LMS, online tests could be applied to the other twenty-first century learning domains of humanistic knowledge and meta-knowledge as well as to achieve the concept of powerful assessment (Scott, 2016).

Examples from the literature show ways in which online tests can be used in the assessment of twenty-first century learning. When designed and used effectively, they can assist academic staff teach large student cohorts and provide students with immediate and corrective feedback that can enhance subsequent performance. Yet while online test clearly have a specific and important role in the assessment of student learning in higher education, they are not without challenges. The following section reviews some of those challenges and issues associated with using online tests.

2.3.9 DISCUSSION-CHALLENGES AND ISSUES AROUND USING ONLINE TESTS

A number of challenges and issues are commonly raised in the literature concerning online tests. These include cheating by students (Arnold, 2016; Fontaine, 2012); concern that online tests largely test only the lower levels of comprehension (McAllister & Guidice, 2012); an increased dependency on data banks of MCQs developed and provided by text book publishers (Masters, 2001); over or under testing based on the frequency of online tests; and the inflexibility of online tests to cater for diverse groups of students (Stupans, 2006).

Studies are inconclusive as to whether there is an increase in cheating in online courses as opposed to face-to-face (f2f) courses (Harmon, Lambrinos, & Buffolino, 2010) but they do show that cheating risk is higher in unproctored online assessments. Cheating in low- or zero-value unproctored online tests raises different levels of concern for different lecturers, but it has been shown (Arnold, 2016) that cheating in formative online unproctored tests does not pay off in the long run as those students are likely to perform worse in final summative assessments than students who have not cheated.

Cheating is often deterred by utilizing control features that may be built into the online test delivery software in an LMS, for example, randomization of questions and responses, single question delivery on each screen, no backtracking to previous

questions, and/or setting very tight time frames in which to answer the questions. One survey of students (Harmon et al., 2010) concerning tactics to deter cheating rated the following as the top 4, in order of effectiveness: using multiple versions of a test so that students do not all receive the same questions, randomizing question order and response order, not using identical questions from previous semesters, and proctor vigilance.

An additional and emerging threat to online tests, as well as to other forms of e-assessment, is their susceptibility to emerging cyber security threats such as hacking. Dawson (2016) identifies this as a particular concern in the context of invigilated online exams conducted on students' own devices. While this threat cannot be disregarded for online tests, hacking and other cyber security threats are more likely to impact high-stake examinations and be less of a concern for low-stake formative assessment of the type that is more usual in online tests.

2.4 SUMMARY OF THE STUDIES

The above studies revealed that the online tests are excellent approach which promotes Mobile Learning, facilitates e-learning and online learning. Many researchers are doing research in this context and findings are helpful. But Implementation requires mobile devices which is not possible to have in every classroom. It can help parents of school students as they can provide extended knowledge to their children. The basic requirement for this technique is smart technology, which can be used in innovative ways in Classroom teaching. In general, we believe that online assessments have great potential in education. The current evaluation system is in the process of a reform featured with the use of instructional technology with smart learning. Considering these characteristics, the online assessment tools really accords with the trend of educational development towards student-centered instruction. Furthermore, the assessment web tools are also in the progress of improvement. No doubt that the online assessment tools has a good potential for being integrated into the curriculum. But with its rapid development, some risks and drawbacks of online assessment tools are exposed to the public. The privacy, content safety, and availability of online assessment tools really threat its further promotion in classroom education.

2.5 CONCLUSION

In this chapter, the related studies scanning significance of research works carried out in studying the literature around online tests to identify some of the research on their use in higher education contexts including the rationale for their use, their relationship to student learning, and trends in practice. Different studies reveal that online tests should be fit for purpose, assess appropriate learning outcomes and be used in conjunction with other forms of formative and summative assessment targeting different types of outcomes if they are to effectively lead to student learning are yet to be investigated in India.

The research work carried out so far in India is not made in adequate number in the Challenges and issues around using online tests, especially investigated that the teachers those who are unaware of these online assessment tools, usage in their classroom and skill development in online question creation and evaluation. It hoped that the present study may serve as a base for future research in the skill development on online question creation and evaluation among secondary teachers of school level. Once the review of related study is completed, the next step on the part of the investigator is to plan for the logical and sequential execution of the development of methodology of the study i.e., the development of tool, sample selection, data collection and statistical techniques used for data analysis. In the next chapter the details of the research design followed in the present investigation will be given.

CHAPTER – III
METHODOLOGY

CHAPTER – III

METHODOLOGY

- **Introduction**
- **Procedure of the Study**
- **Population of the Study**
- **Sample Design**
- **Instrumentation**
    - **Development of Rating Scale for Teachers**
    - **Pooling of Items**
    - **Source of Items**
    - **Criteria for selection of Items**
    - **Experts Opinion**
    - **Item Analysis**
    - **Finalization of the Tool**
    - **Scoring Procedure**
    - **Dimensions of Online Question Creation and Evaluation Skill Rating Scale**
    - **Reliability of the Tool**
- **Training Schedule**
- **Data Collection**
- **Statistical Techniques**
- **Conclusion**

3.1 INTRODUCTION

One of the contributing factors of a successful research is its methodology. This chapter describes the procedure adopted by the investigator in selecting the sample of the study, the variables used, the tool and module developed, training conducted and the strategies applied for gathering necessary research data. Investigator is required to prepare a plan of action for the study. This plan of action is known as research design. In formal language, a research design indicates a guideline for the researcher to enable or execute the plan of actions in the right direction. The

design is simply a specific presentation of the various steps in the process of research. The research design simply constitutes the blueprint for the collection, measurement and analysis of data.

In this chapter, an attempt is made to understand the methodology adopted for the study in a systematic and sequential manner. As this study is a experimental one, adequate planning is necessary in developing the module and tool step by step and a cautious administration is also needed.

3.2 PROCEDURE OF THE STUDY

1. Identification of problem.
2. Formation of Objectives and Research Questions.
3. Development and standardization of the tool.
4. Select required number of sample from High/Higher Secondary Government Schools.
5. Administration of the tools for data collection.
6. Data analysis and Interpretation of the findings.

3.3 POPULATION OF THE STUDY

The word ‘population or universe is fundamental in the theory of sampling and it denotes an aggregate or group of individuals of any nature, whose general characteristics are studied in a statistical investigation. The population may be finite, when the investigation is made about the human beings. The word ‘Population’ refers to human population. A population is the totality of all possible values (measurements, counts etc.) of a particular characteristic for a specific group of objectives and a sample is part of a population selected according to some rule of plan.

The larger group we wish to learn about is called as ‘Population’ whereas the smaller group we actually study is called as ‘Sample’. A population is any group of individuals that have one or more characteristics in common that are of interest to the researcher. The population may be all the individuals of a particular type or a more restricted part of the group.

A sample is a small portion of a population selected for analysis. By observing the characteristics of the sample, one can make certain inferences about the

characteristics of the population from which it is drawn **(Best and Khan, 1992).** The process of selecting a sample from the entire individuals or objects is known as sampling.

3.4 SAMPLE DESIGN

Based on the conceptual frame work cited above the investigator identifies and defines the population and sample of the study. The population includes the 60 Graduate teachers. The sample includes

- 60 Government high and higher secondary school teachers from 4 blocks of Karur District.

Table 3.1 SAMPLING DESIGN FOR TEACHERS

Variable Group Number	Variable	Wise Total	Sample
Locality of school	Rural	30	60
	Urban	30	
Gender	Male	30	60
	Female	30	
Types of School	High	30	60
	Hr.Sec.	30	
Whole Sample			60

Figure 3.1 Distribution of Sample - Rural and Urban School Teachers

The figure 3.1 shows sampling design of rural and urban school teachers.

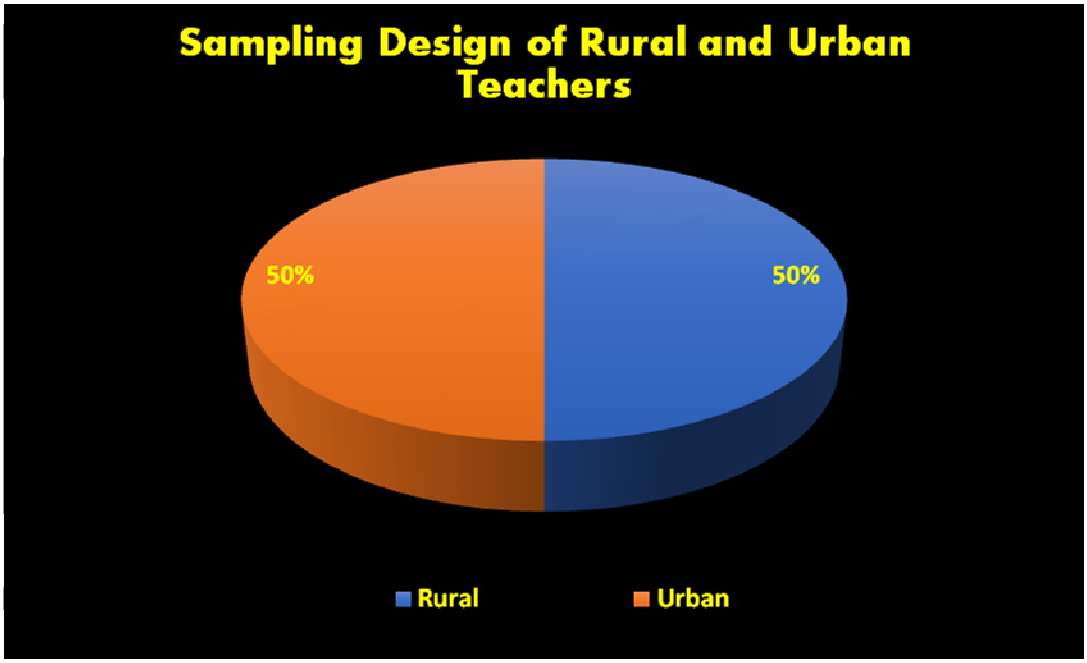


Figure 3.2 Distribution of Sample - High & Hr. Sec School Teachers

The figure 3.2 shows sampling design of High and Higher secondary school Teachers.

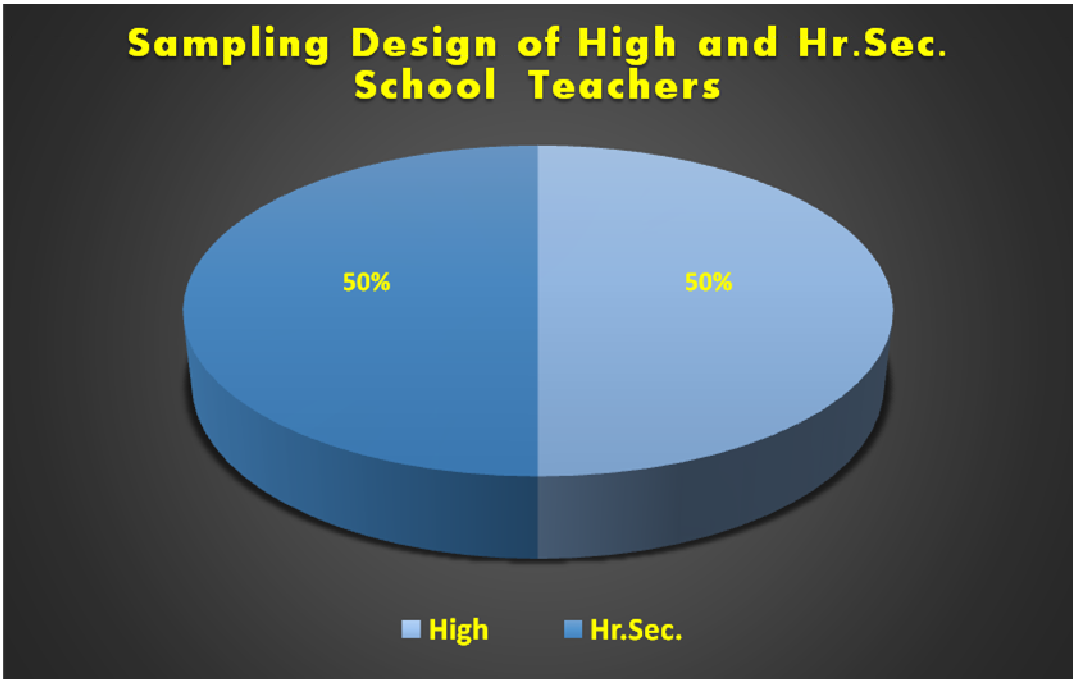
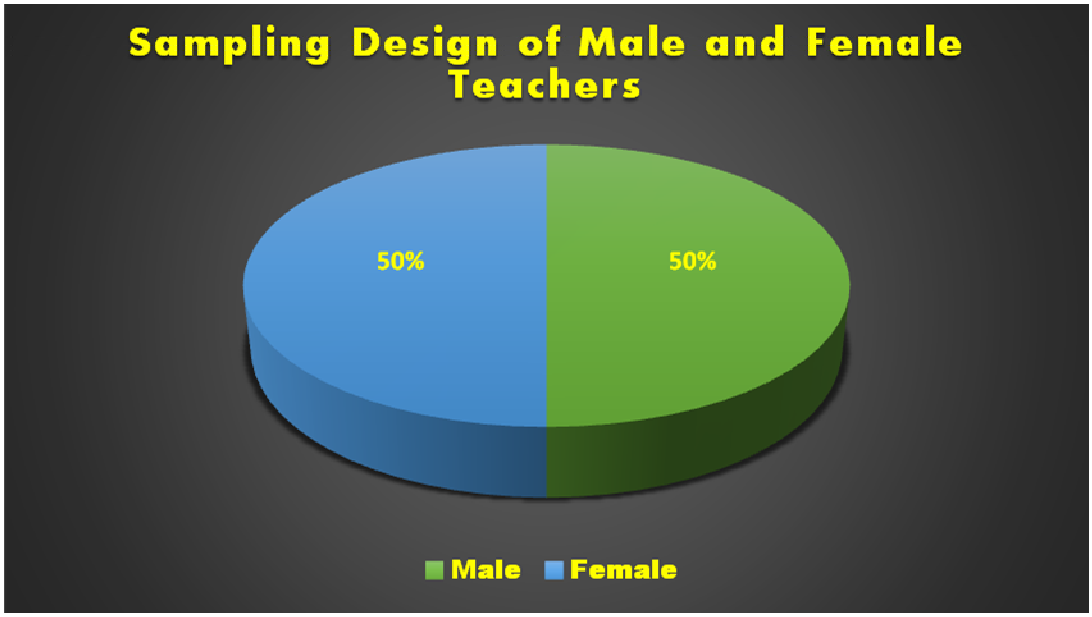


Figure 3.3 Distribution of Sample - Male and Female Teachers

The figure 3.3 shows Sampling design of Male and Female teachers.



3.5 INSTRUMENTATION

Selection of the tool is an important ingredient of a successful research study. There are various tools available to collect the necessary data for a research study. Investigator consults the sources that give him the most accurate, complete and up to date information. To make this job more scientific and purposeful, the researcher can select a suitable tool or tools if they are readily available. In case, such tools are inadequate to collect the necessary data, it is advisable to prepare necessary tools, which serve the purposes of the study. The investigator developed the tool namely Questionnaire for teachers to collect the data about the technological awareness, knowledge, classroom management and the usage of online assessment tools among secondary teachers.

3.5.1 DEVELOPMENT OF RATING SCALE FOR TEACHERS

Questionnaire for teachers were developed by the investigator in order to measure the technological awareness, knowledge, classroom management and the usage of online assessment tools. The systematic steps were followed while constructing the tool.

3.5.2 POOLING OF ITEMS

The teachers' questionnaire covered the areas technological awareness, knowledge of online assessment web tools, usage and classroom management of online assessment tools.

3.5.3 SOURCE OF ITEMS

Drawing items from the following sources, the preliminary item pool was prepared:

a) Surveying widely available literature.

b) Meeting and discussing with teachers.

c) Discussion with Computer Science teachers.

d) Workshop conducted with lecturers and Alagappa University Professors.

By careful analysis of the above sources, statements were prepared. Thus 30 items were constructed.

3.5.4 CRITERIA FOR SELECTION OF ITEMS

The following criteria were applied for screening the items.

a) The language of the statement should be simple, clear and unambiguous.

b) The compound and complex sentences should be avoided.

c) The item should not lead to multiple interpretations.

d) Double negative statements which are likely to be endorsed by almost everyone or more should be avoided.

e) The statement should express one opinion or thought.

f) The direction should be clear and comprehensive. It should also indicate the need for honest response.

3.5.5 EXPERTS OPINION

Before administering the tool, the investigator elicited the opinion of the expert in the area of study regarding the suitability and objectivity of the items pooled. The expert committee consists of five members. In the questionnaire 30 items were prepared and all the 30 items were given to expert's opinion regarding their suitability and clarity. In order to establish whether a given item really belongs to that particular factor, the items were arranged in a random order and subjected to expert's

scrutiny. Based on the experts' opinion, some items were modified, some items were rearranged and some items were omitted. At last 20 items were retained in the questionnaire. The scale had five responses like strongly agree, somewhat agree, never agree or disagree, somewhat disagree and strongly disagree.

3.5.6 ITEM ANALYSIS

The tool for online assessment consisted of 30 items as per the experts' analysis. It was decided to subject all the items under item analysis procedure. The tool was given to a sample of 10 teachers. The teachers were asked to respond their position in each item without skipping any one and time limit was imposed. Tools were collected. Scores obtained by each individual were summed up and used for further analysis.

a) Item-total correlation co-efficient was used to select the valid items for the final study. The scores of each item correlated with total scores and r-value was obtained for each item.

b) The scores were arranged from the highest to the lowest. The top 33% of the scripts were kept in one group, which was known as upper group. The bottom 33% of the scripts was kept in another group, which was known as lower group. The middle group that consists of 34% of the respondent scripts were not considered. Then the significance of difference between the upper group and lower group was found using 't'- test for each item. The items with $r > 0.27$ and $t > 2.66$ were selected as valid item for final scale.

TOOL: QUESTIONNAIRE FOR ONLINE ASSESSMENT

TABLE 3.2 STANDARDIZATION OF VALUE RATING SCALE

Sl. No.	r value	t value	Whether Selected	Sl. No.	r value	t value	Whether Selected
1	0.368	3.52	Yes	**16**	0.282	3.40	Yes
2	0.296	3.72	Yes	**17**	0.376	3.25	Yes
3	0.332	3.57	Yes	**18**	0.124	1.70	No
4	0.367	4.16	Yes	**19**	0.276	3.16	Yes
5	0.339	3.57	Yes	**20**	0.374	3.23	Yes

6	0.124	1.12	No	**21**	0.082	3.12	No
7	0.430	3.91	Yes	**22**	0.335	4.06	Yes
8	0.335	4.07	Yes	**23**	-0.077	0.72	No
9	0.082	3.12	No	**24**	0.430	3.91	Yes
10	0.332	4.46	Yes	**25**	0.550	5.84	Yes
11	0.095	3.64	No	**26**	0.136	0.59	No
12	0.421	3.93	Yes	**27**	0.449	3.10	Yes
13	0.124	1.12	No	**28**	0.339	3.57	Yes
14	0.096	3.72	No	**29**	0.124	1.70	No
15	0.560	5.84	Yes	**30**	0.448	3.11	Yes

3.5.7 FINALIZATION OF THE TOOL

Items, which are significant at $r > 0.270$ and $t > 2.66$, were selected in the final tool. This stage was concerned with the random distribution of final items in the value rating scale. In tool the items numbering 20 were randomly distributed in the value rating scale. Finally, the 20 items in tool were categorized under four dimensions teacher has: technological awareness, knowledge of online assessment web tools, usage and Classroom management of online assessment tools. The dimensions are given the names by scrutinizing the items by their nature and tone. In each dimension 5 items were included. A copy of the final tool is given in the appendix section. Thus, the scales were finalized.

3.5.8 RELIABILITY OF THE TOOL

A test is reliable to the extent that it measures accurately and consistent from one time to another (Best,1977). Reliability is the consistency with which a tool measures what it measures (Garret,1979). Reliable tests whatever they measure yield comparable score on repeated administration. The instruments that have a high coefficient of reliability and errors of measurement have been reduced to a minimum. If it is to be said in more technical terms, every measures of test reliability denote what proportion of the total variance of test scores is error variance. The reliability of a test or scale can be computed by using Test and Re-test method, Split half method and equivalent or parallel forms, depending upon the nature of the reliability required

by the investigator. For the data collection of the present study the investigator used Test and Re-test method to measure the online assessment skill.

TEST – RETEST METHOD

Symonds (1931) summarized a number of studies and concluded that the correlation between the ratings given by two independent test scores for the conventional type of point scale. The test-retest method was used for measuring the reliability of the scale. In order to establish the reliability of the value rating scale for teachers, a pilot study was conducted on a representative sample of 10 teachers of four different schools. The re-test was conducted after one week among the same sample. The test-retest scores were tabulated and the correlation coefficient between test and retests scores were calculated.

TABLE 3.3 RELIABILITY OF THE ONLINE QUESTION CREATION AND EVALUATION SKILL TOOL

Subjects	Test	Retest
	Tool-1	Tool-1
1	**65**	**68**
2	**56**	**61**
3	**62**	**66**
4	**68**	**62**
5	**53**	**57**
6	**44**	**46**
7	**72**	**66**
8	**42**	**45**
9	**53**	**48**
10	**64**	**61**

The correlation coefficient between test-retest scores was found to be 0.89. It indicates that the tool is highly reliable.

3.5.9 SCORING PROCEDURE

The score is (5) for strongly agree, (4) for somewhat agree, (3) for never agree or disagree, (2) for somewhat disagree and (1) for strongly disagree in positive items and reverse for negative items. The maximum possible score will be 100 and minimum will be 20. Higher score indicates the presence of very high values among pupil.

3.5.10 DIMENSIONS OF ONLINE QUESTION CREATION AND EVALUATION SKILL RATING SCALE:

Technological awareness

Technological awareness is one's ability to recognize and understand the usefulness of any technology for his success. Knowledge that something exists, or understanding of a situation or subject at the present time based on information or experience. In this dimension the teachers are tested whether they have knowledge about internet, online assessment tools etc.

Knowledge on online assessment tools

Online assessment tools can help teachers track educational progress and provide students with key resources for learning new materials. By learning about different online assessment tools, teachers could determine which features best align with their preferred teaching style.

Usage

Usage is the way in which something is used, or how much it has been used**.**

Classroom management

Classroom management refers to the wide variety of skills and techniques that teachers use to ensure that their classroom runs smoothly, without disruptive behavior from students.

TABLE 3.4 DESCRIPTION OF THE RATING SCALE -LEVEL OF DIMENSIONS OF ONLINE QUESTION CREATION AND EVALUATION SKILL

Sl. No	Dimensions of online question creation and evaluation	No. of Items	Maximum Score	Level of Dimension		
				Low 0 -40%	Moderate 41-80%	High 81-100%
1	Technological awareness	05	25	0-10	10.01-20	20.01-25
2	Knowledge on online assessment tools	05	25	0-10	10.01-20	20.01-25
3	Usage	05	25	0-10	10.01-20	20.01-25
4	Classroom management	05	25	0-10	10.01-20	20.01-25
	Total Values	20	100	0-40.00	40.01-80.00	80.01-100.00

3.6 TRAINING SCHEDULE

A Training programme for three days (Face to face training one day and two days google meet) Online Assessment on web tools was conducted for 60 teachers. Teachers were provided a module containing the details such as: the meaning of Assessment, Introduction about web tools, brief explanation about four web tools such as Mentimeter, Google Forms, Quizlet, H5P. (Given in the annexure). The participants were made to prepare online assessment questions using above four web tools and evaluate the students in the high-tech labs. They were instructed to prepare suitable online assessment for studentsin any selected topic within 20 days.

3.7 DATA COLLECTION

The investigator prepared a research tool and the module for teachers. The investigator planned to conduct one day training for graduate teachers from four blocks namely Karur, K.Paramathy, Aravakuruchi and Thanthoni of Karur district and got permission from CEO, Karur district for conducting training and administering the tool. This study is purely experimental method. The training was conducted as two spells. 30 teachers were participated in the first spell and remaining 30 teachers participated in the second spell of training. Pre-test questionnaire was given to the teachers. The teachers were provided with necessary instructions regarding the procedure of responding all the items in the questionnaire. The training module was given to every teacher. After 10 days of practice on module, two google meet sessions were conducted for clearing doubts. After that Post-test questionnaire was given to the teachers. Finally, the administered tool was collected and each item was scored according to scoring procedure. The collected data were classified on the basis of gender, locality of school, and type of school. The scores were analyzed by using the appropriate statistical techniques.

3.8 STATISTICAL TECHNIQUE

Statistical techniques used for analyzing the data are

1. Descriptive Analysis – Level of dimensions of online question creation and evaluation skill among teachers by finding Mean, Standard Deviation.

2. “t”- test to find the significance of difference between the two groups like gender wise, locality wise, type of school etc. This section highlights the differential studies-identifying the significant difference between any two subgroups of the sample.

3.9 CONCLUSION

In chapter III, the investigator has described about the population of teachers to whom the results of the present study would be generalized, sample of the study, instrumentation which elaborated the construction, selection, standardization and administration of tools, variables, research design, procedure of data collection and statistical techniques for the data analysis. In the next chapter, the collected data are subjected to statistical analysis and interpretation.

CHAPTER – IV
DATA ANALYSIS AND INTERPRETATION

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

- **Introduction**
- **Data Analysis**
- **Descriptive Analysis**
- **Differential Analysis**
- **Conclusion**

4.1 INTRODUCTION

Data analysis is considered to be an important step and heart of the research in research work. After collection of data with the help of relevant tools and techniques, the next logical step, is to analyze and interpret data with a view to arriving at empirical solution to the problem. This chapter deals with the modern operation of critical analysis of collected data through appropriate statistical techniques. The valid, reliable and adequate data may serve purpose of data analysis if they are carefully processed, systematically shifted, classified and tabulated, scientifically analyzed, intelligently interpreted and rationally concluded. Once the data are collected through standardized tools, they must be processed and analyzed to arrive correct inferences.

According to John W. Best (1977), “Statistical data describes group behavior or group characteristics abstracted from a number of individual observations which are combined to make generalization possible.” Analysis of data is thus considered as an important aspect of any type of research. It needs high level of judgment skill, thorough knowledge and technical ability of generalization. Therefore, analysis of data is a vital component of any type of research in physical sciences, social sciences, engineering and medical sciences. Without analysis, the adequate description of a phenomenon is relatively impossible. So, an analysis of data means, studying the tabulated materials in order to determine inherent facts of meanings. It involves the breaking of the existing complex factors into simple parts and putting them together in a new arrangement for the purpose of interpretation. Interpretation is not a mechanical process. It is the careful, logical and critical examination of the results analyzed. This is useful in making statements about what the results of analysis

indicate. The data, after collection was processed and analyzed in accordance with the outline laid down in the research plan. This is essential for any scientific study and for ensuring the investigator has all relevant data for making contemplated comparisons and analysis. The term analysis refers to the compilation of certain measures along with searching for pattern of relationships that exist among data groups. For the present study, the investigator collected the data from graduate teachers in high and higher secondary government schools. Data was gathered through the tool developed by the investigator from teachers.

4.2 DATA ANALYSIS

In order to apply proper statistical techniques, statistical experts were consulted for analyzing the data. Having ensured that all the safeguards, attempts were made to classify and analyze the data the data were analyzed at three levels – descriptive, differential. For descriptive part of analysis, mean and standard deviation values were computed. For finding out the significance of difference between the two groups, t- test was adapted.

4.3 DESCRIPTIVE ANALYSIS

4.3.1 DESCRIPTIVE ANALYSIS OF DATA COLLECTED FROM TEACHERS FOR ONLINE QUESTION CREATION AND EVALUATION SKILL

The Data was collected from Graduate teachers before and after treatment regarding online question creation and evaluation skill. The mean scores were found and analyzed. This section gives the answer for the research questions in detail.

Table 4.1 THE ONLINE QUESTION CREATION AND EVALUATION SKILL - MEAN SCORE PERCENTAGE OF GRADUATE TEACHERS

Group	Mean score percentage		Gain score
	Before treatment	After treatment	
Graduate teachers	64.2	90.4	24.2

Research Question:1 Is there any improvement in the online question creation and evaluation skill of teachers after giving training?

Answer: From the table 4.1 it is found that the gain score of the teachers is 24.2. This proves that the online web tool training was effective in enhancing the online question creation and evaluation skill among graduate teachers.

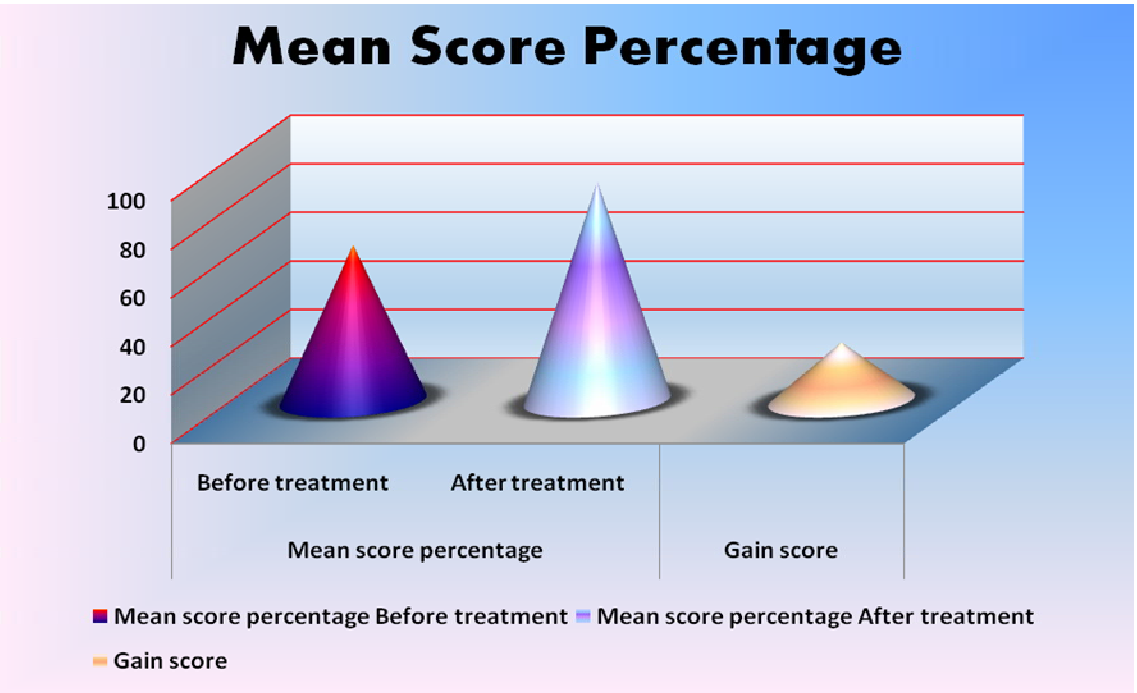


Fig 4.1 Mean and Gain score percentage of Graduate Teachers

Table 4.2 THE ONLINE QUESTION CREATION AND EVALUATION SKILL MEAN SCORE PERCENTAGE OF GRADUATE TEACHERS BASED ON GENDER, TYPE OF SCHOOL, AND LOCALITY OF SCHOOL

Variable	Sub variable	Online question creation and evaluation skill Mean score percentage		
		Before Treatment	After Treatment	Gain score
Locality of School	Rural	63.9	90.1	26.2
	Urban	64.6	90.7	26.1
Type of school	High	64.1	90.6	26.5
	Hr.Sec	64.44	90.22	25.78
Gender	Male	65.4	90.67	25.27
	Female	63.67	90.147	26.477

Research Question:2 Do the rural and urban teachers have any basic knowledge about classroom online evaluation?

Answer: The online question creation and evaluation skill mean score percentage of rural and urban teachers is 26.2 and 26.1. In both the locality the values are low before treatment and it is 90.1and 90.7 after treatment as per the data shown in the table 4.2. Hence the rural and urban teachers have basic knowledge about classroom online evaluation after treatment.

Research Question:3 Do the high and higher secondary school teachers have basic knowledge about classroom online evaluation?

Answer: The online question creation and evaluation skill mean score percentage of high and higher secondary school teachers is 26.5 and 25.78. In both type of schools, the values are low before treatment and it is 90.6 and 90.22 after treatment as per the data shown in the table 4.2. Hence the high and higher secondary school teachers have basic knowledge about classroom online evaluation after treatment.

Research Question:4 Is there any difference in the online question creation and evaluation skill between the male and female teachers after giving training on online web tools?

Answer: The online question creation and evaluation skill gain score of male and female teachers is 25.27 and 26.477 which shows that the online question creation and evaluating skill has been enhanced more among female teachers.

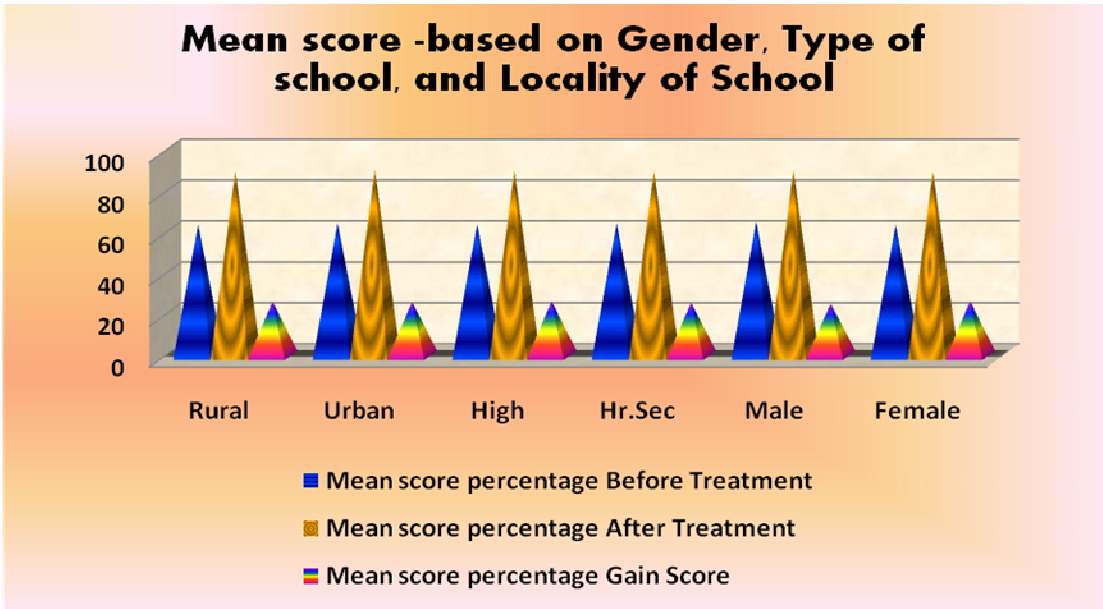


Fig 4.2 Mean score percentage of Graduate teachers based on Gender, Type of school and Locality of School

4.3.2 LEVEL OF VARIOUS DIMENSIONS OF ONLINE QUESTION CREATION AND EVALUATING SKILL OF TEACHERS:

Table 4.3 COMPARISON OF THE LEVEL OF DIMENSION-TECHNOLOGICAL AWARENESS OF TEACHERS BEFORE AND AFTER TREATMENT

Sub Group	Technological awareness Mean score percentage		
	Before Treatment	After Treatment	Gain Score
Rural	66	80.4	14.4
Urban	66	81.2	15.2
High School	66	80.8	14.8
Hr.Sec School	66.12	80.92	14.8
Male	67.6	81.08	13.48
Female	66.8	80.588	13.788
Whole Sample	66	80.8	14.8

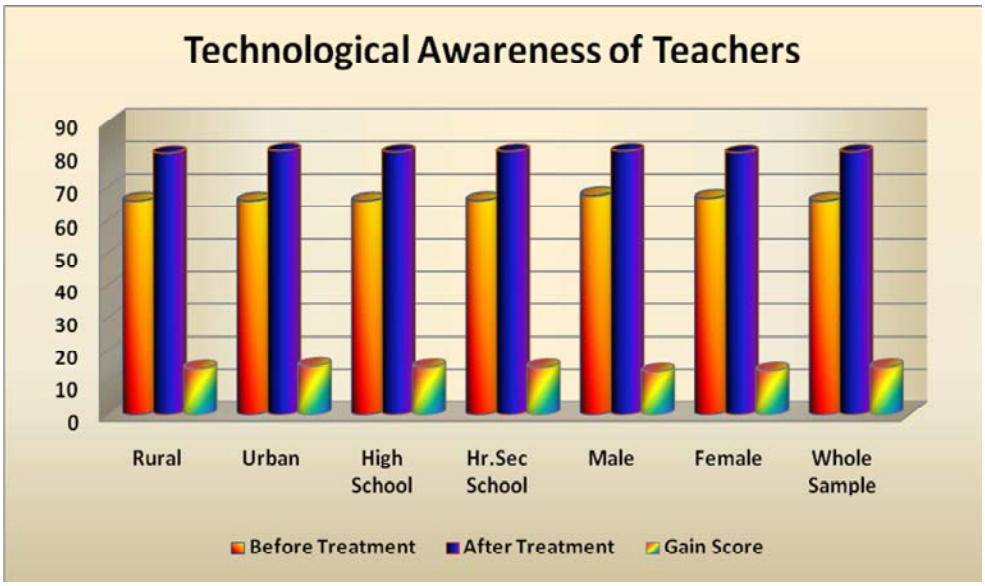


Fig 4.3 Technological Awareness of Teachers – Gain score percentage of Graduate Teachers-Before and After Treatment

Research Question:5 Is there any improvement in the technological awareness on online question creation and evaluation after treatment?

Answer: Table 4.3 shows that the mean score percentage of the technological awareness on online question creation and evaluation before and after treatment is 66 and 80.8. Hence there is improvement in the technological Awareness of teachers' after enhancing online question creation and evaluation skill.

The gain scores of the technological awareness on online question creation and evaluation before and after treatment of male and female teachers as shown in table 4.3 are 13.48 and 13.788 which proves that the gain score of female teachers is higher than male teachers.

The gain scores of the technological awareness on online question creation and evaluation before and after treatment of rural and urban school teachers as shown in table 4.3 are 14 and 15.2 which proves that the gain score of urban teachers is higher than rural teachers.

The gain scores of the technological awareness on online question creation and evaluation before and after treatment of High and Higher secondary school teachers after treatment as shown in table 4.3 are 14.8 and 14.8 which proves that that the gain score of High and Higher secondary school teachers are same.

The mean scores of the technological awareness on online question creation and evaluation before and after treatment (lies between 60 and 80%) are in moderate level. Though the levels are moderate, Pre-test mean score is very low compared to Post-test.

Table 4.4 COMPARISON OF THE LEVEL OF DIMENSION- KNOWLEDGE ON ONLINE ASSESSMENT TOOLS -BEFORE AND AFTER TREATMENT:

Sub Group	Knowledge of Online Assessment Tools Mean score percentage		
	Before Treatment	After Treatment	Gain Score
Rural	60	90	30
Urban	61.6	90.8	29.2
High School	61.2	90.8	29.6
Hr. Sec School	60.68	90.12	29.44
Male	60.8	90.8	30
Female	60.8	90	29.2
Whole Sample	60.8	90.4	29.6

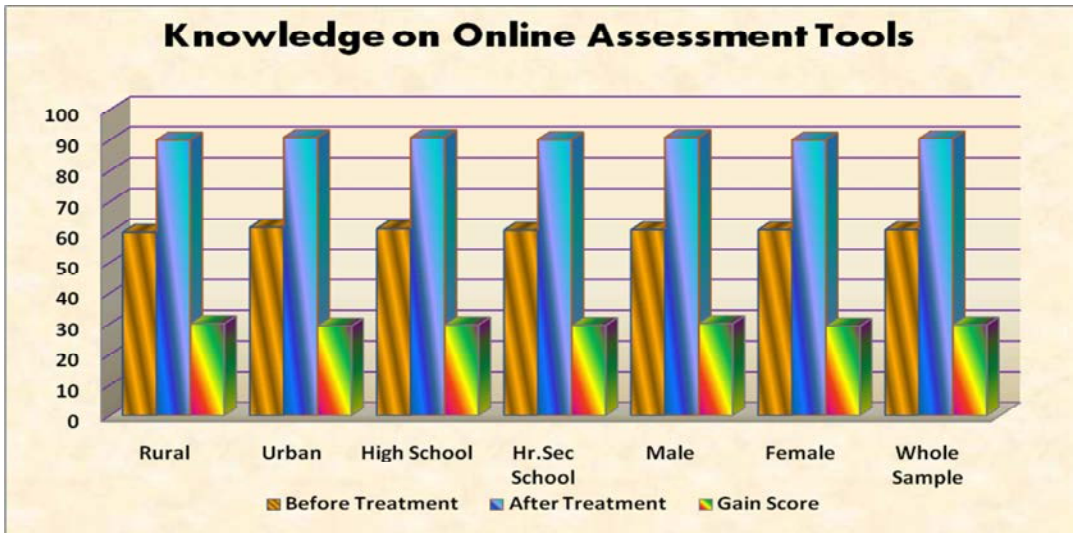


Fig 4.4 Knowledge on Online Assessment Tools – Gain score percentage of Graduate Teachers-Before and After Treatment

Research Question: 6 What is the teachers level of improvement in the knowledge on online question creation and evaluation skill after treatment?

Answer: Table 4.4 shows that the mean score percentage of the knowledge on online question creation and evaluation before and after treatment is 60.8 and 90.4. Hence there is improvement in the knowledge on online question creation and evaluation after treatment.

The gain scores of the knowledge on online question creation and evaluation before and after treatment of male and female teachers after treatment as shown in table 4.4 are 30 and 29.2 which proves that the gain score of male teachers is higher than female teachers.

The gain scores of the knowledge on online question creation and evaluation before and after treatment of rural and urban school teachers after treatment as shown in table 4.4 are 30 and 29.2 which proves that the gain score of rural teachers is higher than urban teachers.

The gain scores of the knowledge on online question creation and evaluation before and after treatment of high and higher secondary school teachers after treatment as shown in table 4.4 are 29.6 and 29.44 which proves that that the gain score of high school teachers is higher than higher secondary school teachers.

The mean scores of the knowledge on online question creation and evaluation before and after treatment of before and after treatment (lies between 60 and 90%) are in high level. Though the level is high, the pre-test mean score is very low compared to post-test.

Table 4.5 COMPARISON OF THE LEVEL OF DIMENSION-USAGE OF ONLINE TOOLS BEFORE AND AFTER TREATMENT

Sub Group	Usage of online tools Mean score percentage		
	Before Treatment	After Treatment	Gain Score
Rural	61.2	95.6	34.4
Urban	60.8	96.4	35.6
High School	60.4	95.6	35.2
Hr.Sec School	61.48	96.12	34.64
Male	63.6	96	32.4
Female	58.28	95.72	37.44
Whole Sample	60.8	96	35.2

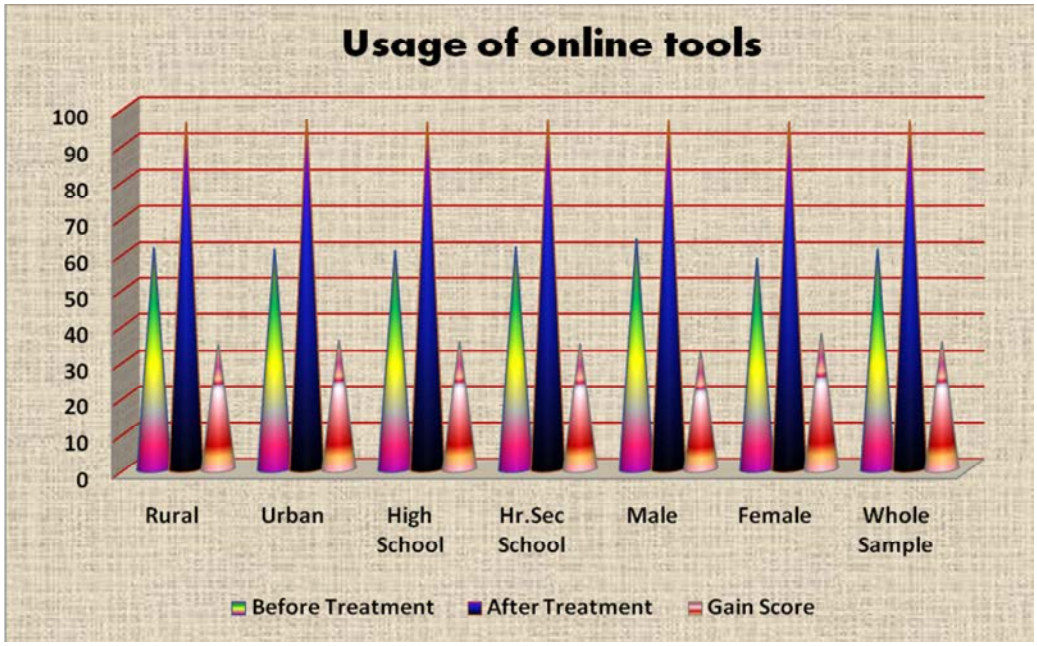


Fig 4.5 Usage of online tools – Gain score percentage of Graduate Teachers-Before and After Treatment

Research Question: 7 Does the usage of online tools by teachers improved after giving training?

Answer: Table 4.5 shows that the mean score percentage of the usage on online question creation and evaluation before and after treatment is 60.8 and 96. Hence there is improvement in the Online question creation skill – teacher utilizes online tools after enhancing online question creation and evaluating skill.

The gain scores of the usage on online question creation and evaluation before and after treatment of male and female teachers as shown in table 4.5 are 32.4 and 37.44 which proves that the gain score of female teachers is higher than male teachers.

The gain scores of the usage on online question creation and evaluation before and after treatment of rural and urban teachers as shown in table 4.5 are 34.4 and 35.6 which proves that the gain score of urban teachers is higher than rural teachers.

The gain scores of the usage on online question creation and evaluation before and after treatment of high and higher secondary school teachers as shown in table 4.5 are 35.2 and 34.64 which proves that that the gain score of high schoolteachers is higher than higher secondary school teachers.

The mean scores of the usage on online question creation and evaluation before and after treatment of the graduate teachers (lies between 60 and 90%) are in high level. Though the levels are high, the pre-test mean score is very low compared to post-test.

Table 4.6 COMPARISON OF THE LEVEL OF DIMENSION-CLASSROOM MANAGEMENT BEFORE AND AFTER TREATMENT

Sub Group	Classroom Management Mean score percentage		
	Before Treatment	After Treatment	Gain Score
Rural	68.4	94.4	26
Urban	70	96.4	24.4
High School	68.8	95.2	26.4
Hr. Sec School	69.48	93.72	24.24
Male	69.6	94.8	25.2
Female	68.8	94.28	25.48
Whole Sample	69.2	94.4	25.2

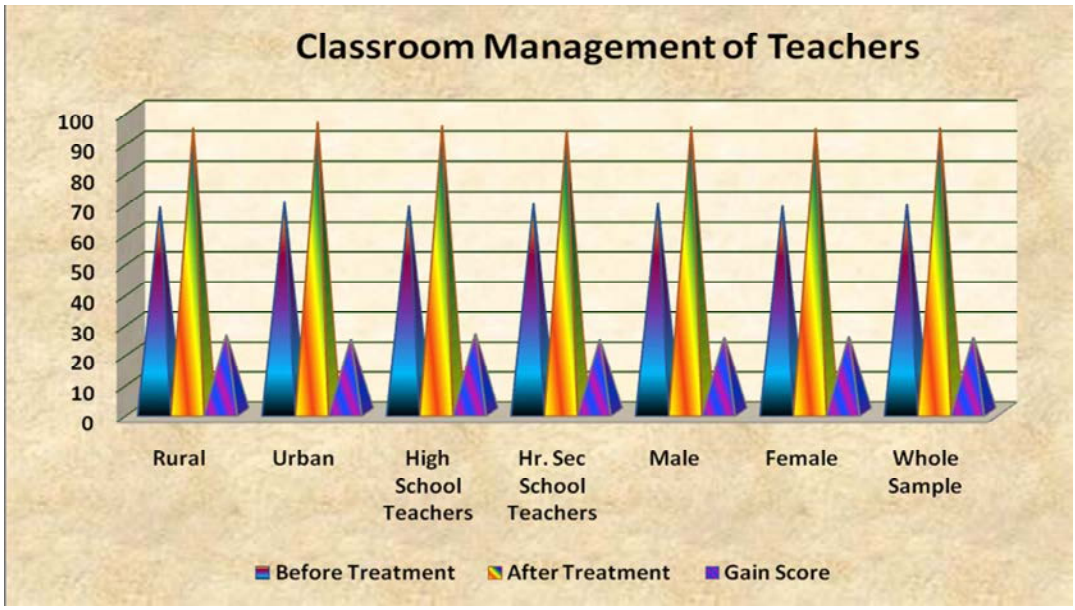


Fig 4.6 Classroom management of Teachers – Gain score percentage of Graduate Teachers - Before and After Treatment

Research Question: 8 Is there any improvement in the teachers' classroom management during Online evaluation after treatment?

Answer: Table 4.6 shows that the mean score percentage of the teachers' classroom management during online evaluation before and after treatment is 69.2 and 94.4. Hence there is improvement in the teachers' classroom management during Online evaluation after treatment.

The gain scores of the teachers' classroom management during online evaluation of male and female teachers after treatment as shown in table 4.6 is25.2 and 25.48 which proves that the gain score of female teachers is higher than male teachers.

The gain scores of the teachers' classroom management during online evaluation of rural and urban teachers after treatment as shown in table 4.6 is 26 and 24.4 which proves that the gain score of rural teachers is higher than urban teachers.

The gain scores of teachers' classroom management during online evaluation of high and higher secondary school teachers after treatment as shown in table 4.6 is 26.4 and 24.24 which proves that that the gain score of high school teachers is higher than higher secondary school teachers.

The mean scores of the teachers' classroom management during online evaluation before and after treatment (lies between 69 and 94 %) are in high level. Though the levels are high, the pre-test mean score is very low compared to post-test.

Table 4.7 LEVEL OF ONLINE QUESTION CREATION AND EVALUATION SKILL OF TEACHERS

Sub Group	Online Question creation and evaluation skill Mean score percentage		
	Before Treatment	After Treatment	Gain Score
Rural	63.9	90.1	26.2
Urban	64.6	90.7	26.1
High School	64.1	90.6	26.5
Hr. Sec School	64.44	90.22	25.78
Male	65.4	90.67	25.27
Female	63.67	90.147	26.477
Whole Sample	64.2	90.4	26.2

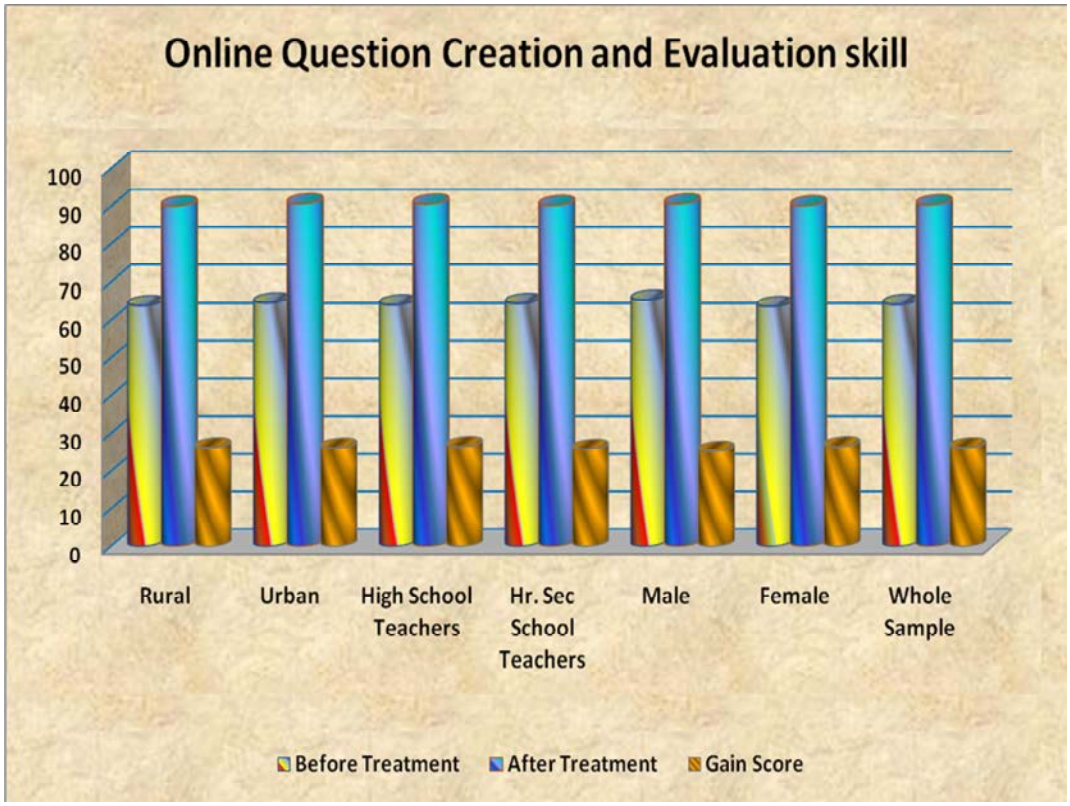


Fig.4.7 Online Question Creation and Evaluation skill of teachers

Research Question: 9 Whether there is any difference in the online question creation and evaluation skill of teachers after treatment?

Answer: The gain scores of the online question creation and evaluation skill of graduate teachers is 26.2 as shown in table 4.7. From the gain scores, it is evident that there is significant difference in the online question creation and evaluation skill between pre-test and post-test.

4.4 DIFFERENTIAL ANALYSIS

The 't'- test

The 't'- test is a statistical test that allows to compare two means to determine the probability that shows the difference between the means that is a real difference rather than a chance difference. The test of significance of the difference between the two means is known as the 't' test. It involves the computation on the ratio between experimental variance (observed difference between two sample means) and the error variance (the sampling error factor).

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

Where,

x1 - Mean score of the first group

x2 - Mean score of the second group

S1 - Standard deviation of the first group

S2 - Standard deviation of the second group

n1 - Size of the first group

n2 - Size of the second group

The computed 't' value is compared with the values of 't' given in the 't' tables at the appropriated degrees of freedom and at the required level of significance. If the calculated 't' value is greater than or equal to the table 't' value, then the difference between the sample mean is significant at the level of significance.

LEVEL OF SIGNIFICANCE

The experimenters and research workers have, for convenience, chosen several arbitrary standards called levels of significance of which the 0.05 and 0.01 levels are most often used. The confidence with which an experimenter rejects or retains a null hypothesis depends on the level of significance adopted. In psychological and educational circles, the 5 percent (0.05) alpha level of significance is used as a standard for rejection. A more rigorous test of significance is the 1 percent (0.01) alpha level. Rejecting a null hypothesis at the 0.01 level would suggest that as large a difference as that between the experimental and control mean achievements would not likely have resulted from sampling error in more than 1 in 100 replications of the study. With alpha equal to 0.001 there is only one chance in a thousand of being wrong.

4.4.1 COMPARISON OF THE SCORES OF GRADUATE TEACHERS: ONLINE QUESTION CREATION SKILL

Table 4.8 Mean, standard deviation and the calculated t-values of the scores of Online question creation and evaluation skill before and after treatment

Online Question Creation and Evaluation skill	Graduate Teachers Group (N = 60)		Calculated t-values	Level of significance
	Mean	S.D		
Before treatment	64.28	3.093	55.7205	S - Significant
After treatment	90.43	1.909		

NS – Not Significant; S – Significant

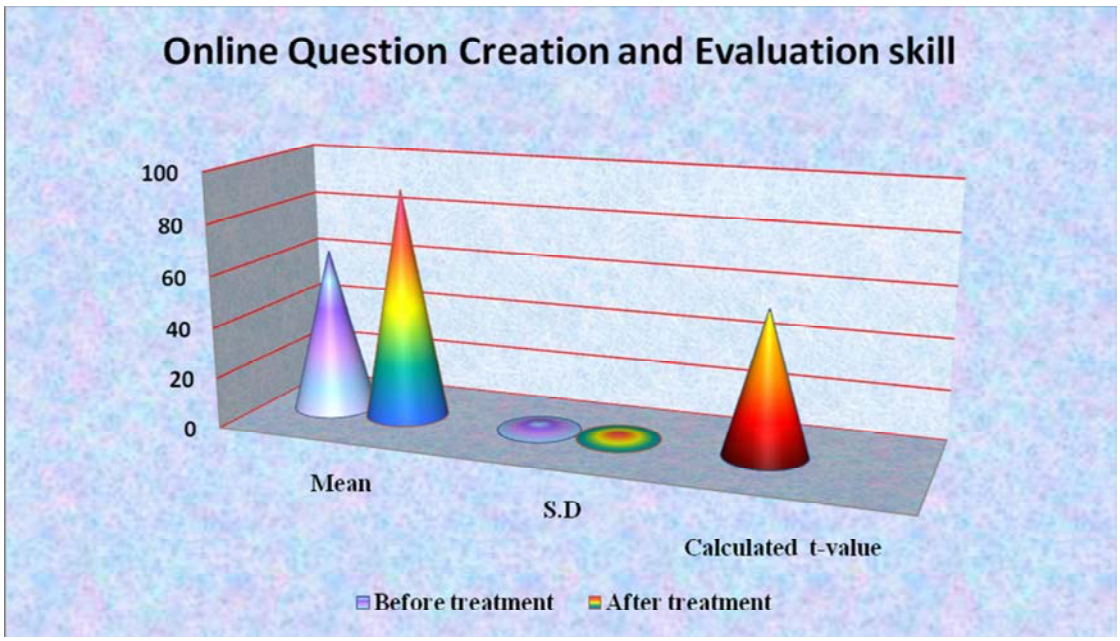


Fig 4.8 Online Question Creation and Evaluation skill – Before and After Treatment

Research Question: 10 Is there any significant difference in the online question creation and evaluation skill between teachers before and after giving training?

From table 4.8, it is seen that the calculated t-value 55.72 for online question creation and evaluation skill before and after treatment is greater than the table t-value 1.98at 0.05 level of significance. Therefore, it is proved that there is significant difference in online question creation and evaluation skill before and after giving training.

Table 4.9 Mean, standard deviation and the calculated t-values of the scores of teachers' Online question creation and evaluation skill after treatment based on Gender, Locality of school and Type of school.

Variable	Sub variable	Online question creation and evaluation skill After treatment (N = 30)		Calculated t-values	Level of significance
		Mean	S.D		
Locality of School	Rural	90.13	1.687	1.232	NS
	Urban	90.73	2.06		
Type of school	High	90.63	1.663	0.816	NS
	Hr.Sec	90.23	2.108		
Gender	Male	90.7	1.98	1.092	NS
	Female	90.16	1.79		

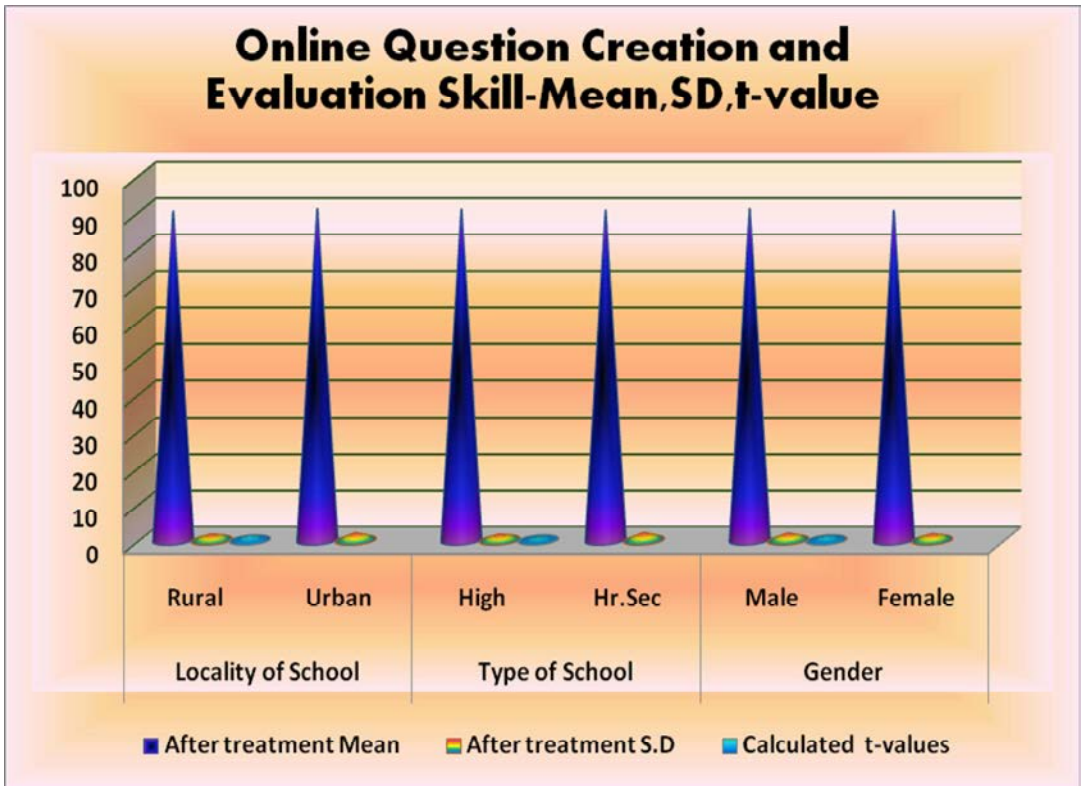


Fig 4.9 Online Question creation and evaluation Skill- Mean, SD, and t-value

The result presented in table 4.9 shows the Online Question creation skill mean score, standard deviation and calculated t-value of graduate teachers based on Gender, Locality of school and Type of school.

Research Question:11 Is there any significant difference in the Online Question creation and evaluation skill among teachers after treatment based on Locality of school, Type of school and Gender?

The Online Question creation and evaluation skill mean score of male and female teachers after treatment is 90.7 and 90.16. The standard deviation of male and female is 1.98 and 1.79 respectively. The calculated t-value 1.092 in the table 4.9 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Online Question creation and evaluation skill between male and female teachers after treatment.

The Online Question creation and evaluation skill mean score of rural and urban after treatment is 90.13 and 90.73. The standard deviation of male and female is 1.687 and 2.06 respectively. The calculated t-value 1.232 in the table 4.9 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Online Question creation and evaluation skill between rural and urban after treatment.

The Online Question creation and evaluation skill mean score of high and higher secondary after treatment is 90.13 and 90.73. The standard deviation of male and female is 1.687 and 2.06 respectively. The calculated t-value 1.232 in the table 4.9 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Online Question creation and evaluation skill between rural and urban after treatment.

4.2 COMPARISON OF THE SCORES OF TEACHERS: BASED ON DIMENSION

Table 4.10 MEAN, STANDARD DEVIATION AND THE CALCULATED T-VALUES OF THE SCORES OF TEACHERS' BASED ON DIMENSIONSBEFORE AND AFTER TREATMENT.

Dimensions	Graduate Teachers				Calculated t value	Level of Significance
	Before Treatment		After Treatment			
	Mean	SD	Mean	SD		
Technological awareness	16.53	1.56	20.22	0.412	17.63	S
Knowledge on online assessment tools	15.22	1.723	22.62	0.818	30.05	S
Usage	15.23	1.901	23.97	0.657	33.64	S
Classroom management	17.3	0.953	23.63	0.874	37.89	S

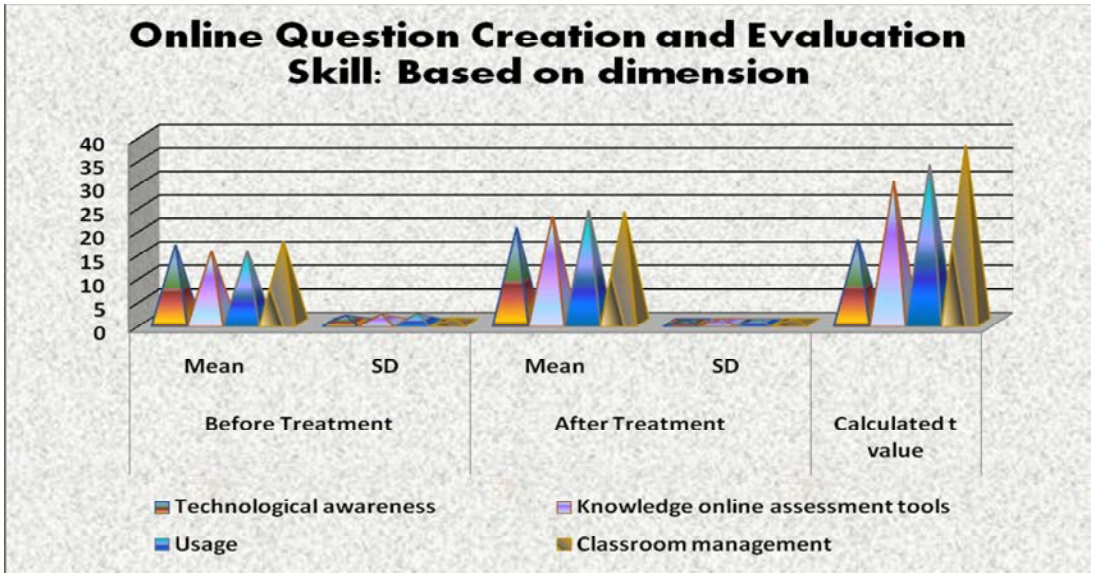


Fig 4.10 Online Question Creation and Evaluation Skill - Based on dimension- Before and After treatment

The result presented in table 4.10 shows the Online Question creation skill**s** mean score, standard deviation and calculated t-value before and after treatment based on dimension.

Research Question:12 Does the treatment has any significant effect in improving the online question creation and evaluation skill among teachers?

Answer: From the table 4.10 it is seen that the Technological Awareness on Online Question creation skill before and after treatment is 16.53 and 20.22. The standard deviation of teachers before and after treatment is 1.56 and 0.412 respectively. The calculated t-value 17.63 in the table 4.10 is higher than the table value 1.98 at 0.05 level. Hence there is significant difference in Technological Awareness of teachers before and after treatment.

From the table 4.10 it is seen that the Knowledge on Online Question creation skill before and after treatment is 15.22 and 22.62. The standard deviation of teachers before and after treatment is 1.723 and 0.818respectively. The calculated t-value 30.05 in the table 4.10 is higher than the table value 1.98 at 0.05 level. Hence there is significant difference in Knowledge of online tools of teachers before and after treatment.

From the table 4.10 it is seen that the Usage on Online Question creation skill before and after treatment is 15.23 and 23.97. The standard deviation of teachers before and after treatment is 1.901 and 0.657respectively. The calculated t-value 33.64 in the table 4.10 is higher than the table value 1.98 at 0.05 level. Hence there is significant difference in usage of teachers before and after treatment.

From the table 4.10 it is seen that the Classroom Management on Online Question creation skill before and after treatment is 17.3 and 23.63. The standard deviation of teachers before and after treatment is 0.953 and 0.874 respectively. The calculated t-value 37.89 in the table 4.10 is higher than the table value 1.98 at 0.05 level. Hence there is significant difference in Classroom Management of teachers before and after treatment.

Table 4.11 MEAN, STANDARD DEVIATION AND THE CALCULATED T-VALUES OF THE DIMENSION-WISE SCORES OF TEACHERS' BASED ON LOCALITY OF SCHOOLS-RURAL AND URBAN -AFTER TREATMENT

Dimensions	Locality of schools				Calculated t value	Level of Significance
	Rural		Urban			
	Mean	SD	Mean	SD		
Technological awareness	20.1	0.3	20.33	0.4714	2.287	S
Knowledge on online assessment tools	22.5333	0.7181	22.7	0.9	0.7929	NS
Usage	23.867	0.562	24.067	0.727	1.192	NS
Classroom management	23.8	1.035	23.7	0.862	0.542	NS

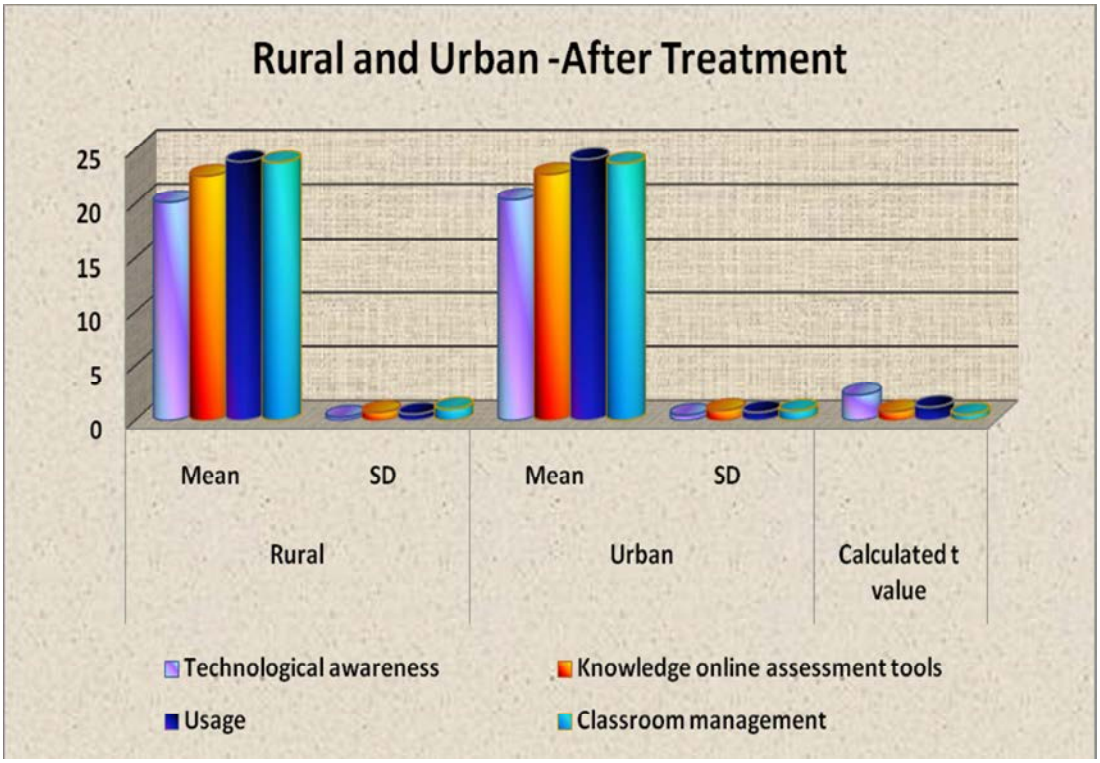


Fig.4.11 Online Question creation and evaluation skill - locality of schools-Rural and Urban -after treatment

The result presented in table 4.11 shows the Online Question creation skill mean score, standard deviation and calculated t-value of dimension-wise scores of teachers' based on locality of schools-Rural and Urban -after treatment**.**

Research Question:13 Whether there is any significant difference in the dimension-wise scores of teachers' based on locality of schools- after treatment?

From the table 4.11 it is seen that the Technological Awareness on Online Question creation skill of rural and urban teachers after treatment is 20.1 and 20.33. The standard deviation of rural and urban teachers after treatment is 0.3 and 0.4714respectively. The calculated t-value 2.287 in the table 4.11 is higher than the table value 2.0 at 0.05 level. Hence there is significant difference in Technological Awareness of rural and urban teachers after treatment.

From the table 4.11 it is seen that the Knowledge on Online Question creation skill of rural and urban teachers after treatment is 22.53 and 22.7. The standard deviation of rural and urban teachers after treatment is 0.718 and 0.9respectively. The calculated t-value 0.7929 in the table 4.11 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Knowledge of online tools of rural and urban teachers after treatment.

From the table 4.11 it is seen that the Usage on Online Question creation skill of rural and urban teachers after treatment is 23.867 and 24.067. The standard deviation of rural and urban teachers after treatment is 0.562 and 0.727respectively. The calculated t-value 1.192 in the table 4.11 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in usage of rural and urban teachers after treatment.

From the table 4.11 it is seen that the Classroom management onOnline Question creation skill of rural and urban teachers after treatment is 23.8 and 23.7. The standard deviation of rural and urban teachers after treatment is 1.035and 0.862respectively. The calculated t-value 0.542 in the table 4.11 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Classroom management of rural and urban teachers after treatment.

Table 4.12 MEAN, STANDARD DEVIATION AND THE CALCULATED T-VALUES OF THE DIMENSION-WISE SCORES OF TEACHERS' BASED ON GENDER-MALE AND FEMALE -AFTER TREATMENT

Dimensions	Gender				Calculated t value	Level of Significance
	Male		Female			
	Mean	SD	Mean	SD		
Technological awareness	20.267	0.442	20.167	0.372	0.946	NS
Knowledge on online assessment tools	20.267	0.442	22.5	0.806	13.30	S
Usage	24	0.730	23.93	0.574	0.3932	NS
Classroom management	23.7	0.862	23.567	0.882	0.592	NS

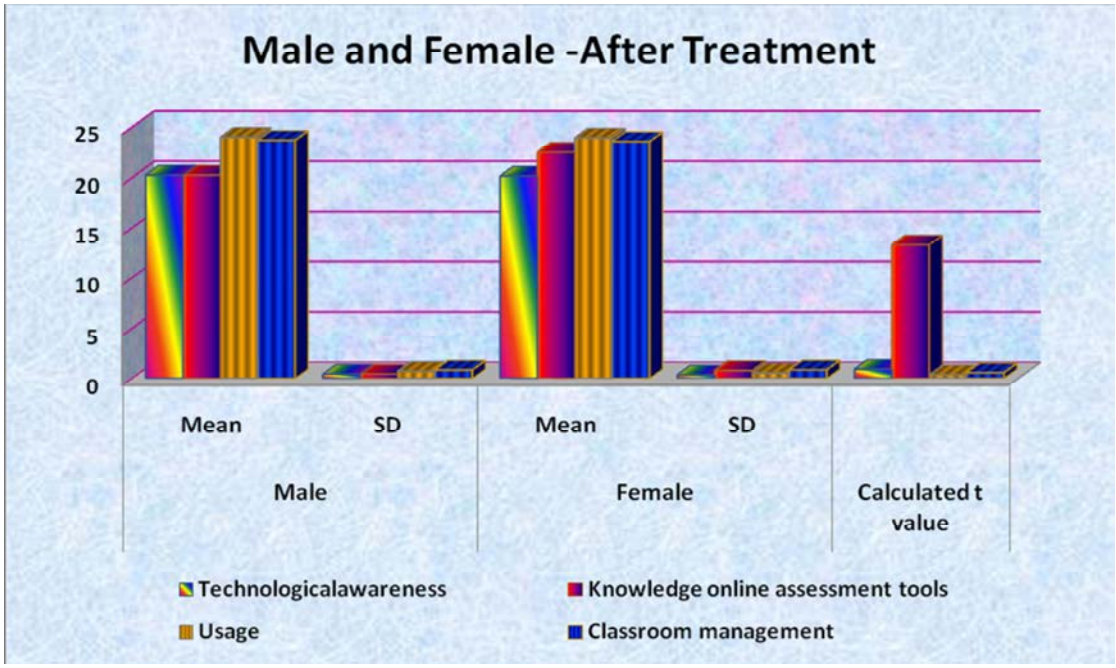


Fig 4.12 Online Question Creation and Evaluation skill - Gender-Male and Female -after treatment

The result presented in table 4.12 shows the Online Question creation and evaluation skill mean score, standard deviation and calculated t-value of dimension-wise scores of teachers' based on Gender -Male and Female -after treatment**.**

Research Question:14 Whether there is any significant difference in the dimension-wise scores of teachers based on Gender - after treatment?

From the table 4.12 it is seen that the Technological Awareness on Online Question creation and evaluation skill of male and female teachers after treatment is 20.267 and 20.167. The standard deviation of male and female teachers after treatment is 0.442 and 0.372respectively. The calculated t-value 0.946 in the table 4.12 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Technological Awareness of male and female teachers after treatment.

From the table 4.12 it is seen that the Knowledge on Online Question creation and evaluation skill of male and female teachers after treatment is 20.267 and 22.5. The standard deviation of male and female teachers after treatment is 0.442 and 0.806respectively. The calculated t-value 13.30 in the table 4.12 is higher than the table value 2.0 at 0.05 level. Hence there is significant difference in Knowledge of online tools of male and female teachers after treatment.

From the table 4.12 it is seen that the Usage on Online Question creation and evaluation skill of male and female teachers after treatment is 24 and 23.93. The standard deviation of male and female teachers after treatment is 0.730 and 0.574respectively. The calculated t-value 0.393 in the table 4.12 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in usage of male and female teachers after treatment.

From the table 4.12 it is seen that the Classroom management on Online Question creation and evaluation skill of male and female teachers after treatment is 23.7 and 23.567. The standard deviation of male and female teachers after treatment is 0.862and 0.882respectively. The calculated t-value 0.592 in the table 4.12 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Classroom management of male and female teachers after treatment.

Table 4.13 MEAN, STANDARD DEVIATION AND THE CALCULATED T-VALUES OF THE DIMENSION-WISE SCORES OF TEACHERS' BASED ON TYPE OF SCHOOL -HIGH AND HIGHER SECONDARY -AFTER TREATMENT

Dimensions	Type of School				Calculated t value	Level of Significance
	High		Higher Secondary			
	Mean	SD	Mean	SD		
Technological awareness	20.2	0.4	20.23	0.423	0.314	NS
Knowledge ononline assessment tools	22.7	0.781	22.53	0.846	0.793	NS
Usage	23.9	0.651	24.03	0.657	0.789	NS
Classroom management	23.83	0.582	23.43	1.054	1.812	NS

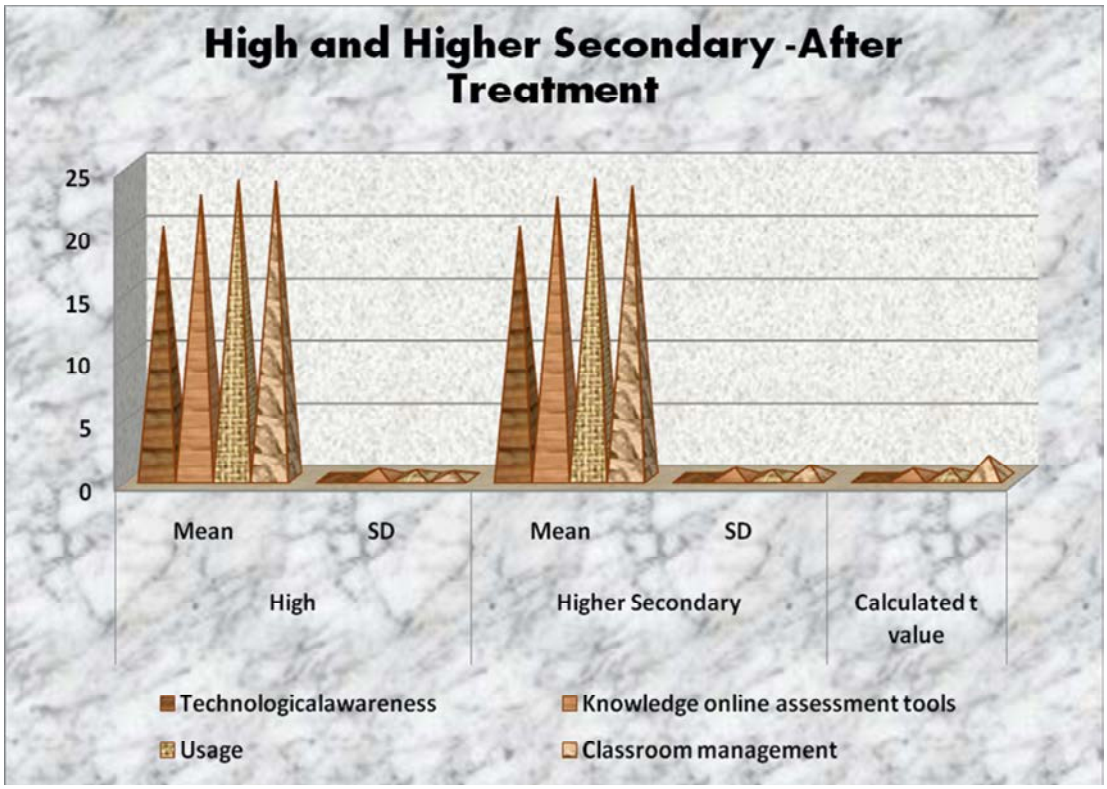


Fig 4.13 Online Question Creation and Evaluation skill - High and Higher Secondary -after treatment

The result presented in table 4.13 shows the Online Question creation and evaluation skill mean, standard deviation and calculated t-value of dimension-wise scores of teachers' based on Type of School -High and Higher Secondary school - after treatment**.**

Research Question:15 Whether there is any significant difference in the dimension-wise scores of teachers' based on Type of School - after treatment?

From the table 4.13 it is seen that the Technological Awareness on Online Question creation and evaluation skill mean score of High and Higher Secondary school teachers after treatment is 20.2 and 20.23. The standard deviation of High and Higher Secondary school teachers after treatment is 0.4 and 0.423respectively. The calculated t-value 0.314 in the table 4.13 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Technological Awareness of High and Higher Secondary school teachers after treatment.

From the table 4.13 it is seen that the Knowledge on Online Question creation and evaluation mean score of High and Higher Secondary school teachers after treatment is 22.7 and 22.53. The standard deviation of High and Higher Secondary school teachers after treatment is 0.781 and 0.846respectively. The calculated t-value 0.793 in the table 4.13 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Knowledge on online tools of High and Higher Secondary school teachers after treatment.

From the table 4.13 it is seen that the Usage on Online Question creation and evaluation skill mean score of High and Higher Secondary school teachers after treatment is 23.9 and 24.03. The standard deviation of High and Higher Secondary school teachers after treatment is 0.651 and 0.657respectively. The calculated t-value 0.789 in the table 4.13 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in usage on High and Higher Secondary school teachers after treatment.

From the table 4.13 it is seen that the Classroom management on Online Question creation and evaluation skill mean score of High and Higher Secondary school teachers after treatment is 23.83 and 23.43. The standard deviation of High and

Higher Secondary school teachers after treatment is 0.582 and 1.054 respectively. The calculated t-value 1.812 in the table 4.13 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Classroom management of High and Higher Secondary school teachers after treatment.

4.5 CONCLUSION

The data collected from teachers were put in to descriptive and differential analysis, to determine and interpret the level of Online Question creation and evaluation skill. The findings, recommendations and conclusion are given in the next chapter.

CHAPTER – V
FINDINGS, RECOMMENDATIONS AND CONCLUSION

CHAPTER – V

FINDINGS, RECOMMENDATIONS AND CONCLUSION

- **Introduction**
- **Findings of the study**
- **Descriptive study**
- **Differential study**
- **Recommendations**
- **Educational implications of the study**
- **Scope for further research**
- **Conclusion**

5.1 INTRODUCTION

Assessment is an integral part of the educational process; it promotes learning and confirms that students have achieved the learning outcomes of the subject. In order for both of these requirements to be satisfied, assessment practices need to be aligned with the curriculum and teaching methods, and make use of both formative and summative tasks. Assessment also serves as a motivator of student learning; a number of lower stakes assessments can be used to provide short-term goals for students. However, inappropriate assessments can also lead to a demotivating effect and an excessive quantity of assessment can be overwhelming.

The increasing development of digital technologies and their application in education facilitates new learning ecologies that offer students new web-based learning opportunities and resources. This rapid spread of interactive technologies has facilitated the adoption of innovative approaches in school education that help to promote collaborative learning, exploration, and research in online networked learning environments. It is in this context that alternative approaches to teacher-centered instruction have arisen and made a breakthrough in school education. Assessment in education employing web tools, also known as e-assessment, deals with the effective use of technology to support successful instruction. In this line, the development of innovative student-centered approaches has encouraged teachers to rethink educational processes to shift the focus from them to the students, facilitate student participation, develop practical thinking, and improve digital skills (Wright, 2011).

The eLearning industry is taking massive steps toward what appears to be a bright future for the entire education sector. For example, over 80% of students report that digital learning opportunities enabled them to improve their test scores. These trends announced a significant increase in the need for online assessment software.

An online assessment is the evaluation of the knowledge, skill, and aptitude of individuals using digital tools and technologies. Nowadays, it is an essential tool for schools because of the many benefits it provides. Most traditional assessment methods that were time-consuming, expensive, and often subjective have been replaced by their digital and more accurate counterparts. The adoption of online assessment tests has helped companies improve their hiring process as well as identify new talent. An online assessment is the evaluation of the knowledge, skill, and aptitude of individuals using digital tools and technologies. It is a tool for teachers as it helps to evaluate the skills, knowledge, and aptitude of students. It helps them to identify the best students in the classroom. Online test software also helps schools to identify gaps in expertise and knowledge in their existing students and, with that knowledge, design training programs. It can also help measure the efficacy of those very same training programs. These assessments are also a vital tool in students' performance evaluation. Students performance can be measured objectively using these tools. Potential high-value students can also be identified, and their skills to be honed for future roles.

5.2 FINDINGS OF THE STUDY

5.2.1. DESCRIPTIVE STUDY

1. The gain score of the teachers is 24.2. This proves that the online web tool training was effective in enhancing the online question creation and evaluation skill among graduate teachers.
2. The online question creation and evaluation skill mean score percentage of rural and urban teachers is 26.2 and 26.1. In both the locality the values are low before treatment and it is 90.1and 90.7 after treatment. Hence the rural and urban teachers have basic knowledge about classroom online evaluation after treatment.
3. The online question creation and evaluation skill mean score percentage of high and higher secondary school teachers is 26.5 and 25.78. In both type of

schools, the values are low before treatment and it is 90.6 and 90.22 after treatment. Hence the high and higher secondary school teachers have basic knowledge about classroom online evaluation after treatment.

4. The online question creation and evaluation skill gain score of male and female teachers is 25.27 and 26.477 which shows that the online question creation and evaluating skill has been enhanced more among female teachers.
5. The mean score percentage of the technological awareness on online question creation and evaluation before and after treatment is 66 and 80.8. Hence there is improvement in the technological Awareness of teachers' after enhancing online question creation and evaluation skill.
6. The gain scores of the technological awareness on online question creation and evaluation before and after treatment of male and female teachers is13.48 and 13.788 which proves that the gain score of female teachers is higher than male teachers.
7. The gain scores of the technological awareness on online question creation and evaluation before and after treatment of rural and urban school teachers is 14 and 15.2 which proves that the gain score of urban teachers is higher than rural teachers.
8. The gain scores of the technological awareness on online question creation and evaluation before and after treatment of High and Higher secondary school teachers after treatment is 14.8 and 14.8 which proves that that the gain score of High and Higher secondary school teachers are same.
9. The mean scores of the technological awareness on online question creation and evaluation before and after treatment (lies between 60 and 80%) are in moderate level. Though the levels are moderate, Pre-test mean score is very low compared to Post-test.
10. The mean score percentage of the knowledge on online Question creation and evaluation before and after treatment is 60.8 and 90.4. Hence there is improvement in the Online Question creation skill – teacher has knowledge on online tools after enhancing online question creation and evaluating skill.

11. The gain scores of the knowledge on online Question creation and evaluation before and after treatment of male and female teachers after treatment is30 and 29.2 which proves that the gain score of male teachers is higher than female teachers.
12. The gain scores of the knowledge on online Question creation and evaluation before and after treatment of rural and urban school teachers after treatment is 30 and 29. 2 which proves that the gain score of rural teachers is higher than urban teachers.
13. The gain scores of the knowledge on online Question creation and evaluation before and after treatment of high and higher secondary school teachers after treatment is 29.6 and 29.44 which proves that that the gain score of high school teachers is higher than higher secondary school teachers.
14. The mean scores of the knowledge on online Question creation and evaluation before and after treatment of before and after treatment (lies between 60 and 90%) are in high level. Though the level is high, the pre-test mean score is very low compared to post-test.
15. The mean score percentage of the usage on online question creation and evaluation before and after treatment is 60.8 and 96. Hence there is improvement in the Online Question creation skill – teacher usage on online tools after enhancing online question creation and evaluating skill.
16. The gain scores of the usage on online question creation and evaluation before and after treatment of male and female teachers is 32.4 and 37.44 which proves that the gain score of female teachers is higher than male teachers.
17. The gain scores of the usage on online question creation and evaluation before and after treatment of rural and urban teachers is 34.4 and 35.6 which proves that the gain score of urban teachers is higher than rural teachers.
18. The gain scores of the usage on online question creation and evaluation before and after treatment of high and higher secondary school teachersis35.2 and 34.64 which proves that that the gain score of high schoolteachers is higher than higher secondary school teachers.

19. The mean scores of the usage on online question creation and evaluation before and after treatment of the graduate teachers (lies between 60 and 90%) are in high level. Though the levels are high, the pre-test mean score is very low compared to post-test.
20. The mean score percentage of the teachers' classroom management during online evaluation before and after treatment is 69.2 and 94.4. Hence there is improvement in the teachers' classroom management during Online evaluation after treatment.
21. The gain scores of the teachers' classroom management during online evaluation of male and female teachers after treatment is25.2 and 25.48 which proves that the gain score of female teachers is higher than male teachers.
22. The gain scores of the teachers' classroom management during online evaluation of rural and urban teachers after treatment is 26 and 24.4 which proves that the gain score of rural teachers is higher than urban teachers.
23. The gain scores of teachers' classroom management during online evaluation ofhig hand higher secondary school teachers after treatment is26.4 and 24.24 which proves that that the gain score of high school teachers is higher than higher secondary school teachers.
24. The mean scores of the teachers' classroom management during online evaluation before and after treatment (lies between 69 and 94 %) are in high level. Though the levels are high, the pre-test mean score is very low compared to post-test.
25. The gain scores of the online question creation and evaluation skill of graduate teachers is 26.2. From the gain scores, it is evident that there is significant difference in the online question creation and evaluation skill between pre-test and post-test.

5.2.2. DIFFERENTIAL STUDY

1. The calculated t-value 55.72 for online question creation and evaluation skill before and after treatment is greater than the table t-value 1.98at 0.05 levelof significance. Therefore, it is proved that there is significant difference in online question creation and evaluation skill before and after giving training.

2. The Online Question creation and evaluation skill mean score of male and female teachers after treatment is 90.7 and 90.16. The standard deviation of male and female is 1.98 and 1.79 respectively. The calculated t-value 1.092 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Online Question creation and evaluation skill between male and female teachers after treatment.
3. The Online Question creation and evaluation skill mean score of rural and urban after treatment is 90.13 and 90.73. The standard deviation of male and female is 1.687 and 2.06 respectively. The calculated t-value 1.232 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Online Question creation and evaluation skill between rural and urban after treatment.
4. The Online Question creation and evaluation skill mean score of high and higher secondary after treatment is 90.13 and 90.73. The standard deviation of male and female is 1.687 and 2.06 respectively. The calculated t-value 1.232 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Online Question creation and evaluation skill between rural and urban after treatment.
5. the Technological Awareness on Online Question creation skill before and after treatment is 16.53 and 20.22. The standard deviation of teachers before and after treatment is 1.56 and 0.412respectively. The calculated t-value 17.63 is higher than the table value 1.98 at 0.05 level. Hence there is significant difference in Technological Awareness of teachers before and after treatment.
6. The Knowledge on Online Question creation skill before and after treatment is 15.22 and 22.62. The standard deviation of teachers before and after treatment is 1.723 and 0.818respectively. The calculated t-value 30.05 is higher than the table value 1.98 at 0.05 level. Hence there is significant difference in Knowledge of online tools of teachers before and after treatment.
7. The Usage on Online Question creation skill before and after treatment is 15.23 and 23.97. The standard deviation of teachers before and after treatment is 1.901 and 0.657respectively. The calculated t-value 33.64 is higher than the table value 1.98 at 0.05 level. Hence there is significant difference in usage of teachers before and after treatment.

8. The Classroom Management on Online Question creation skill before and after treatment is 17.3 and 23.63. The standard deviation of teachers before and after treatment is 0.953 and 0.874 respectively. The calculated t-value 37.89 is higher than the table value 1.98 at 0.05 level. Hence there is significant difference in Classroom Management of teachers before and after treatment.
9. The Technological Awareness on Online Question creation skill of rural and urban teachers after treatment is 20.1 and 20.33. The standard deviation of rural and urban teachers after treatment is 0.3 and 0.4714respectively. The calculated t-value 2.287 is higher than the table value 2.0 at 0.05 level. Hence there is significant difference in Technological Awareness of rural and urban teachers after treatment.
10. The Knowledge on Online Question creation skill of rural and urban teachers after treatment is 22.53 and 22.7. The standard deviation of rural and urban teachers after treatment is 0.718 and 0.9respectively. The calculated t-value 0.7929 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Knowledge of online tools of rural and urban teachers after treatment.
11. The Usage on Online Question creation skill of rural and urban teachers after treatment is 23.867 and 24.067. The standard deviation of rural and urban teachers after treatment is 0.562 and 0.727respectively. The calculated t-value 1.192 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in usage of rural and urban teachers after treatment.
12. The Classroom management on Online Question creation skill of rural and urban teachers after treatment is 23.8 and 23.7. The standard deviation of rural and urban teachers after treatment is 1.035and 0.862respectively. The calculated t-value 0.542 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Classroom management of rural and urban teachers after treatment.
13. The Technological Awareness on Online Question creation and evaluation skill of male and female teachers after treatment is 20.267 and 20.167. The standard deviation of male and female teachers after treatment is 0.442 and

0.372 respectively. The calculated t-value 0.946 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Technological Awareness of male and female teachers after treatment.

14. The Knowledge on Online Question creation and evaluation skill of male and female teachers after treatment is 20.267 and 22.5. The standard deviation of male and female teachers after treatment is 0.442 and 0.806respectively. The calculated t-value 13.30 is higher than the table value 2.0 at 0.05 level. Hence there is significant difference in Knowledge of online tools of male and female teachers after treatment.
15. The Usage on Online Question creation and evaluation skill of male and female teachers after treatment is 24 and 23.93. The standard deviation of male and female teachers after treatment is 0.730 and 0.574respectively. The calculated t-value 0.393 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in usage of male and female teachers after treatment.
16. The Classroom management on Online Question creation and evaluation skill of male and female teachers after treatment is 23.7 and 23.567. The standard deviation of male and female teachers after treatment is 0.862and 0.882 respectively. The calculated t-value 0.592 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Classroom management of male and female teachers after treatment.
17. The Technological Awareness on Online Question creation and evaluation skill mean score of High and Higher Secondary school teachers after treatment is 20.2 and 20.23. The standard deviation of High and Higher Secondary school teachers after treatment is 0.4 and 0.423respectively. The calculated t-value 0.314 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Technological Awareness of High and Higher Secondary school teachers after treatment.
18. The Knowledge on Online Question creation and evaluation mean score of High and Higher Secondary school teachers after treatment is 22.7 and 22.53. The standard deviation of High and Higher Secondary school teachers after treatment is 0.781 and 0.846respectively. The calculated t-value 0.793 is lesser

than the table value 2.0 at 0.05 level. Hence there is no significant difference in Knowledge on online tools of High and Higher Secondary school teachers after treatment.

19. The Usage on Online Question creation and evaluation skill mean score of High and Higher Secondary school teachers after treatment is 23.9 and 24.03. The standard deviation of High and Higher Secondary school teachers after treatment is 0.651 and 0.657respectively. The calculated t-value 0.789 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in usage on High and Higher Secondary school teachers after treatment.
20. The Classroom management on Online Question creation and evaluation skill mean score of High and Higher Secondary school teachers after treatment is 23.83 and 23.43. The standard deviation of High and Higher Secondary school teachers after treatment is 0.582and 1.054respectively. The calculated t-value 1.812 is lesser than the table value 2.0 at 0.05 level. Hence there is no significant difference in Classroom management of High and Higher Secondary school teachers after treatment.

5.3 RECOMMENDATIONS

1. All the academic staffs should be trained on how to conduct online assessment in the classroom.
2. The teachers should create a technological awareness among the students.
3. At the rural setting, the teachers are lagging behind their urban counterparts in their technological awareness about online assessment. The teachers in rural area should enhance the usage of online assessment in their classrooms.
4. All sub groups of the teachers should improve their knowledge on usage of online tools.
5. The teachers should be trained to enhance their technological skill of installing and using the web tool application.
6. Teachers should enhance their usage of online assessment tools.
7. The headmasters should be instructed to ensure their teachers' usability of online assessment tools.

5.4 EDUCATIONAL IMPLICATIONS OF THE STUDY

1. Findings of the study will be useful to the teachers, teacher educators, curriculum writers and educational policy makers for understanding the teachers' current status of online question creation and evaluation skill.
2. The findings proved that the usage of web tools for assessment gives fruitful result. Hence the teachers can utilize the high-tech labs available in schools for assessment.
3. Findings of the study will enhance and even transform assessment skill of teachers through effective, innovative and creative way. The usage of online tools will help them to utilize the inherent features such as immediate feedback and scalability.
4. Findings of the study will be the clear evidence that online tests can be used to counteract high workloads of academics and particularly in the assessment and marking of large student groups, while providing students with immediate and quality feedback that contributes to their improved learning.
5. Based on the findings of this study, the teacher can categorize the online assessment tools for class room assessment activities.
6. The standardized tools developed by the investigator which was used to measure the technological awareness and usage of online assessment tools will be useful for other high and higher secondary schools.

5.5 SCOPE FOR FURTHER RESEARCH

1. The investigator has done research on developing on-line question creation and evaluation skill among secondary level teachers. This study can be extended to secondary grade and post graduate teachers.
2. This study is limited to60secondary level teachers of Karur District only. It can be extended to other teachers also.
3. This study can be extended to other districts of Tamilnadu.
4. Studies may be taken up for other dimensions of on-line question creation and evaluation skill.
5. Studies may be conducted among Teacher training students like D.El.Ed, B.Ed, and M.Ed level.

5.6 CONCLUSION

The digital world brings with it more and more opportunities to be innovative around assessment. With a variety of digital tools and the pervasive availability of information anywhere anytime, there is a tremendous capacity to creatively employ a diversity of assessment approaches to support and evaluate student learning in education. The challenge in a digital world is to harness the possibilities afforded by technology to drive and assess deep learning that prepares graduates for a changing and uncertain future. The diffusion of innovation theory has five phases namely knowledge, persuasion, decision, implementation and confirmation (Rogers, 1995). In the knowledge stage, the teachers are mostly familiar with online assessment tools, although they had never used assessment web tools in the classroom evaluation. The findings proved that there is positive effect on online assessment web tools. This can be named as persuasion stage. At the decision phase, the participants were asked whether they use online assessment web tools in the classroom assessment. Irrespective of the gender, area of location and type of school, all the teachers are using online assessment web tools for question creation and evaluation. At the confirmation phase, the teachers prefer using online assessment web tools to enhance learning. These findings may be helpful to enhance the usage of online tests. It can be valuable in the assessment of twenty-first century learning.

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ANNEXURE

மாவட்ட ஆசிரியர் கல்வி மற்றும் பயிற்சி நிறுவனம், மாயனூர், கரூர் மாவட்டம்

ஆய்வு தலைப்பு: **கரூர் மாவட்டத்தில் உள்ள பட்டதாரி ஆசிரியர்களிடையே இணையவழி கேள்வி உருவாக்கம் மற்றும் மதிப்பீட்டுத் திறனை மேம்படுத்துதல்**

ஆசிரியர்களுக்கான வினா நிரல்

1. ஆசிரியர் பெயர்: **4. பாலினம்: ஆண் / பெண்**

2. பள்ளியின் பெயர்: **5. ஒன்றியம்:**

3. கிராமப்புறம் / நகர்ப்புறம்:

அ.கீழே கொடுக்கப்பட்டுள்ள தொடர்களை வாசித்து உரியகட்டத்தில் ✓ செய்யவும்.

I.	விழிப்புணர்வு	முழுவதும் ஏற்கி றேன்	ஓரளவு ஏற்கி றேன்	ஏற்கவு மில்லை / மறுக்கவுமி ல்லை	ஓரளவு மறுக் கிறேன்	முற்றிலும் மறுக்கிறே ன்
1.	பாடப்பொருளுக்குத் தேவையான இணையவழி மதிப்பீட்டுச் கருவிகள் அனைத்தும் பள்ளி மடிக்கணினிகளில் பதிவிறக்கம் செய்யப்பட்டுள்ளது.					
2.	இணையவழி மதிப்பீட்டுச் கருவிகளை ஆசிரியர்கள் பதிவிறக்கம் செய்து பள்ளியில் பயன்படுத்த முடியும்.					
3.	மதிப்பீட்டுச் கருவிகளை மாணவர்கள் ஹைடெக் ஆய்வகத்தில் பயன்படுத்தி கொள்ள அனுமதிக்கப்பட்டுள்ளது.					
4.	பள்ளியில் மதிப்பீட்டுச் கருவிகள் இயங்க தேவையான இணைய வசதியை பயன்படுத்தி கொள்ள இடர்பாடுகள் உள்ளது.					
5.	ஒரு சில பாடப்பகுதியை மதிப்பீடு செய்ய மட்டும் மாணவர்களின் பெற்றோர் கைபேசிகளுக்கு லிங்கை அனுப்பி மதிப்பீடு செய்ய முடியும்.					
II	**இணையவழி கருவிகள் சார் அறிவு**	**முழுவதும் ஏற்கி றேன்**	**ஓரளவு ஏற்கி றேன்**	**ஏற்கவு மில்லை / மறுக்கவுமி ல்லை**	**ஓரளவு மறுக் கிறேன்**	**முற்றிலும் மறுக்கிறே ன்**
6.	எனக்கு இணையவழியில் கேள்வி உருவாக்கம் மற்றும் மதிப்பீட்டுச் கருவிகள் பற்றிய அறிவு இருக்கிறது.					
7.	பாடப்பொருள் சார்ந்த மதிப்பீட்டுச் கருவிகளை பதிவிறக்கம் செய்ய எனக்குத் தெரியும்.					
8.	எனது வகுப்பறையில் இணையவழி மதிப்பீட்டுச் கருவிகளை பயன்படுத்தத் தெரியும்.					
9.	எந்தெந்த பாடப் பொருளுக்கு இணையவழி மதிப்பீட்டுச் கருவிகள் இருக்கிறது என்பதை நான் அறிவேன்.					
10.	ஒரே பாடப்பொருளுக்கு பல இணையவழி மதிப்பீட்டுச் கருவிகள் இருப்பதை நான் அறிவேன்.					

III	பயன்பாடு	முழுவதும் ஏற்கி றேன்	ஓரளவு ஏற்கி றேன்	ஏற்கவு மில்லை / மறுக்கவுமி ல்லை	ஓரளவு மறுக் கிறேன்	முற்றிலும் மறுக்கிறே ன்
11.	எனது வகுப்பறையில் மாணவர்களின் பாடப்பொருள் புரிதலை மதிப்பீட்டுச் கருவிகள் மூலமும் மதிப்பீடு செய்கிறேன்.					
12.	இணையவழி மதிப்பீட்டின் மூலம் மாணவர்களின் தேர்வினை எதிர்கொள்ளும் திறனை மேம்படுத்துகிறேன்.					
13.	இணையவழி மதிப்பீட்டுத் தாள்களை நானே உருவாக்கி மாணவர்களுக்கு பயன்படுத்தி வருகிறேன்.					
14.	இணையவழி மதிப்பீட்டுச் கருவிகளை பயன்படுத்தி மாணவர்களின் தேர்வு சார்த்த மன அழுத்தத்தை குறைக்க முயற்சித்து வருகிறேன்.					
15.	சில கடினமான பாடப் பகுதிகளை கற்பித்தவுடன் மாணவர்களின் கற்றல் நிலையை தெரிந்துகொள்ள மதிப்பீட்டுச் கருவியை பயன்படுத்தி வருகிறேன்.					
IV	வகுப்பறை மேலாண்மை	முழுவதும் ஏற்கி றேன்	ஓரளவு ஏற்கி றேன்	ஏற்கவு மில்லை / மறுக்கவுமி ல்லை	ஓரளவு மறுக் கிறேன்	முற்றிலும் மறுக்கிறே ன்
16.	வகுப்பறையில் இணையவழி மதிப்பீட்டின் மூலம் மாணவர்களிடம் தேர்வுகளை குறிப்பிட்ட நேரத்திற்குள் முடிக்க வேண்டும் என்ற மனப்பான்மையை வளர்த்து வருகிறேன்.					
17.	வகுப்பறையில் இணையவழி மதிப்பீட்டுச் கருவிகளை பயன்படுத்துவதால் மாணவர்கள் தன்னம்பிக்கையுடன் தேர்வை எதிர்கொள்ள உதவுகிறேன்.					
18.	மதிப்பீட்டுச் கருவிகளை பயன்படுத்துவதன் மூலம் உயிரோட்டமான வகுப்பறையை உருவாக்கி வருகிறேன்.					
19.	மதிப்பீட்டுச் செயலிகளை வகுப்பறையில் பயன்படுத்துவதன் மூலம் மாணவர்களை கவனசிதைவு இல்லாமல் சுயமாக தேர்வை எதிர்கொள்ள உதவுகிறேன்.					
20.	இணையவழி தேர்வுகளினால் மாணவர்களிடம் அன்றாட பாடங்களை படித்துவிட்டு பள்ளிக்கு வரும் பழக்கத்தை உருவாக்கியுள்ளேன்.					

ON-LINE QUESTION CREATION AND EVALUATION SKILL TRAINING

(FOR RESEARCH PROJECT)

TRAINING MODULE FOR SECONDARY LEVEL TEACHERS

2023-24

Principal Investigator

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கரூர் மாவட்டத்தில் உள்ள பட்டதாரி ஆசிரியர்களிடையே இணையவழி கேள்வி உருவாக்கம் மற்றும் மதிப்பீட்டுத் திறனை மேம்படுத்துதல்

முன்னுரை:

ஆசிரியர் மாணவர் உறவென்பது தீயும் அனலும் போல அணுகியும் அஞ்சியும் இருத்தல் வேண்டும் என்கிறது நன்னூல். குருகுல கல்வியும், வகுப்பறை கல்வியும் போதித்ததும் அதுவே. ஆனால் இன்று ஆசிரியர் -மாணவர் உறவுமுறை சற்று மாற்றம் கண்டுள்ளது. இதற்கு காரணம் காலச்சுழலே என்பது மறுக்க முடியாத உண்மை. இத்தகைய சூழலிலும் மாணவர்களுக்கு கற்றல் கற்பித்தல் பணியை மேற்கொண்டு அவர்களின் கற்றலை முன்னேற்றப் பாதையில் இட்டுச் செல்வது ஆசிரியர்களின் கடமையாகும். எனவே, ஆசிரியர்கள் மாணவர்களின் அடைவை மேம்படுத்துவதற்காக பல்வேறு வழிகளை கற்பித்தலுக்கும், மதிப்பீடுதலுக்கும் பயன்படுத்த வேண்டியுள்ளது. அதற்கு கணினி மிகுந்த பயன்பாடு உடையதாய் அமைகிறது. மாறிவரும் சூழலுக்கேற்ப மாணவர்கள் மட்டுமின்றி ஆசிரியர்களும் தங்களின் மேலான கணினிவகை செயல்களை வளர்த்துக்கொண்டு கற்றல் கற்பித்தல் திறனை மேம்படச்செய்வது அவசியமாகிறது. புதுப்புது தேடலை விரும்பும் மாணவர்களுக்கு இணையவழி மதிப்பீடுதல் அவர்களின் தேர்வு சார்ந்த மன அழுத்தத்தை குறைக்கும் என்பதில் ஐயமில்லை.

ஆசிரியர்கள் தங்களைத் தாங்களே புதுப்பித்துக் கொண்டு இணையவழி கல்வியைத் தரவேண்டியது அவசியமாகிறது. தற்போது பல்வேறு சேவை நிறுவனங்கள் கற்றல் கற்பித்தலுக்கு பல்வேறு இணையவழி கருவிகளை உருவாக்கியுள்ளன. அதே போல ஆசிரியர்கள் பயன்பாட்டிற்காக பல்வேறு மதிப்பீட்டுச் கருவிகளும் இணையத்தில் கட்டணமின்றி பயன்படுத்திக்கொள்ளும் வகையில் இருக்கின்றது. மாணவனுக்கு கல்வி கற்கும் ஆர்வம் ஏற்பட்டால் அவன் கல்வியை எந்தவொரு சூழலிலும் கைவிடமாட்டான்.

மாணவர்களிடம் ஆர்வத்தை ஏற்படுத்துவது ஆசிரியரின் முக்கிய பணியாகும். இக் கையேட்டில் நான்கு பயனுள்ள இணையவழி மதிப்பீட்டுச் கருவிகளை எவ்வாறு பயன்படுத்துவது, அதை பயன்படுத்தி கேள்விகளை உருவாக்குவது பற்றியும், மதிப்பீடுவது பற்றியும் இடம்பெற்று இருக்கிறது. இக்கையேடு ஆசிரியர்களுக்கு வகுப்பறையில் இணையவழியில் மதிப்பிடுவது தொடர்பான ஐயங்களைத் தீர்க்கும் நண்பனாக இருக்கும் என்பதில் ஐயமில்லை.

பயிற்சி கட்டகத்தின் நோக்கங்கள்

- வகுப்பறை மதிப்பிட்டிற்கு இணைய வழி மதிப்பிட்டுக் கருவிகளை அறிமுகம் செய்தல்.
- புதுமையான கற்றல் கற்பித்தல் செயல்முறைகளை எளிதாக்குதல்.
- மாணவர்களின் ஆர்வத்தைத் தூண்டுதல்.
- ஆசிரியர்களிடையே உயர் தொழில்நுட்பக் கூடங்களின் பயன்பாட்டை மேம்படுத்துதல்.
- மாணவர்களை தேர்வு பயத்திலிருந்து வெளிவர வைத்தல்.

பயிற்சி கட்டகத்தின் தேவை:

கரூர் மாவட்டத்தில் உள்ள இடைநிலை ஆசிரியர்களிடையே ஆன்லைன் கேள்வி உருவாக்கம் மற்றும் மதிப்பீட்டு திறனை வளர்ப்பதே இந்த ஆய்வின் நோக்கமாகும். தொழில்நுட்பம் எப்போதும் கற்பித்தல் மற்றும் கற்றல் செயல்முறையின் ஒரு பகுதியாக இருந்து வருகிறது. வகுப்பறையில் தொழில்நுட்பத்தின் ஒருங்கிணைப்பு பல ஆய்வுகளுக்கு உட்பட்டது, குறிப்பாக இணைய பயன்பாடு மிகவும் பொதுவானதாகிவிட்டதால். ஊடாடும் கற்றல் சூழல் (ILE), தகவல் மற்றும் தொடர்பு தொழில்நுட்பங்கள் (ICT) மற்றும் கலப்பு கற்றல் (blended learning) போன்ற அணுகுமுறைகள் அறிமுகப்படுத்தப்பட்டுள்ளன. ஆகையால், ஆசிரியர்கள் ஒவ்வொரு மதிப்பீட்டு கருவிகளையும் எவ்வாறு பயன்படுத்துவது என்பது பற்றி

அறிந்திருக்க வேண்டியது அவசியமாகிறது. எனவே, ஆசிரியர்கள் மதிப்பீட்டு கருவிகளை எளிதாக பயன்படுத்து வகையில் இக்கட்டகத்தில் படிநிலைகளுடன் விளக்கப்பட்டு இருக்கிறது.

மதிப்பிடுதல் என்பது மாணவர்களின் கற்றலில் இன்றியமையாத பகுதியாக உள்ளது. இதில் இணையவழி மதிப்பிடுதலில் பல வகையான கருவிகள் இணையத்தில் உள்ளன. அதில் வகுப்பறை பயன்பாட்டிற்கு எளிமையான நான்கு இணையவழி கருவிகளை பற்றி விரிவாக பார்ப்போம்.

1. 

- மென்டிமீட்டர்

2. 

- கூகுள் பர்ம்ஸ்

3. 

- குவிஸ் லெட்

4. 

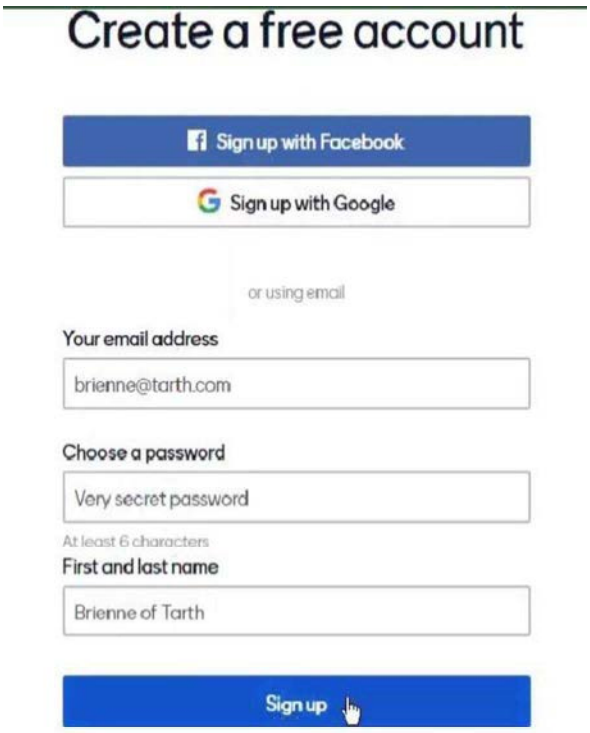
- H5P

- மென்டிமீட்டர்

மென்டிமீட்டர்

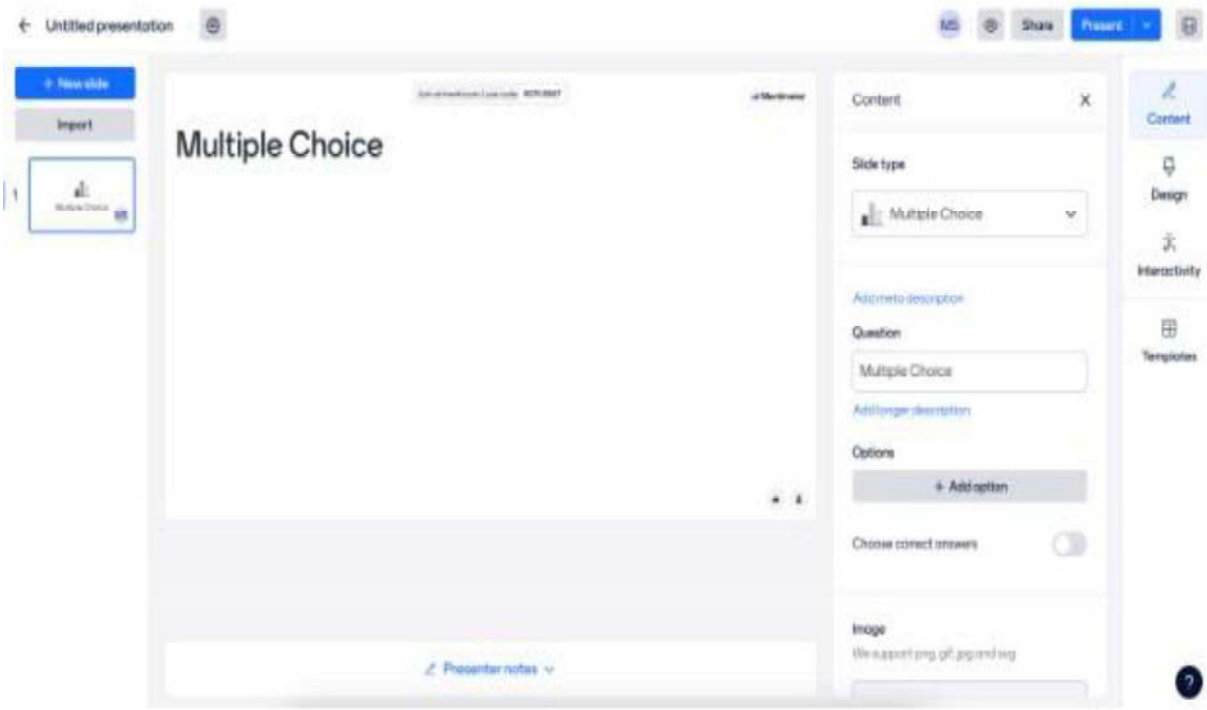
மென்டி என்பது ஒரு ஊடாடும் விளக்கக்காட்சி(**interactive presentation**), வினாடி வினா அல்லது கணக்கெடுப்பு ஆகும், இதில் மாணவர்கள் தங்களின் நிகழ்நேர கருத்துக்கள் அல்லது பதில்களை வழங்கலாம். மென்டிமீட்டர் வினாடி வினா மாணவர்களிடம் போட்டி மனப்பான்மையை வெளிப்படுத்துவதற்கும் வேடிக்கையான அனுபவத்தை உருவாக்குவதற்கும் ஒரு சிறந்த கருவியாகும்.

Menti கணக்கில் உள்நுழைய "Sign Up Using email" ல் நமது விவரங்களை பதிவிட்டு "Menti Free Account" ல் உள்நுழையலாம்.



Menti யை பயன்படுத்துவதற்கான படிநிலைகள்

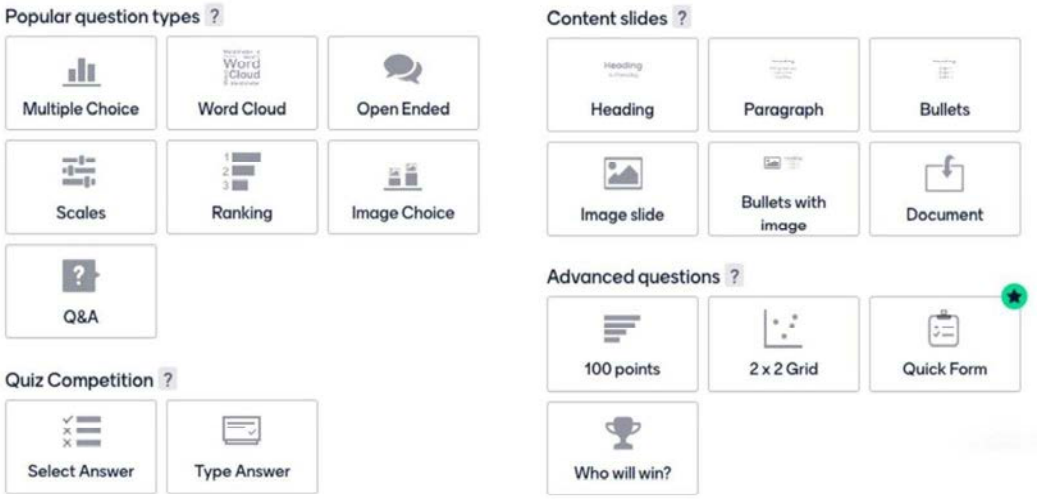
1. **கேள்வியை உருவாக்க**: ஆசிரியர்கள் இணையத்தில் சுலபமாக பயன்படுத்தக்கூடிய வகையில் உள்ள மென்டியை புதிதாக உருவாக்கிக் கொள்ளலாம் அல்லது முன்பே கட்டமைக்கப்பட்ட டெம்ப்ளேட்களில் (Templates) ஒன்றைப் பயன்படுத்தி ஒரு ஊடாடும் கேள்வியை (Interactive Questions) உருவாக்கிக் கொள்ளலாம்.



2. **மாணவர்களை PC அல்லது கைபேசியின் மூலம் சேர வைத்தல்**: மாணவர்கள் ஒரு குறியீடு, வாக்களிப்பு இணைப்பு அல்லது QR குறியீட்டை ஸ்கேன் செய்வதன் மூலம் பங்கேற்க வைக்கலாம்.

3. **மாணவர்களிடமிருந்து உள்ளீட்டைச் சேகரித்து முடிவுகளைக் காட்சிப்படுத்துதல்**: மாணவர்களின் உள்ளீடுகள் உடனுக்குடன்தோன்றுவதால் முடிவுகளை உடனே தெரிந்து கொள்ள முடியும்.

சிறப்பம்சங்கள்

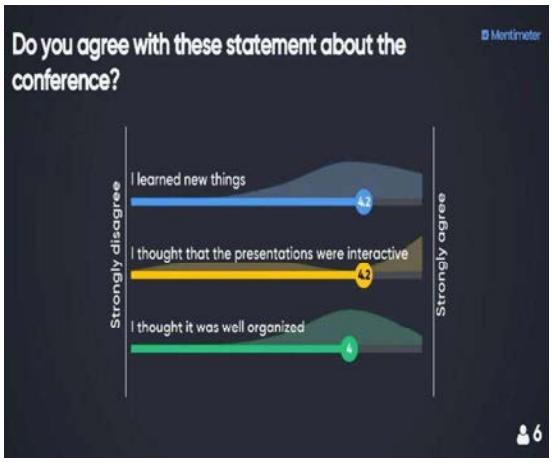


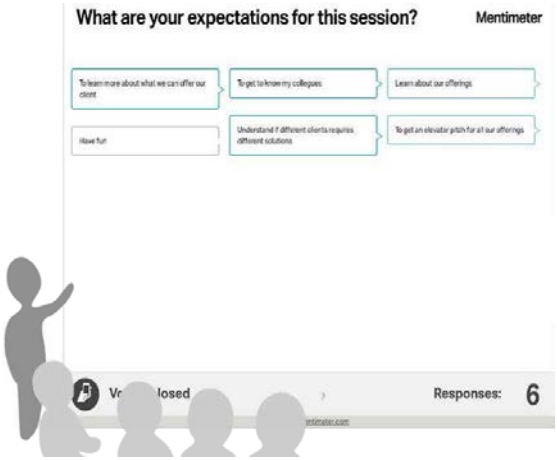
பலவுள் தெரிவு வினாக்கள்(MCQ) :பலவுள் தெரிவு வினாக்கள் மாணவர்களின் அறிவைச் சரிபார்க்கவும், பதில் அளிப்பதற்கு குறைந்த நேரமே எடுத்துக்கொள்கிறது. மாணவர்கள் எவ்வளவு பேர் இருந்தாலும் பலவுள் தெரிவு வினாக்களை சுலபமாக பயன்படுத்தலாம்.

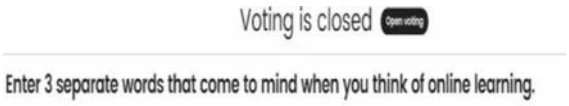
(Scales)ஸ்கேல்களுடன் கூடிய அளவீடுகள்: பல விருப்பங்கள் அல்லது அறிக்கைகளை மதிப்பிடுவதற்கு மாணவர்களை இதில் அனுமதிக்கலாம். விரைவாக கருத்துக்களைச் சேகரிப்பதற்கு அல்லது குழுவைச் சரிபார்ப்பதற்கு ஏற்றதாக இருக்கும்.

வேர்ட் கிளவுட்: பதில்களை வேர்ட் கிளவுடில் (Word Cloud) சேகரித்து வைத்துக் கொள்ளலாம். மேலும் ஒரு வகுப்பை துவங்குவதற்கும் முடிப்பதற்கும் இது மிகவும் பயனுள்ளதாக இருக்கும்.

திறந்தநிலை (Open ended): இது மாணவர்களின் நேர்மையான எண்ணங்கள் மற்றும் கருத்துக்களைக் கூறுவதற்கான சிறந்த வழியாக இருக்கிறது .







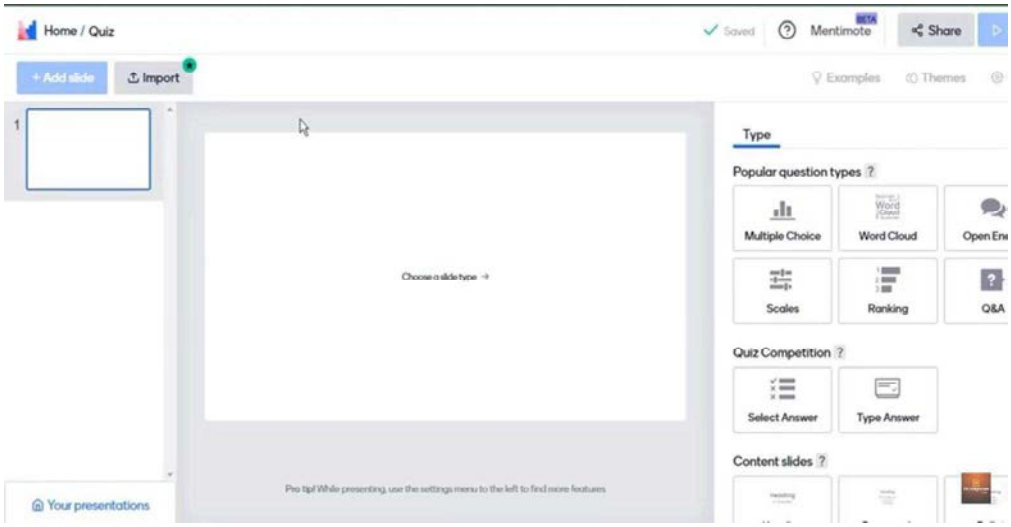
முதல் மென்டி கேள்விகளை உருவாக்குவதற்கான படிநிலைகள்

1. Menti கணக்கில் உள்நுழைய "Sign Up Using email" ல் நமது விவரங்களை பதிவிட்டு "Menti Free Account" ல் உள்நுழையலாம்

2.புதிதாக அல்லது ஒரு டெம்ப்ளேட்டிலிருந்து தொடங்கலாம்:

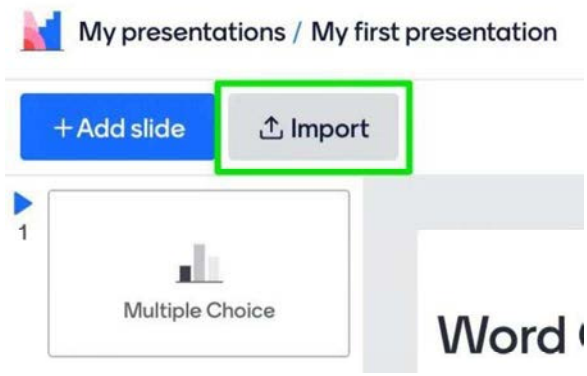
மென்டியின் முகப்புப் பக்கத்தில் புதிதாக ஒரு மென்டியை உருவாக்கலாம் அல்லது டெம்ப்ளேட்களையும் பயன்படுத்தலாம்.அதில் விளக்கக்காட்சி, வினாடி வினா அல்லது

கணக்கெடுப்பு போன்ற வகைகளில் ஏதேனும் ஒன்றில் கேள்விகளை உருவாக்கி பயன்படுத்தலாம்.



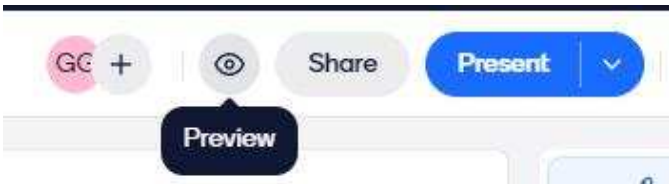
2.மென்டியில் ஸ்லைடுகளைச் சேர்க்கலாம்:

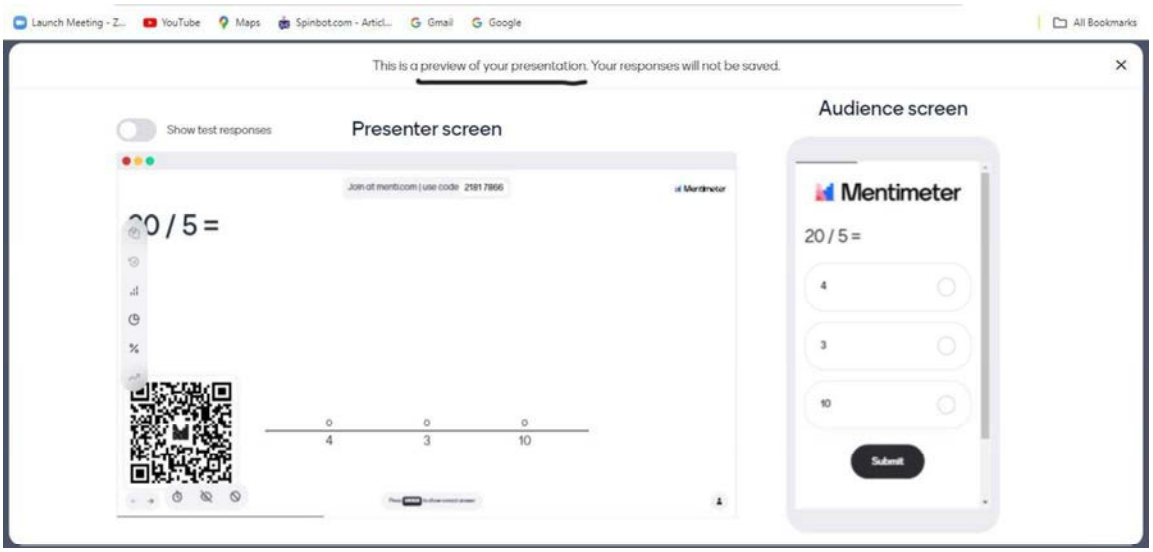
புதிதாக உருவாக்கிய மென்டியில் ஸ்லைடுகளைச் சேர்க்க "+ Add Slide" கிளிக் செய்து கேள்விகள், பாடப்பொருள்கள் மற்றும் பலவற்றை உள்ளீடு செய்யலாம். மேலும் வேடிக்கையான வினாடி வினா போட்டியைச் சேர்க்கலாம் அல்லது PowerPoint, Google Slides அல்லது Miro போன்ற பிற ஆன்லைன் கருவிகளிலிருந்து ஸ்லைடுகளைப் (Import) பதிவேற்றலாம்.



மென்டியை பயன்படுத்துதல்:

தயாராகியுள்ள மென்டியில் எடிட்டரில் உள்ள மாதிரிக்காட்சியைக் "Preview" கிளிக் செய்வதன் மூலம், மென்டியின் மாதிரிக்காட்சியை காணமுடியும்.மேலும் கூடவே மாணவர்கள் அவர்களுடைய சாதனங்களில் என்ன பார்க்கிறார்கள் என்பதையும் அறிய முடியும்.

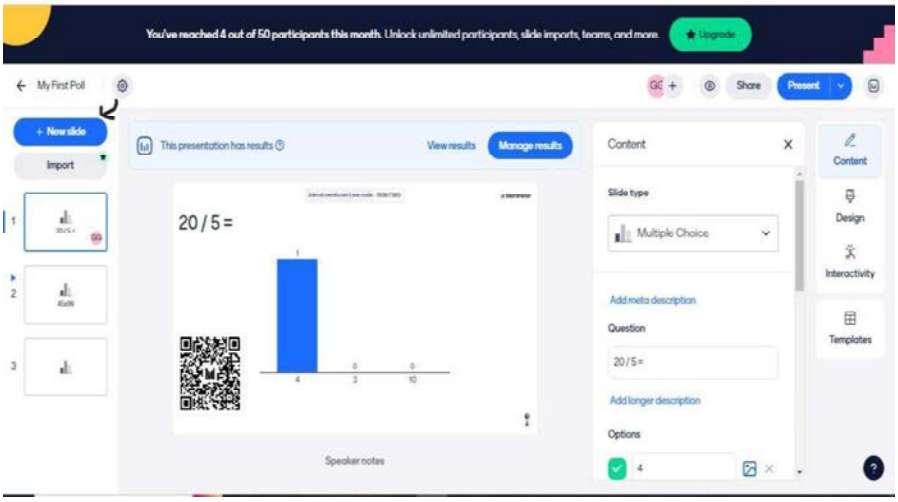




மென்டியின் மாதிரிக்காட்சியை கண்ட பிறகு, முகப்புப் பக்கத்தில் present ஐ கிளிக் செய்வதன் மூலம் நம்முடைய மென்டியை மாணவர்களுக்கு காட்ட முடியும். பின்பு "Go Full Screen" கிளிக் செய்தவுடன் நாம் தயாரித்த கேள்விகள் மாணவர்கள் பதில் அளிக்க திரையில் தெரியும். மேலும் தொலைநிலை சந்திப்புகளில் (remote meetings), வீடியோ கான்பரன்சிங் மென்பொருளில் நம்முடைய மென்டி திரையைப் பகிர முடியும்.

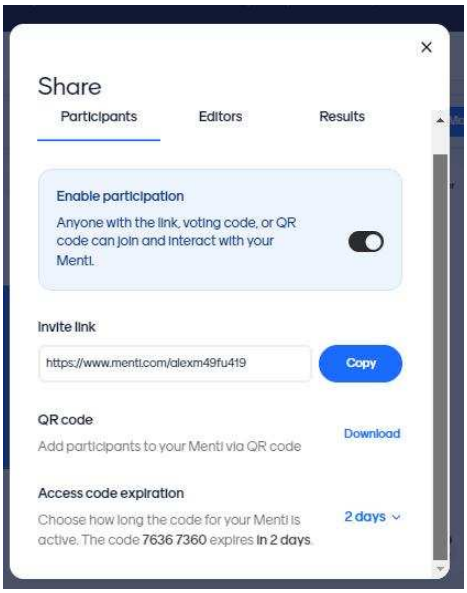
பின்பு மாணவர்கள் வாக்களிக்கும் குறியீடு அல்லது QR குறியீட்டைப் பயன்படுத்தி விளக்கக்காட்சியை எளிதாகச் காணமுடியும்.

இப்போது நம் தயாரித்த வினா திரையில் தெரியும். வினாவிற்கான விடையை மாணவர்கள் அவர்களுடைய சாதனங்களில் உள்ளீடு செய்யலாம். மாணவர்கள் விடையளிக்கத் தொடங்கியவுடன் முடிவுகள் உடனடியாகக் திரையில் தெரியும். முடிவுகளில் எத்தனை மாணவர்கள் என்ன என்ன விடை அளித்திருக்கிறார்கள் என்பது தெரியும்.



மென்டியில் மாணவர்கள் எவ்வாறு இணைவது

QR குறியீட்டை ஸ்கேன் செய்தல்: முகப்புப் பக்கத்தில் "Share"ஐ அழுத்த திரையில் QR குறியீடு தெரியும். மாணவர்கள் விரைவாகச் சேர்வதற்கு தங்கள் போன்கள் மூலம் QR குறியீட்டைக் ஸ்கேன் செய்ய வேண்டும். பின்பு அவர்களுடைய நேர்மையான பதில்களை பதிவிடலாம்.

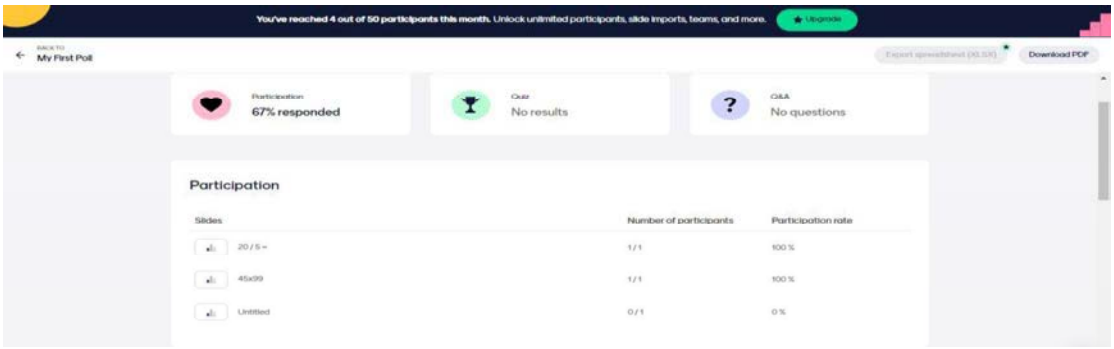


Menti.com ல் குறியீட்டை" Access code" உள்ளீடுதல்: மாணவர்கள் அவர்களுடைய சாதனங்களில் menti.comக்கு உள்சென்று, மென்டியின் மேற்புறத்தில் தெரியும் 8 இலக்கக் குறியீட்டை" Access code" உள்ளிடலாம். மாணவர்களுக்கு வாக்களிக்க அல்லது விடையளிக்க மென்டியில் கணக்கு இருக்கவேண்டும் என்ற தேவையில்லை என்பதை நினைவில் கொள்ளவும்.

வாக்களிக்கும் இணைப்பைக் கிளிக் செய்தல்: மாணவர்களுடன் வாக்களிக்கும் இணைப்பையும்"Invite Link" நாம் பகிரலாம்.—இது கருத்துக்கணிப்புகளுக்கும், வீடியோ அழைப்புகளுக்கும் மிகவும் பொருத்தமானதாக இருக்கும். எடிட்டரில் பகிர் என்பதைக் கிளிக்

செய்வதன் மூலம் வாக்களிக்கும் இணைப்பைக் கண்டறியலாம். மாணவர்கள் இணைப்பைக் கிளிக் செய்தவுடன், அவர்கள் குறியீடு இல்லாமல் பங்கேற்கலாம்.

மென்டியில் மாணவர்களின் முடிவுகளை காணுதல் மற்றும் பதிவிறக்கம் செய்தல்:



குறிப்பு:

1. நிறுவல் (Install) அல்லது பதிவிறக்கம் தேவையில்லை. மாணவர்கள் menti.com இல் விடையளிக்கும் குறியீட்டை உள்ளிட்டும் , விளக்கக்காட்சியின் QR குறியீட்டை ஸ்கேன் செய்வதன் மூலமும், அல்லது வாக்களிக்கும் இணைப்பைப் பின்தொடர்வதன் மூலமும் மென்டி விளக்கக்காட்சியில் சேரலாம். விளக்கக்காட்சியில் சேரப் பயன்படுத்தப்படும் ஸ்மார்ட்போன் அல்லது இணைய சாதனத்தைப் பயன்படுத்தி அவர்கள் விடையளிக்கலாம்.

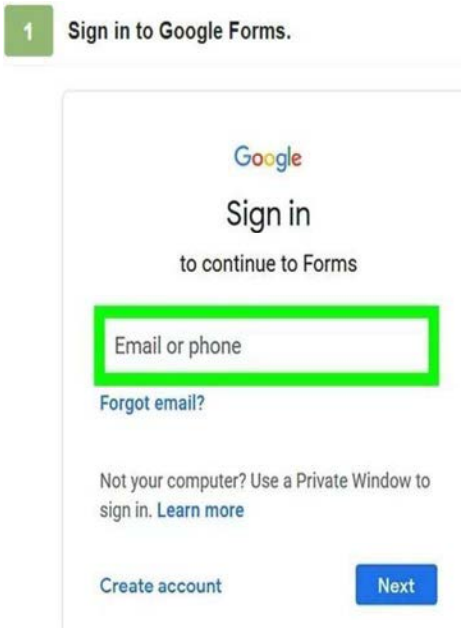
2. நம்முடைய PowerPoint விளக்கக்காட்சிகளை நேரடியாக மென்டிமீட்டருக்கு "Import" செய்யலாம்.

3. மென்டி கணக்கை மேம்படுத்தினால், எல்லா முடிவுகளையும் எக்செல் "Excel" வடிவத்தில் பதிவிறக்கம் செய்துகொள்ளலாம்.

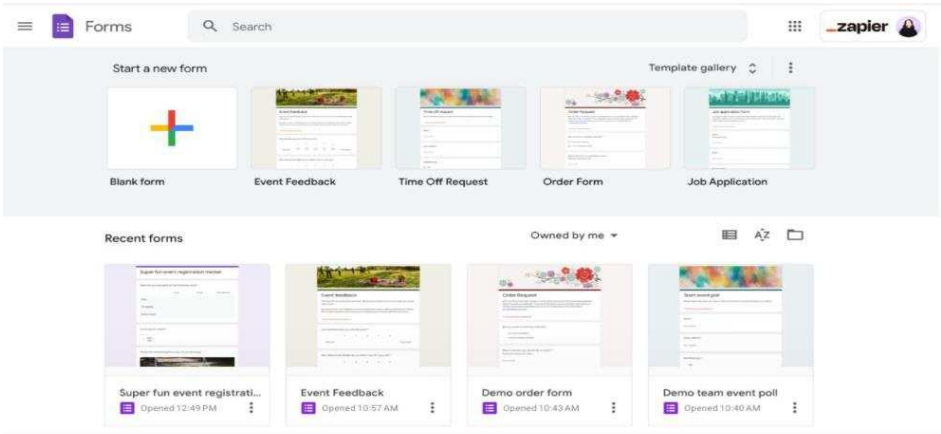
- கூகுள் பர்ம்ஸ்

Google படிவங்களை வினாடி வினாக்கள், ஆய்வுகள், பயன்பாடுகள்(Applications), வாக்கெடுப்புகள் போன்ற பல்வேறு விஷயங்களுக்கு பயன்படுத்தலாம். கூகுள் ஃபார்ம் வினாடி வினாக்களை தனிப்பட்ட பயன்பாட்டிற்கும், ஆசிரியர்கள் மற்றும் மாணவர்களுக்கான கல்விப் பயன்பாட்டிற்கும் அல்லது வேலையில் பணியாளர்களின் தொழில்முறைப் கருத்தைப் பெறுவதற்கும்பயன்படுத்தலாம்.Google படிவங்கள் மூலம் வினாடி வினாக்களை உருவாக்குவது மிக எளிதாகும்.அதன் செயல்முறைகளை தெளிவாகவும் எளிமையாகவும் காண்போம்.முதலில்

1. https://docs.google.com/forms க்கு சென்று Google கணக்கில் உள்நுழைய வேண்டும். Google கணக்கில் உள்நுழைந்தவுடன் அங்கு நாம் ஏற்கனவே உருவாக்கிய அல்லது எளிதாக பயன்படுத்தக் கூடிய படிவங்களின் பட்டியலைக் காணலாம்.

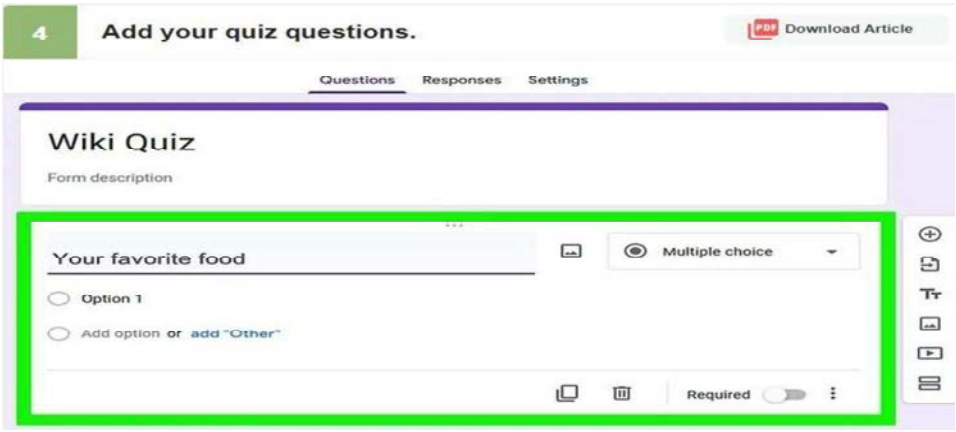


2. வெற்று(blank)படிவத்தை உருவாக்க "+"ஐ கிளிக் செய்யவேண்டும். நாம் அதை படிவத்தின் வலது மேல் மூலையில் காணலாம்.

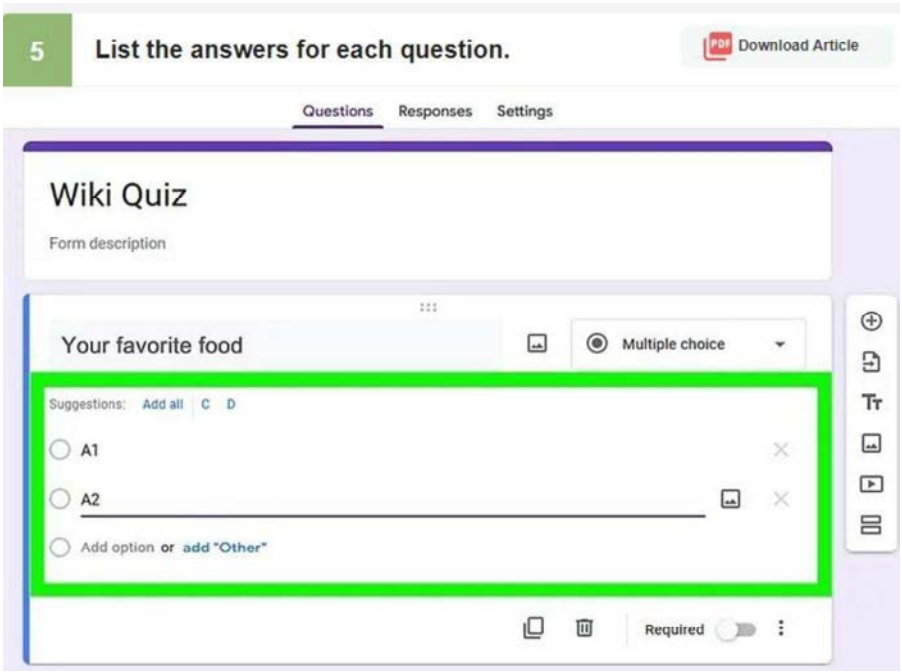


3. மேலே நாம் உள்ளிடும் தலைப்பு வினாடி வினாவில் கலந்துகொள்ளும் மாணவர்களுக்குக் காட்டப்படும். வினாடி வினாவிற்குஏற்ற தலைப்பு ஒன்றைத் தேர்வுசெய்ய வேண்டும். இதனால் மாணவர்கள் எந்த வினாடி வினாவை எடுக்கிறார்கள் என்பதை அறிய உதவும். தலைப்புக்கு கீழே விளக்கத்தையும் சேர்க்கலாம். எடுத்துக்காட்டாக, நாம் வினாடி வினா படத் தலைப்பையும் அது சார்ந்த விளக்கத்தையும் பக்கங்களை உள்ளிடலாம்.

4. முதல் கேள்வியை "பெயரிடப்படாத கேள்வி" புலத்தில் உள்ளிடவேண்டும். பலவுள் தெரிவு வினாக்கள், தேர்வுப்பெட்டிகள் (பல சரியான பதில்களைக் கொண்ட கேள்விகளுக்கு), குறுகிய பதில், பத்தி, கோப்பு பதிவேற்றம் மற்றும் பல போன்ற பதில் வடிவமைப்பைத் தேர்ந்தெடுக்க அதில் கீழ்தோன்றும் மெனுவைப் பயன்படுத்தலாம்.மாணவர்கள் கேள்வியைத் தவிர்க்க கூடாது என விரும்பினால், "தேவை"("Required") ஐக் கிளிக் செய்து தவிர்க்க முடியாத கேள்வியாக மாற்றலாம்.



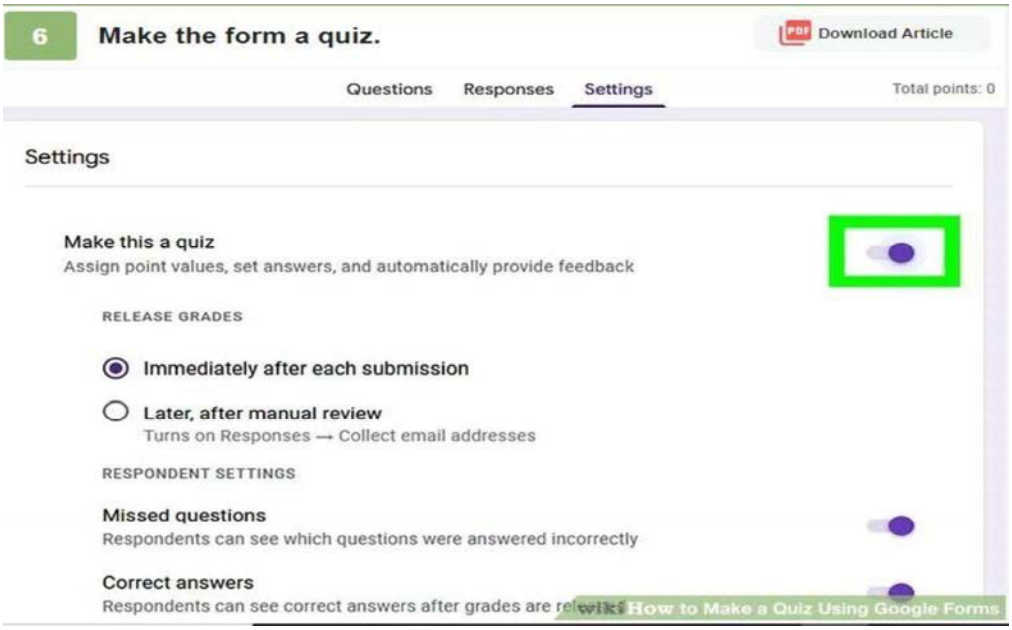
5.ஒவ்வொரு பிரிவிற்கும் சரியான பதிலைச் சேர்ப்பது பதில்களை தரப்படுத்த உதவும். வினாடி வினாவில் கலந்துகொள்ளும் மாணவர்களுடன் சரியான பதில்களைப் பகிர்ந்து கொள்ள விரும்பினால் இது உதவியாக இருக்கும்.



6. படிவத்தை வினாடி வினா ஆக்குவதன் மூலம் பதில்களை தரப்படுத்த இது அனுமதிக்கிறது. எளிதாக ஒரு படிவத்தை வினாடி வினா ஆக்கி, முடிவுகளை உடனடியாக தர வேண்டுமா அல்லது உங்கள் கைமுறையாக ஒப்புதலுக்காக (manual approval) காத்திருக்க வேண்டுமா என்பதை நாம் தேர்வு செய்யலாம்:

• மேலே உள்ள அமைப்புகள் தாவலைக் (Settings) கிளிக் செய்யவும்.

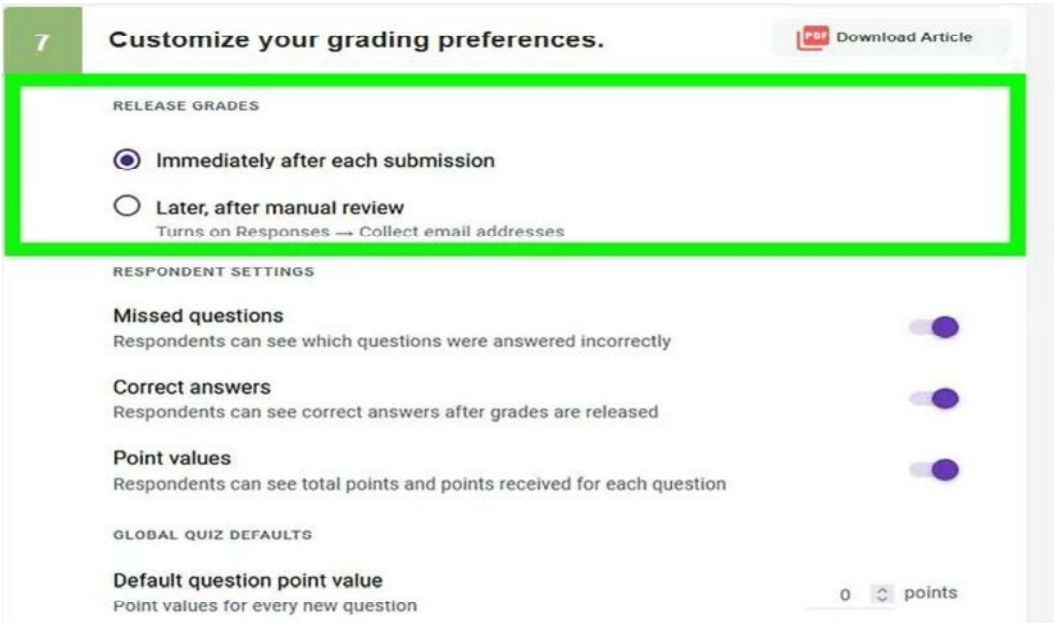
• "இதை வினாடி வினா ஆக்கு"("Make this a quiz") மாற்று சுவிட்சைக் கிளிக் செய்யவும்.



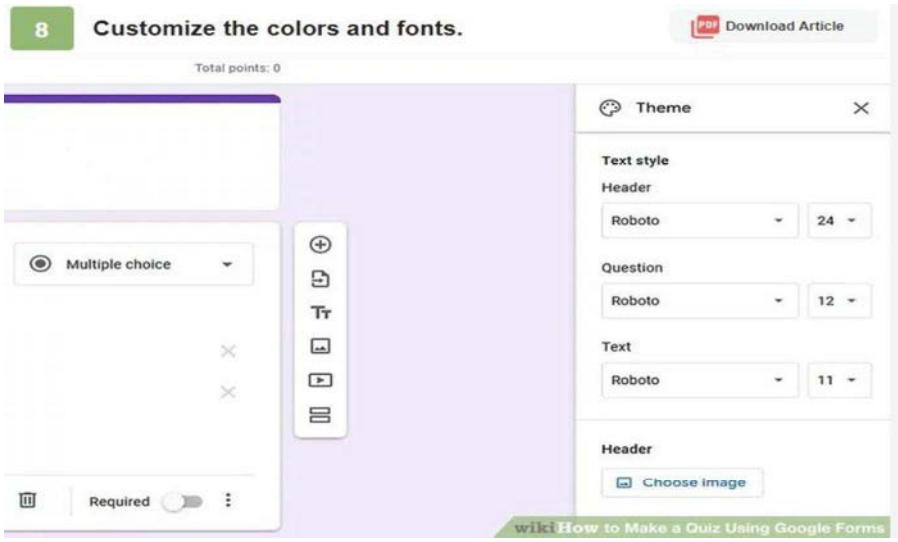
7. இந்த வினாடி வினாவை தரப்படுத்த உங்களுக்கு பல விருப்பங்கள் உள்ளன. வினாடி வினாவில் ஒவ்வொரு பயனரும் எப்படிச் செய்தார்கள் என்பதைப் பார்க்கும் போது "வெளியீட்டு தரங்கள்"("Release Grades") பிரிவு தீர்மானிக்கிறது.

"பதிலளிப்பவர் அமைப்புகள்"("Respondent settings") என்பதன் கீழ், தவறான பதில்களைக் காட்ட வேண்டுமா, வினாடி வினா தரப்படுத்தப்பட்டவுடன் சரியான பதில்களைக் காட்ட வேண்டுமா போன்ற விருப்பங்களையும் நீங்கள் தேர்வு செய்யலாம்.

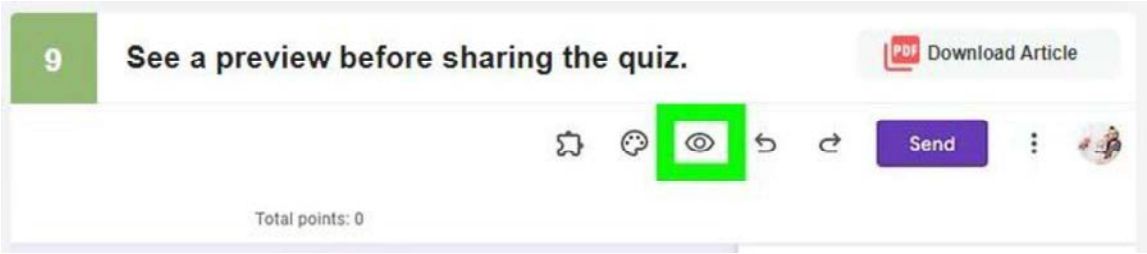
- ஒரு பயனர் வினாடி வினாவைச் சமர்ப்பித்தவுடன் கிரேடுகளைத் தானாக வெளியிட, ஒவ்வொரு சமர்ப்பிப்புக்குப் பிறகும் உடனடியாகத் தேர்ந்தெடுக்கவும் (**Immediately after each submission**).
- வினாடி வினாக்களை நாம் தரம் பிரித்து, பின்னர் கைமுறையாக கிரேடுகளை வெளியிட விரும்பினால், கைமுறை மதிப்பாய்வுக்குப் பிறகு, பின்னர் என்பதைத் தேர்ந்தெடுக்கவும்(**Later, after manual review**.).



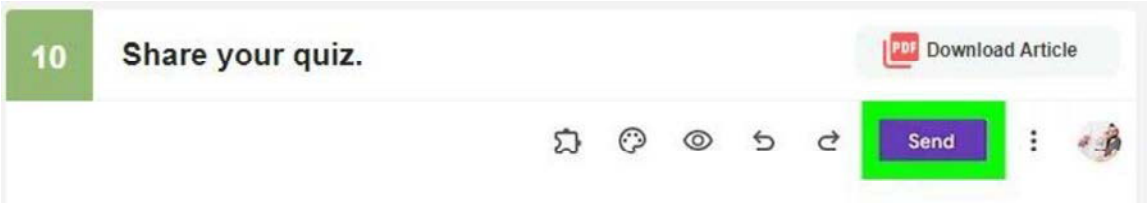
8. வண்ணங்களைத் தேர்வு செய்ய, தலைப்புப் படத்தைச் சேர்க்க, மேலும் பலவற்றைச் செய்யவும் மேலே உள்ள தட்டு (palette) ஐ கானைக் கிளிக் செய்யலாம். இந்தப் பகுதி நம் வினாடி வினாவைச் சிறிது சிறிதாக மேம்படுத்துவதற்கான சிறந்த வழியாகும்.



9. **view mode**ல் வினாடி வினாவைத் திறக்க, மேல் வலதுபுறத்தில் உள்ள **eye icon**க் கிளிக் செய்யவேண்டும். இது வினாடி வினாவைப் பார்க்க விரும்புபவர்களுக்கு அது எப்படி இருக்கும் என்பதை காட்டும்.



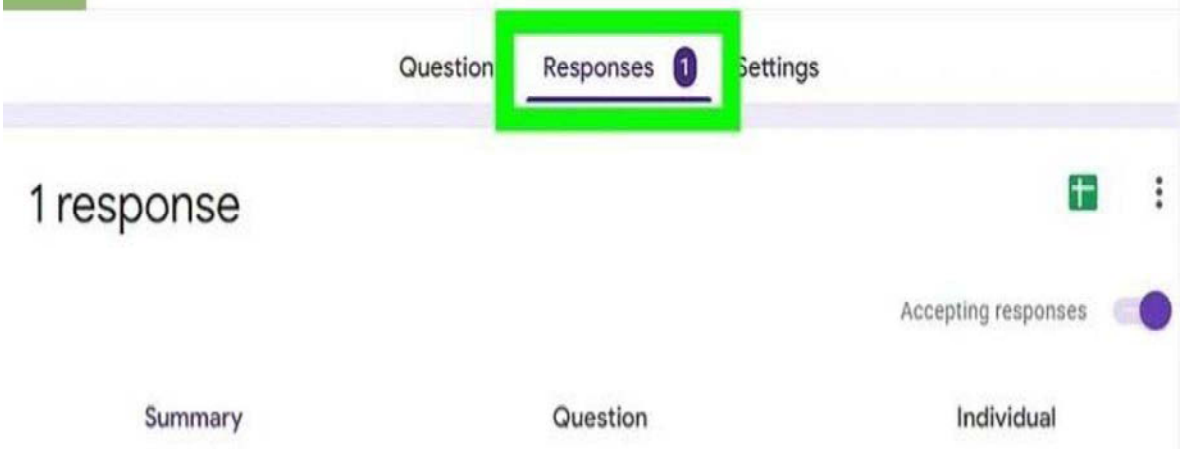
10. இப்போது நாம் உருவாக்கியுள்ள வினாடி வினா தேர்விற்கு தயாராக உள்ளது. அதை பயன்படுத்துவதற்கு "send" பொத்தானைக் கிளிக் செய்து பகிரலாம்.

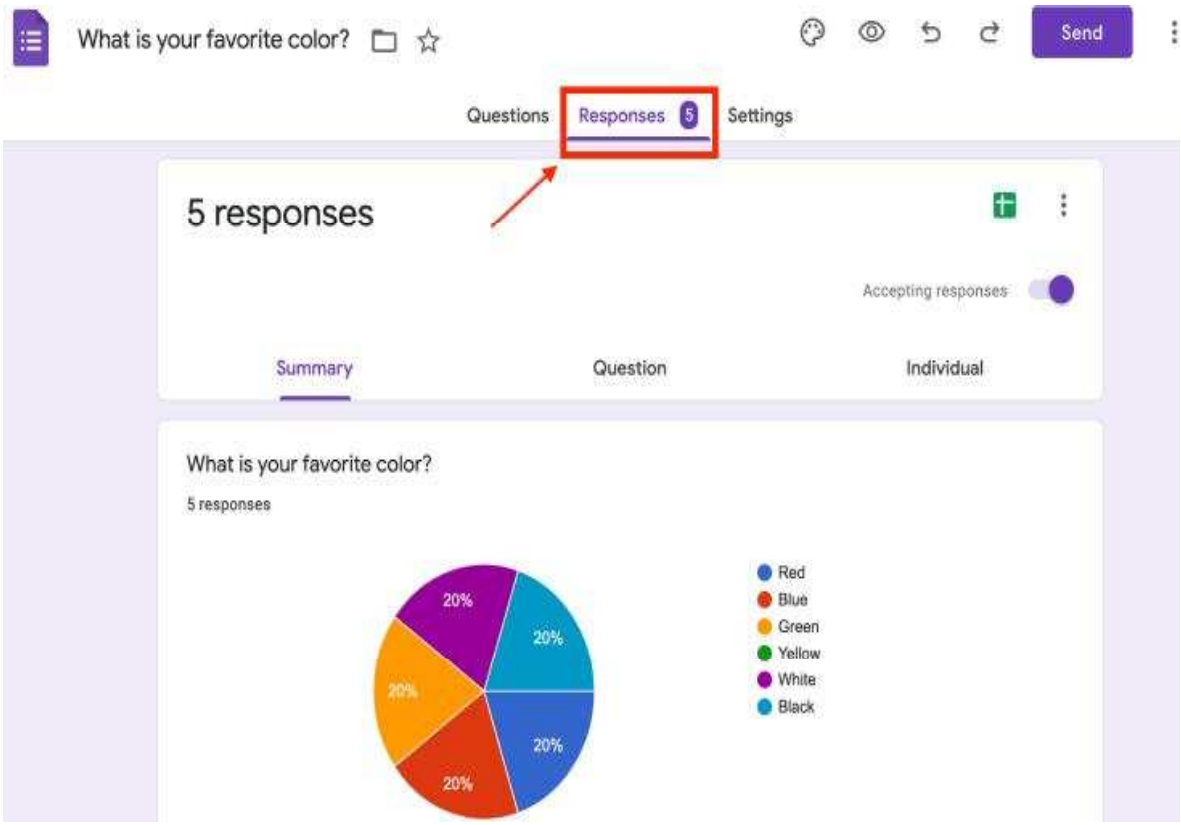


11. வினாடி வினா பதில்களைக் காண "Responses" tabஐக் கிளிக் செய்ய வேண்டும். வினாடி வினாக்களை ஏற்றுக்கொள்வதை நிறுத்த விரும்பினால், இங்குள்ள "பதில்களை ஏற்றுக்கொள்கிறேன்" "Accepting responses" என்ற ஸ்விட்சைக் கிளிக் செய்யவேண்டும்.

11 View and manage responses.

Download Article

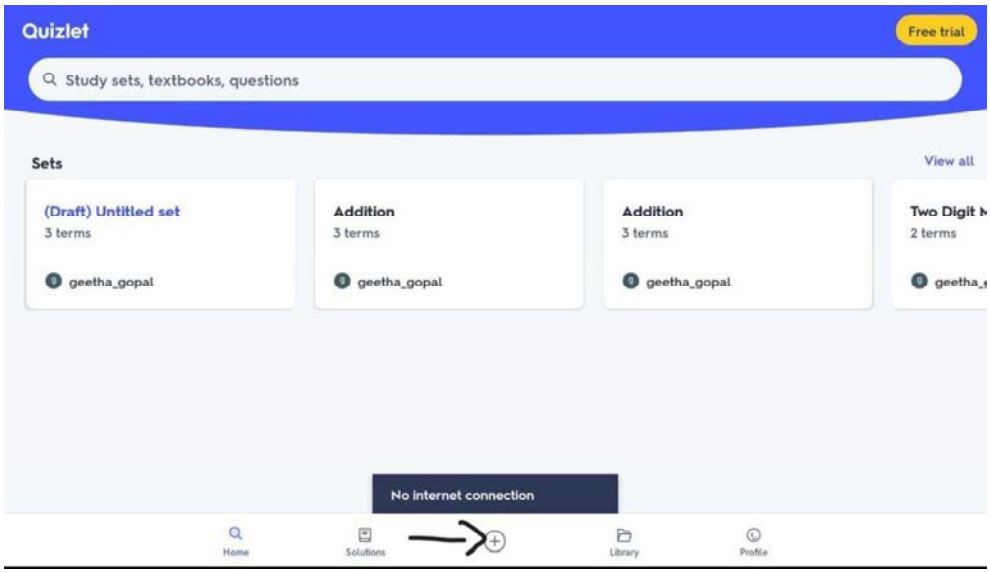




- குவிஸ் லெட்

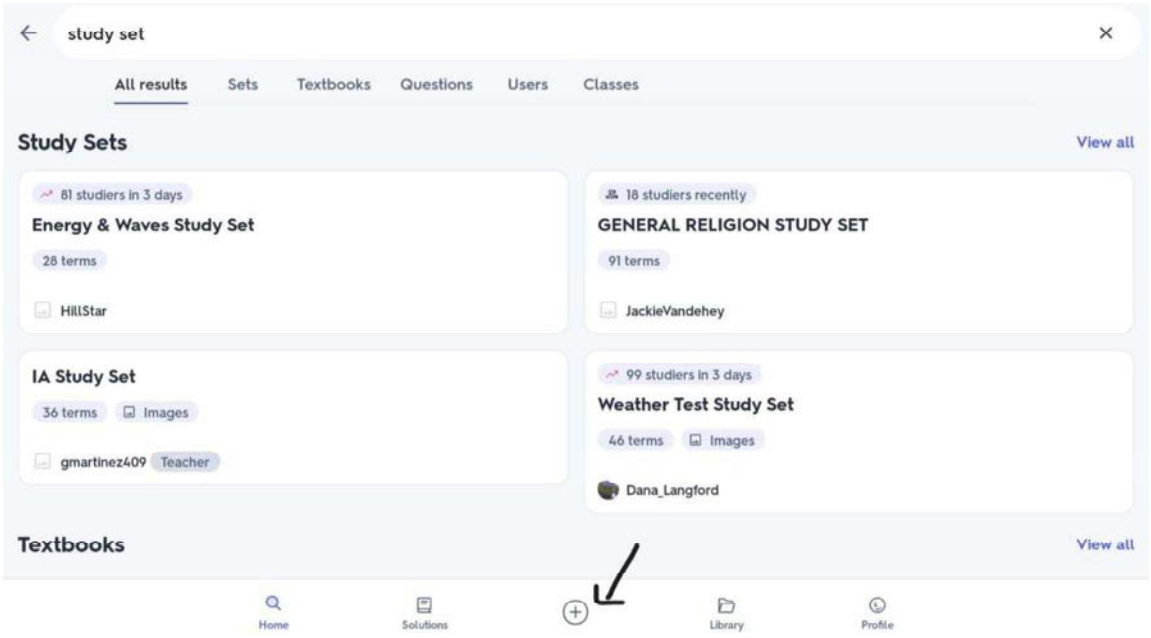
Quizlet இன் "Study set"கள், ஒரு பாடக்கருத்தை மாணவர்கள் திரும்பத்திரும்ப பயிற்சி பெரும் வகையில் வடிவமைக்கப்பட்டுள்ளன. முதல் தேர்வு முயற்சியிலே வெற்றி பெற்றாலும் மாணவர்கள் திரும்பத் திரும்ப தொடர்ந்து பயிற்சி பெற்ற பிறகும் புதிய கேள்விகளை Quizletல் பயிற்சி பெறலாம். வினாடி வினாவில் உள்ள கேள்வி வகைகள் அனைத்தும் மாணவர்கள் பாடக்கருத்தை திறம்படவும் திறமையாகவும் படிக்க உதவும் வகையில் கவனமாக வடிவமைக்கப்பட்டுள்ளன.

1. https://quizlet.new அல்லது **Quizlet கணக்கில்** உள்நுழைய வேண்டும். Quizlet கணக்கில் உள்நுழைந்தவுடன் அங்கு ஏற்கனவே உருவாக்கிய எளிதாக பயன்படுத்தக் கூடிய Study set களின் பட்டியலைப் பயன்படுத்தலாம் அல்லது நாம் புதிதாகவும் உருவாக்கிக் கொள்ளலாம்.
2. புதிதாக உருவாக்க "+" ஐ கிளிக் செய்ய வேண்டும்.

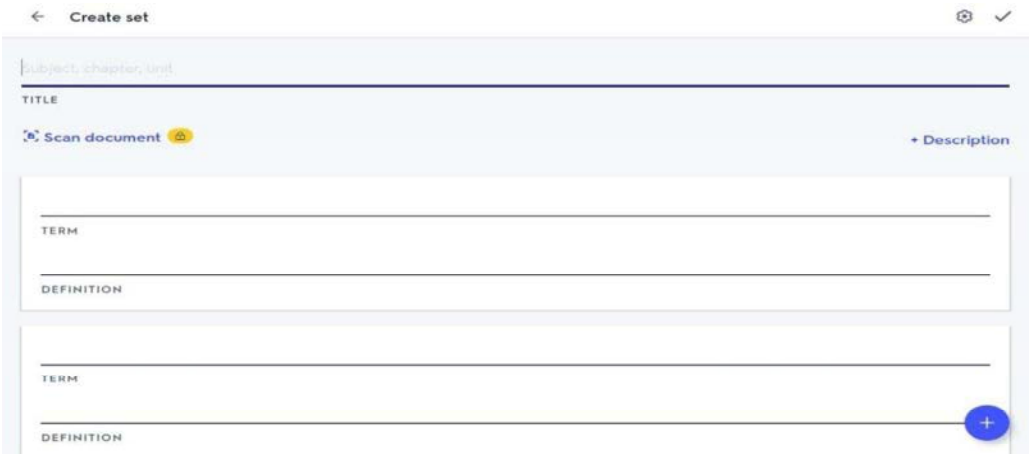


3. "+" ஐ கிளிக் செய்தவுடன் புதிதாக உருவாக்க Study set, Folder, Class ஆகியவை தேர்வு செய்வதற்கு தயாராக ஸ்கிரீனில் தெரியும். அதில் நாம் Study set ஐ செய்ய வேண்டும்.

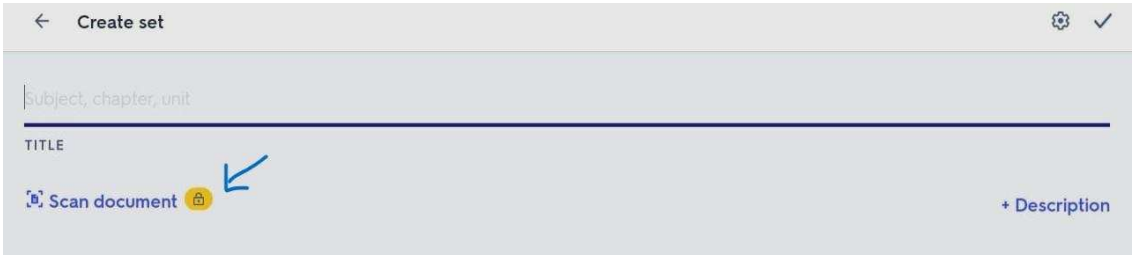
4. Study setல் உள்நுழைந்தவுடன் Study set ஐ நாம் புதிதாக உருவாக்கிக் கொள்ள "+" ஐ கிளிக் செய்யவேண்டும்.



5. "+" ஐ கிளிக் செய்தயுடன் "Create Set "ல் தலைப்பு மற்றும் அதன் விவரக் குறிப்புகளைப் பதிவிட தயாராக இருக்கும்.



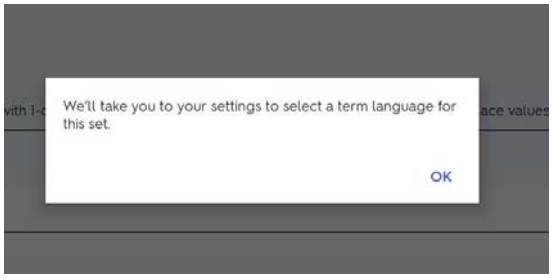
6. வரிசையில்(column) சொற்களை உள்ளிடலாம் அல்லது "Scan Document" ல் இருந்தும் Scan செய்து எடுத்துக்கொள்ளலாம். குறைந்தது 10 "Flash Cards " ஐ உருவாக்கலாம். நமது கோப்பிலிருந்து எடுத்துக்கொள்ள Title க்கு கீழ் உள்ள "Scan Document "ஐ கிளிக் செய்ய வேண்டும்.



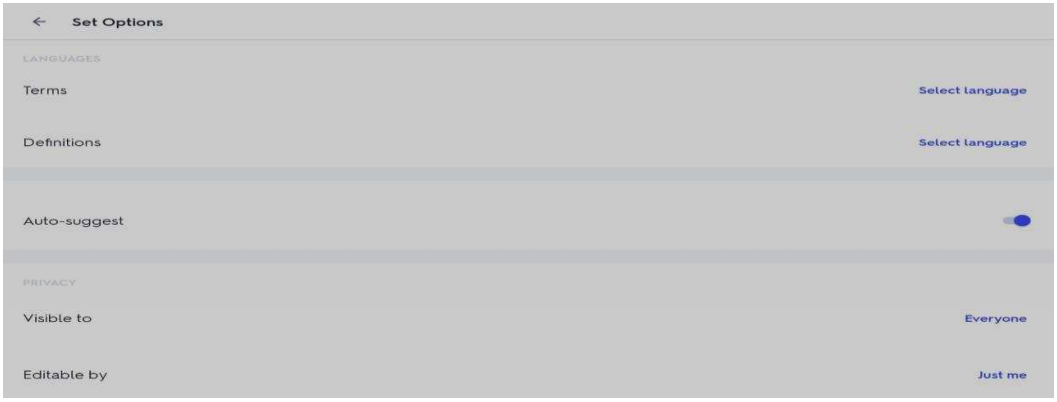
7. "Create Set "ல் தலைப்பு அதன் விவரக் குறிப்புகள், மற்றும் " Flash Cards "க்கு தேவையான பதிவுகளைப் பதிவிடலாம்.

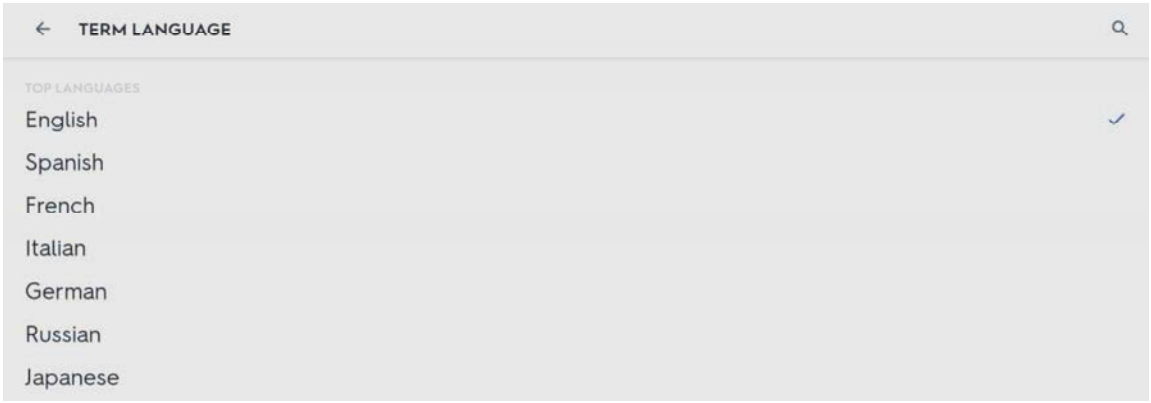
8. குறைந்தது 10 "Flash Cards " ஐ உருவாக்கலாம். இரண்டிற்கு மேல் உருவாக்க கீழுள்ள "+" கிளிக் செய்ய வேண்டும்.

9. நாம் "Flash Cards " ஐ உருவாக்கியவுடன் வலது மூலையில் உள்ள (✓)கிளிக் செய்ய வேண்டும். உடனே நாம் மொழியை தெரிவு செய்ய காட்டும்.நாம் மொழியை தெரிவு செய்தவுடன் மீண்டும் (✓) கிளிக் செய்ய வேண்டும்.

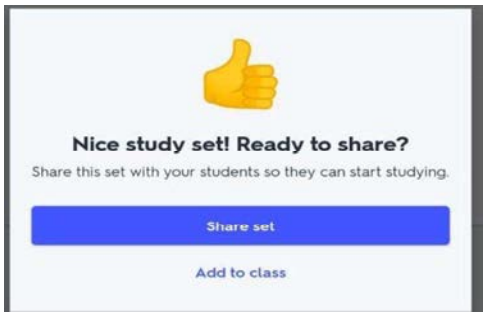


10. Set Option ல் "Term "மற்றும் "Definitions "னின் மொழியை தெரிவு செய்து "English" கொள்ளலாம்.

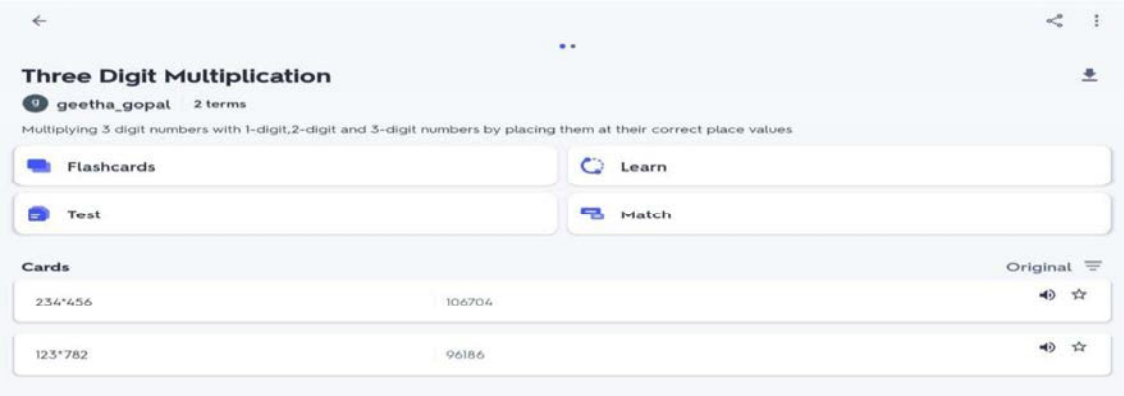


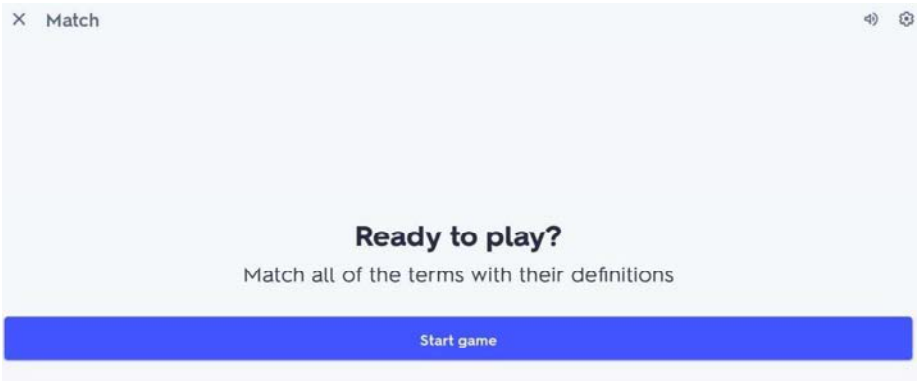


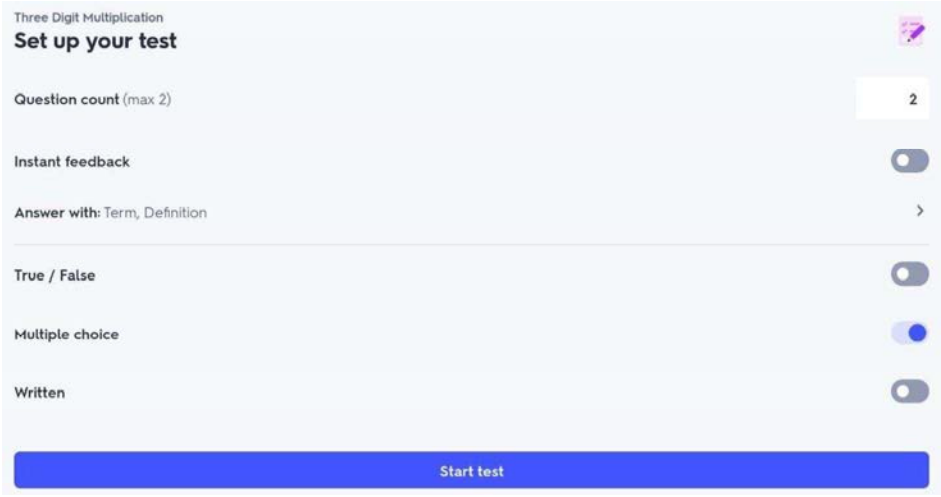
11. Set Option ல் "Term "மற்றும் "Definitions "னின் மொழியை தெரிவுசெய்தவுடன் மீண்டும் (✓)கிளிக் செய்ய வேண்டும். உடனே, நமது "study set " தயாராகிவிடும். அதை நாம் நம் வகுப்பு மாணவர்களுக்கு படிப்பதற்கும் பயிற்சி பெறுவதற்கும் அனுப்பலாம் அல்லது வகுப்பறையில் பயன்படுத்தலாம்.



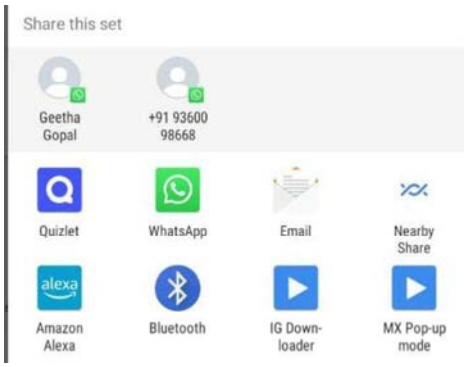
12. தயாராக உள்ள study set ல் மாணவர்கள் "Flash Cards "ஐ பயன்படுத்தி திரும்பத்திரும்ப பயிற்சி பெறலாம்,"Match "ன் மூலம் விளையாட்டாக பாடக்கருத்தை பயிற்சி பெறலாம் அல்லது தேர்வு "Test "ன் மூலம் மாணவர்களே சுயமாக கற்றவற்றை சோதிக்கலாம்.







13. தயாராக உள்ள study set யை மாணவர்களுக்கு "Whatsapp ", "Email" மூலமாகவும் அனுப்பலாம்.



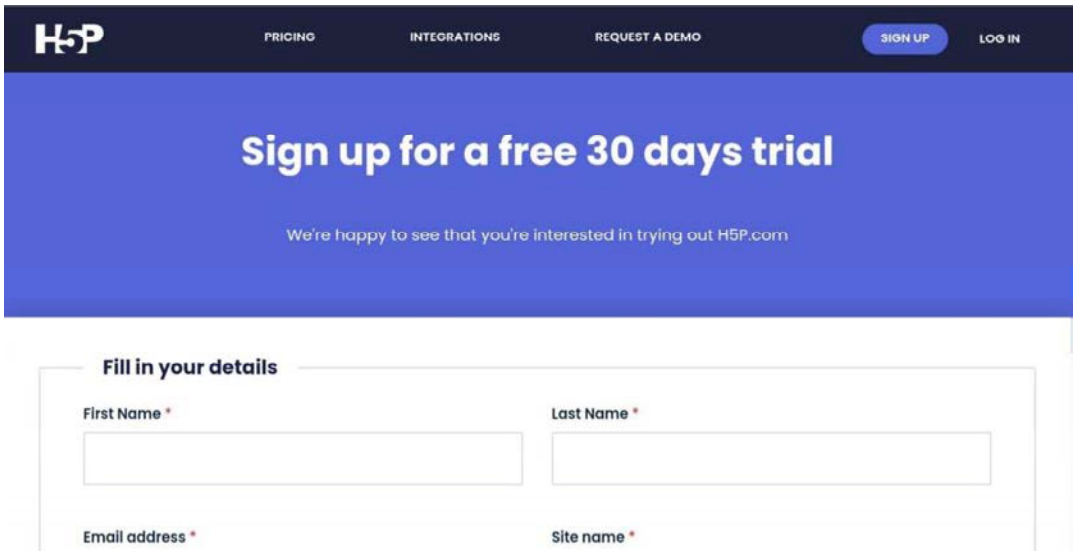
– H5P

H5P என்பது JavaScript அடிப்படையிலான ஒரு free and open-source content collaboration framework. H5P என்பது HTML5 தொகுப்புக்கான சுருக்கமாகும், மேலும் ஊடாடும் (Interactive) HTML5 உள்ளடக்கத்தை (content) உருவாக்குவது, பகிர்வது மற்றும் மீண்டும் பயன்படுத்துவதை நோக்கமாகக் கொண்டுள்ளது. ஊடாடும் (Interactive)வீடியோக்கள், ஊடாடும் (Interactive) விளக்கக்காட்சிகள், வினாடி வினாக்கள், ஊடாடும் காலக்கெடுக்கள் (Interactive timelines) மற்றும் பலவற்றை H5P.org இல் H5P ஐப் பயன்படுத்தி உருவாக்கி பகிர்ந்து கொள்ளலாம்.

H5P இல் உள்நுழைய:

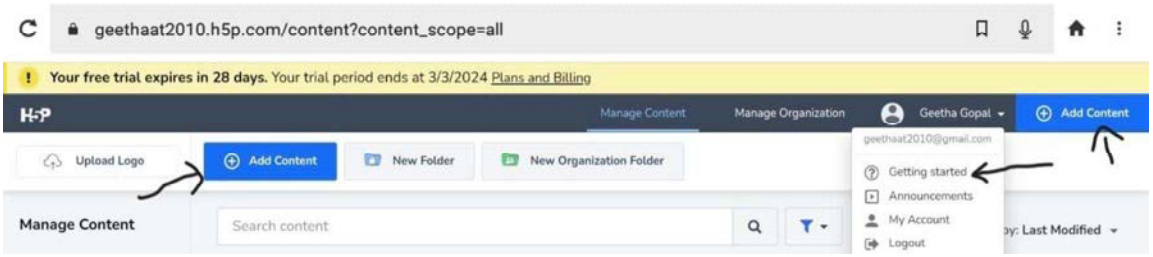
நமக்கு ஒதுக்கப்பட்ட பயனர் பெயர் அல்லது நம்முடைய மின்னஞ்சல் முகவரி (Create free Account) மூலம் உள்நுழையலாம். கடவுச்சொல் புலம் கேஸ் சென்சிடிவ் (Case Sensitive).

H5P - ஊடாடும் உள்ளடக்கத்தை (Interactive content) உருவாக்கவும், பகிரவும் மற்றும் மீண்டும் பயன்படுத்தவும் பகிர்ந்து கொள்ளலாம்.

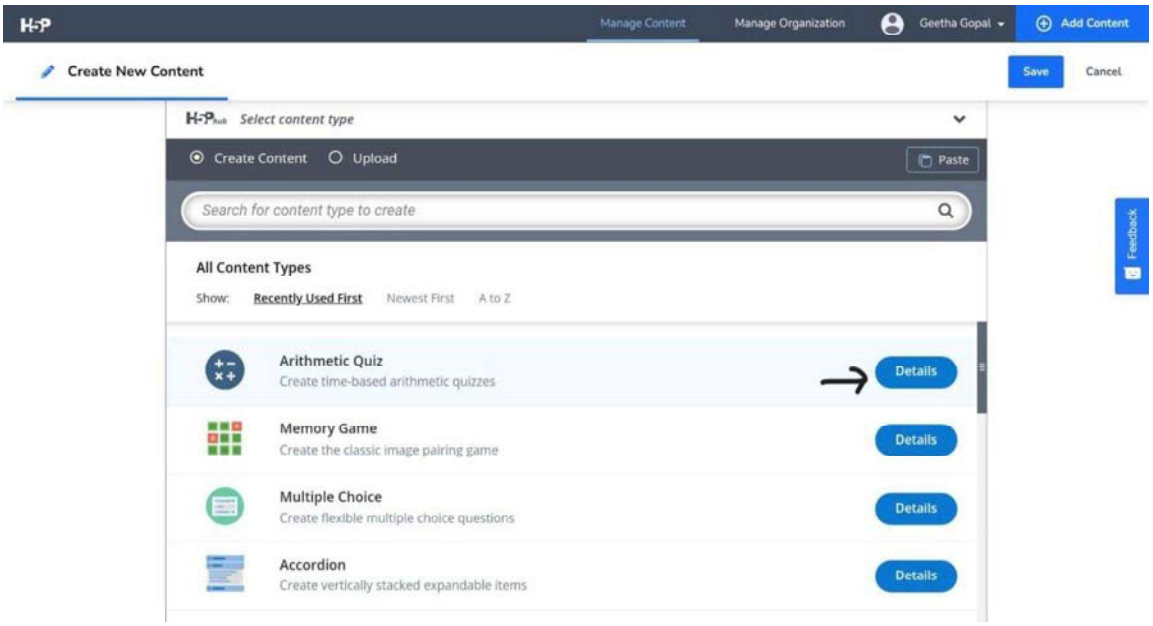


1. H5Pல் உள்நுழைந்தவுடன் "Get Started for free" யைக் கிளிக் செய்யவேண்டும்.

2. H5Pல் புதிய **Content** யைத் திறக்க "**+Add Content**" என்பதைக் கிளிக் செய்யவும்.



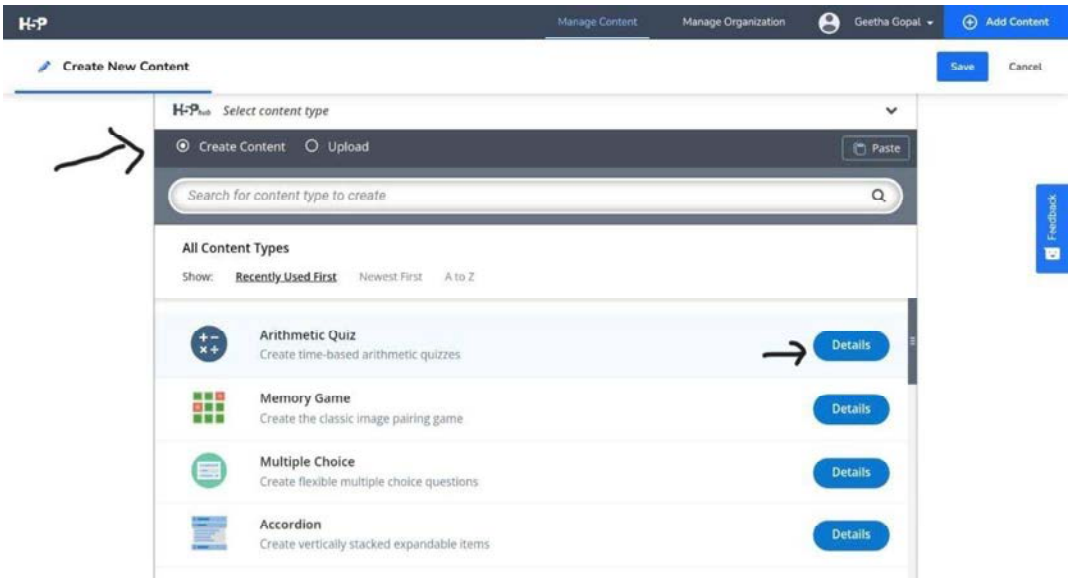
3. "**Newest first**" அல்லது "Popular First" என்பதைத் தேர்ந்தெடுக்கவும். வெளியீட்டுத் தேதியின்படி வரிசைப்படுத்தப்பட்ட அனைத்து உள்ளடக்க வகைகளின்(all content types) பட்டியலையும் பெறுவீர்கள்.



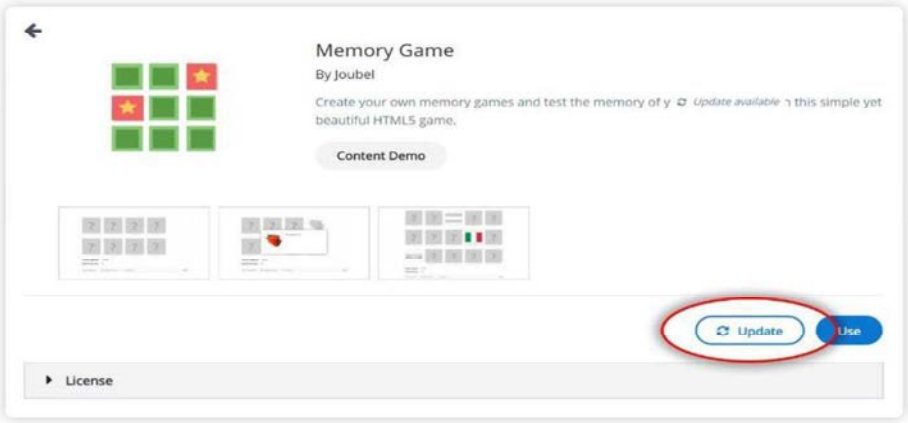
உள்ளடக்க வகை விவரங்கள் பக்கத்திற்குச் செல்ல, எந்தவொரு உள்ளடக்க வகையிலும் "Details" என்பதைக் கிளிக் செய்யவும்.

உள்ளடக்க வகை விவரங்கள் பக்கத்தில், ஒவ்வொரு உள்ளடக்க வகை பற்றிய விவரங்களையும் நாம்படிக்கலாம், ஸ்கிரீன்ஷாட்கள் மற்றும் உதாரண உள்ளடக்கத்தைப் பார்க்கலாம்.

4. தேர்ந்தெடுக்கப்பட்டஉள்ளடக்கவகையில்புதியcontent ஐ உருவாக்க "Create Content " என்பதைக் கிளிக் செய்ய வேண்டும்.



5. "Update available" சமீபத்திய புதுப்பிப்புகளைப் பெற, உள்ளடக்க வகை விவரங்கள் பக்கத்தில் "Update" "புதுப்பி"-யைக் கிளிக் செய்யவும்!



எண்கணித வினாடி வினா பயிற்சி(Arithmetic Quiz Tutorial)

அடிப்படை எண்கணித செயல்பாடுகள் அல்லது நேரியல் சமன்பாடுகளில் கற்பவரின் அறிவை சோதிக்க எண்கணித வினாடி வினாக்களை உருவாக்கவும். கேள்விகள் தானாக

உருவாக்கப்படுகிறதுஅதனால் ஆசிரியர் கேள்விகளின் எண்ணிக்கையையும் வகையையும் தேர்வு செய்யலாம்.

இந்த பயிற்சியில்,

- எண்கணித வினாடி வினா எப்போது பயன்படுத்த வேண்டும்
- எண்கணித வினாடி வினாவை எவ்வாறு உருவாக்குவது

எண்கணித வினாடி வினா எப்போது பயன்படுத்த வேண்டும் When to use Arithmetic Quiz

- அடிப்படை எண்கணித செயல்பாடுகள் அல்லது நேரியல் சமன்பாடுகளில் திறன்களை சோதிக்க விரைவான வினாடி வினாக்களை உருவாக்க இந்த உள்ளடக்க வகை சரியானது, ஏனெனில் கருவி கேள்விகளை உருவாக்குகிறது.
- இருப்பினும், நம் சொந்த கேள்விகளுடன் வினாடி வினாவை உருவாக்க விரும்பினால், வெற்றிடங்களை நிரப்புதல் (Fill in the Blanks), வார்த்தைகளை இழுத்தல்(Drag the Words) அல்லது வேறு சில உள்ளடக்க வகைகளைப் பயன்படுத்தலாம்.
- இந்த உள்ளடக்க வகைகள் LaTeX ஐ ஆதரிக்கின்றன, எனவே நாம் சிக்கலான கணித சூத்திரங்களை தட்டச்சு செய்ய முடியும்.

LaTeX command	Equivalent to	Output style
`\textnormal{...}`	`{\normalfont ...}`	document font family
`\emph{...}`	`{\em ...}`	*emphasis*
`\textrm{...}`	`{\rmfamily ...}`	roman font family
`\textsf{...}`	`{\sffamily ...}`	sans serif font family
`\texttt{...}`	`{\ttfamily ...}`	teletypefont family
`\textup{...}`	`{\upshape ...}`	upright shape
`\textit{...}`	`{\itshape ...}`	*italic shape*
`\textsl{...}`	`{\slshape ...}`	*slanted shape*
`\textsc{...}`	`{\scshape ...}`	SMALL CAPITALS
`\uppercase{...}`		UPPERCASE (ALL CAPS)
`\textbf{...}`	`{\bfseries ...}`	**bold**
`\textmd{...}`	`{\mdseries ...}`	medium weight
`\textlf{...}`	`{\lfseries ...}`	light

படி 1: தலைப்பு

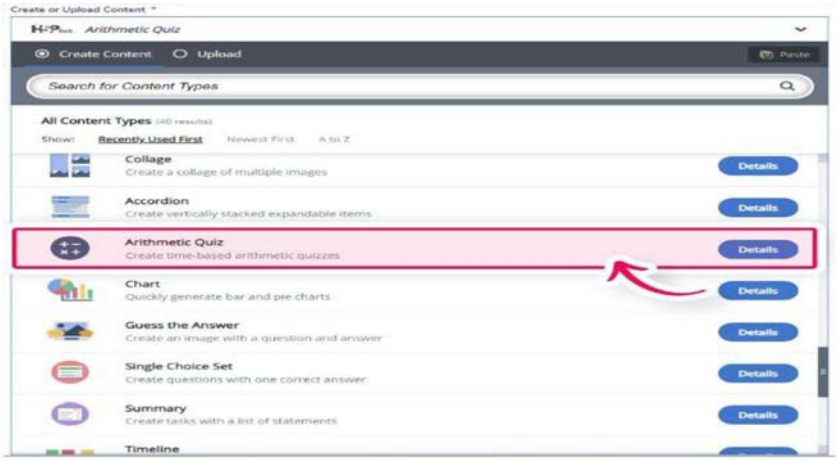
"கூடுதல்" (Addition) பற்றிய பயனரின் அறிவை சோதிக்க 10 கேள்விகள் கொண்ட எண்கணித வினாடி வினாவை உருவாக்கலாம்.

படி 2: எண்கணித வினாடி வினாவை உருவாக்குதல்

புதிய உள்ளடக்க விருப்பத்தைத் தேர்ந்தெடுத்து, உள்ளடக்க வகைகளின் பட்டியலிலிருந்து எண்கணித வினாடி வினாவைத்(Arithmetic Quiz) தேர்ந்தெடுக்கலாம்.

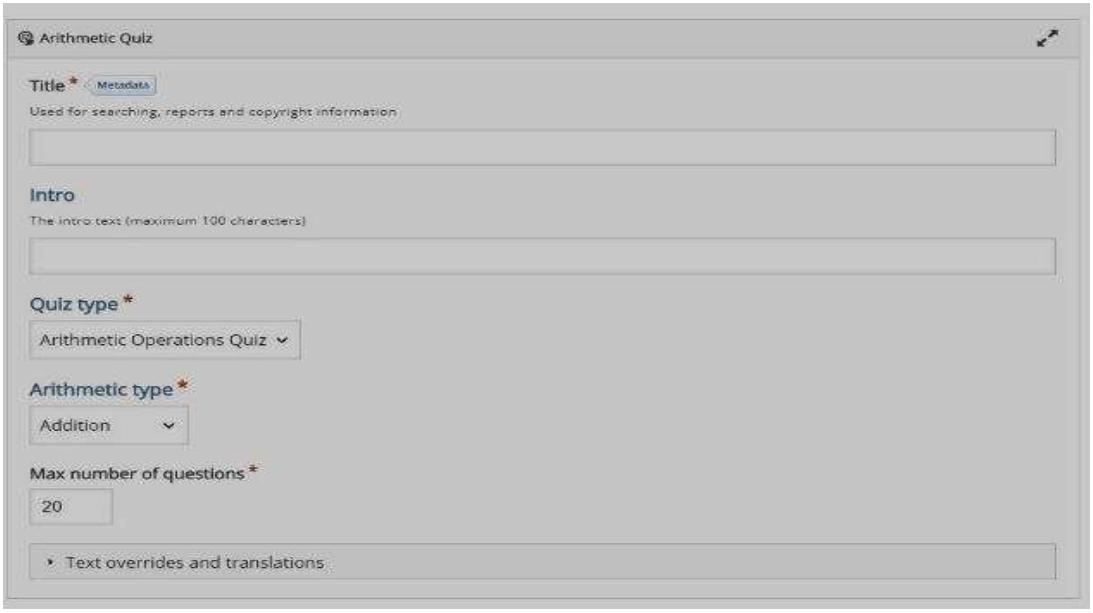
படி 3: எண்கணித வினாடி வினா எடிட்டர்

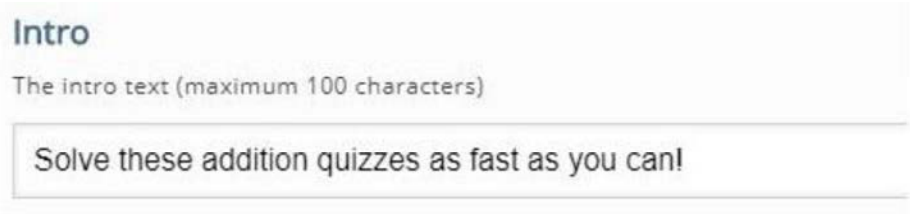
எண்கணித வினாடி வினா எடிட்டர் இப்படி தோன்றும்.



படி 4: தலைப்பு மற்றும் அறிமுகம்

நாம் நம் உள்ளடக்கத்திற்கு ஒரு தலைப்பைக் கொடுத்து (content a title), பணியைத் தீர்ப்பதற்கான வழிமுறைகளுடன் அறிமுகப் புலத்தில்(introduction field) நிரப்ப வேண்டும்.

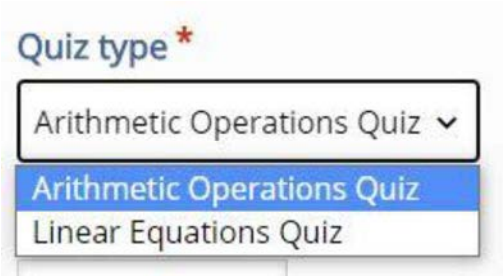




படி 5: விருப்பங்கள்:

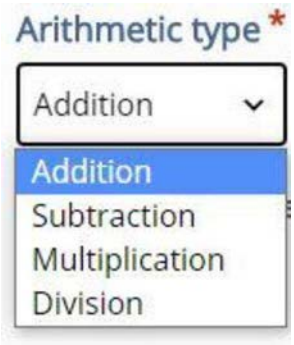
எண்கணித வினாடி வினாவில் நாம் வெவ்வேறு வினாடி வினா வகைகளை அமைக்கலாம்

வினாடி வினா வகை:



- எண்கணித செயல்பாடுகள் வினாடிவினா
- நேரியல் சமன்பாடுகள் வினாடிவினா

எண்கணித செயல்பாடுகளுக்கான வினாடி வினாவிற்கு நாம் தேர்வு செய்யலாம்:



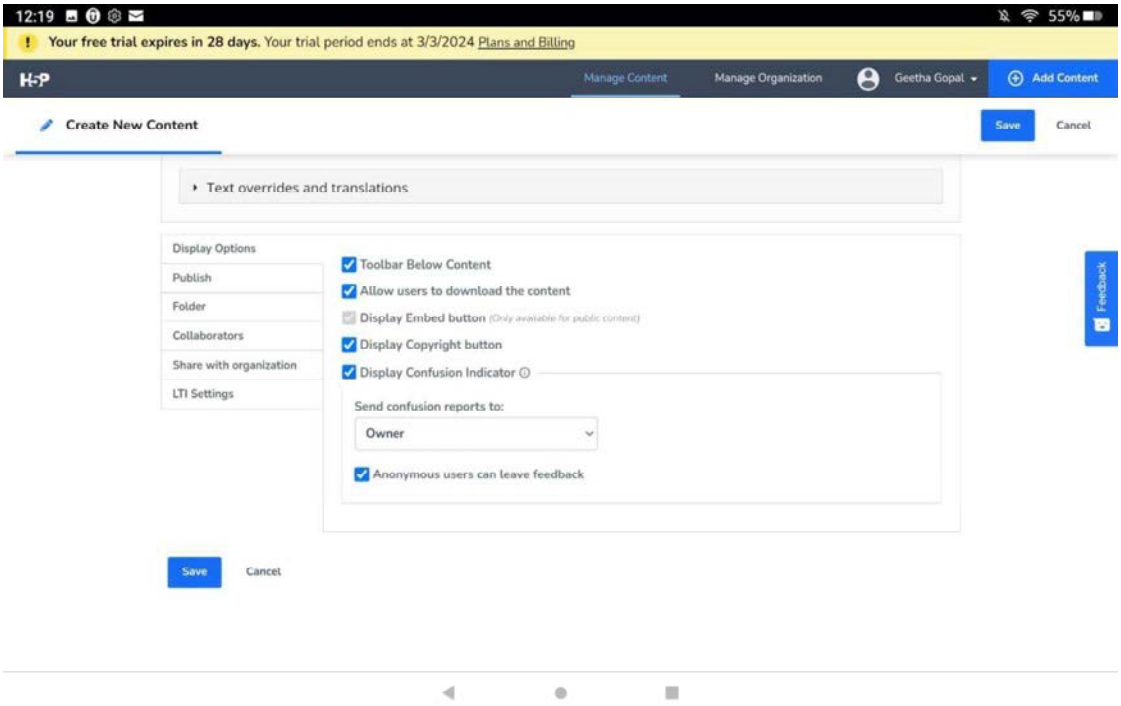
- சேர்த்தல்
- கழித்தல்
- பெருக்கல்

- வகுத்தல்

வினாடி வினா வகைக்கு, **"Arithmetic Operations Quiz"**, என்பதைத் தேர்ந்தெடுக்கவும், எண்கணித வகைக்கு **""Addition"** என்பதைத் தேர்ந்தெடுத்து, number of questions க்கு 10 அல்லது 20 ஐ தட்டச்சு செய்யவும்.

படி 6: முடித்தல்

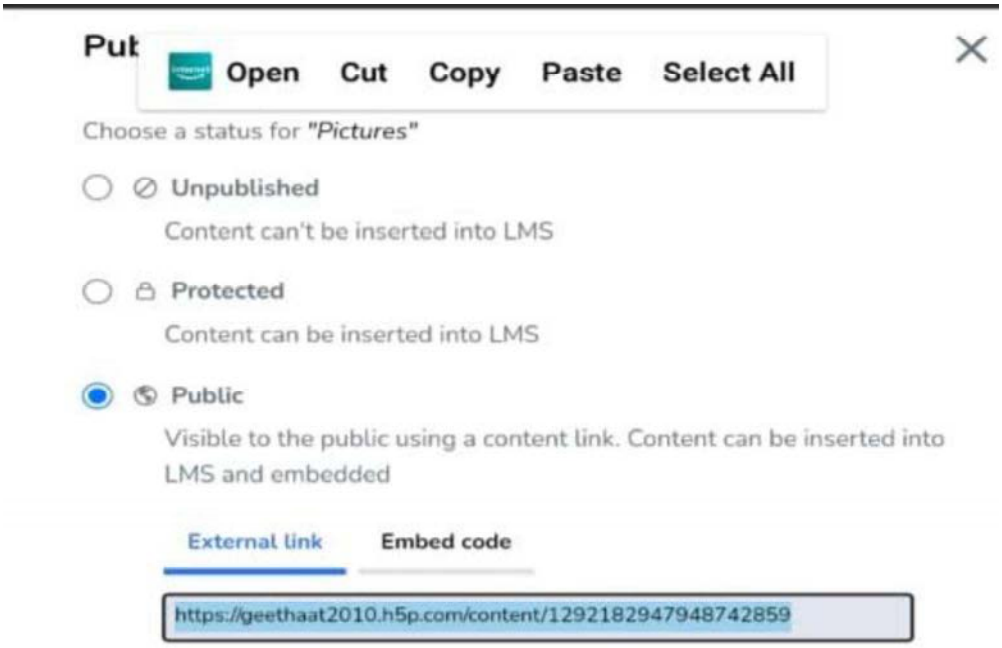
நாம் முடித்த எண்கணித வினாடி வினாவைப் பார்க்க "Save "ஐ தேர்வு செய்யலாம்.

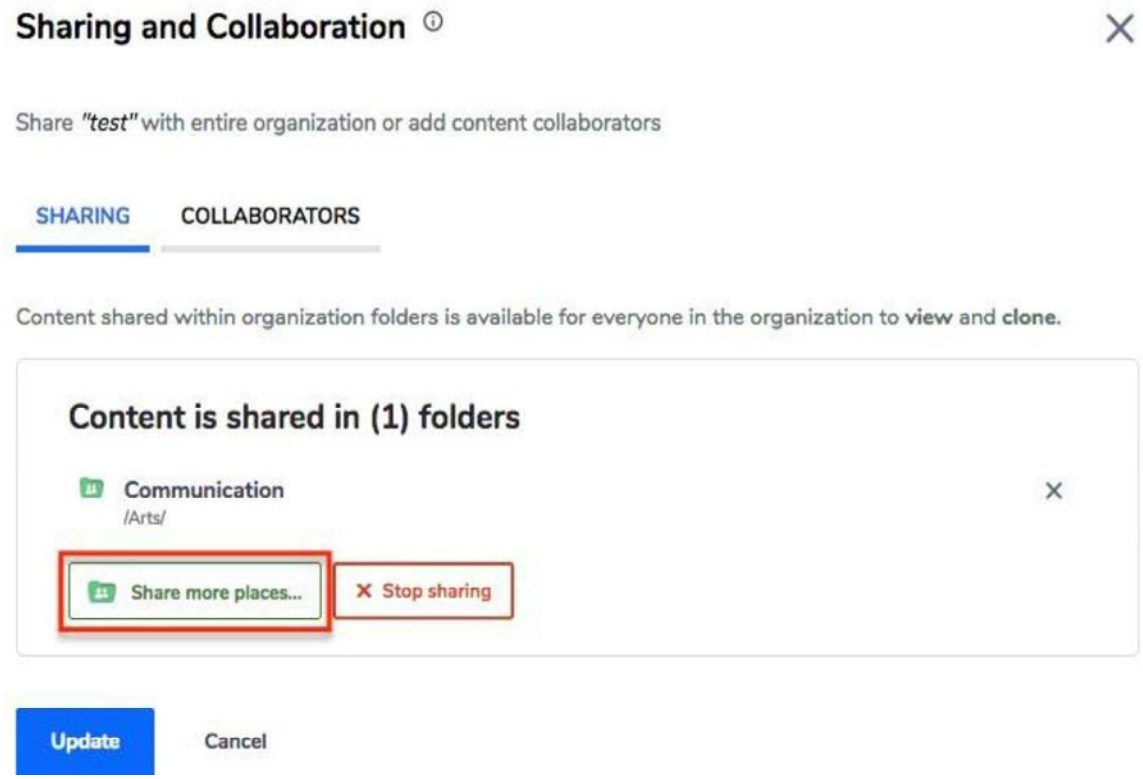


இது போல அனைத்து உள்ளடக்க வகைகளையும் விவரங்கள் பக்கத்தில், ஒவ்வொரு உள்ளடக்க வகை பற்றியும் படித்து நமது வினாக்களை வெவ்வேறு வினாவகைகளில் தயாரித்து மாணவர்களிடம் தேர்வு அர்வத்தை ஏற்படுத்தலாம்.

படி 7: பகிர்தல்

"Sharing and Collabration" நாம் link யைக் Copy செய்து Network ல் ,"whatsapp"ல் மற்றும் "email" லில் மாணவர்களிடம் பகிர்ந்து கொள்ளலாம்.





முடிவுரை :

மாணவர்களுக்கான இந்த இணையவழி மதிப்பீட்டு தளங்கள் ஆசிரியர்கள் மற்றும் மாணவர்கள் தங்கள் கற்றலை மதிப்பிடவும், குறிப்பிட்ட தொகுதி அல்லது பாடத்தை எவ்வளவு சிறப்பாகச் செய்திருக்கிறார்கள் என்பதைப் புரிந்துகொள்ளவும் உதவுகிறது. இவை மாணவர்களின் கற்றலை மதிப்பிடுவதற்கும் நிகழ்நேரக் கருத்துக்களைப் பெறுவதற்கும் மிகவும் திறமையான மற்றும் பயனுள்ள வழியை வழங்குகிறது, இவை அனைத்தும் நெகிழ்வுத்தன்மை, தனிப்பயனாக்கம் மற்றும் ஈடுபாடு போன்ற பல நன்மைகளை வழங்குகிறது.

DIMENSION WISE SCORES OF MALE TEACHERS								
S.No	Male Pre-Test				Male Post-Test			
	Technological Awareness	Knowledge on Online Tools	Usage	Classroom Management	Technological Awareness	Knowledge on Online Tools	Usage	Classroom Management
1	16	13	17	18	20	22	24	23
2	16	17	16	18	20	23	24	21
3	18	16	15	18	21	23	25	22
4	19	12	19	16	20	21	23	24
5	18	16	15	18	20	23	24	23
6	16	16	16	18	21	24	25	24
7	19	12	19	16	20	22	23	24
8	19	12	19	18	20	22	24	23
9	19	12	19	18	21	24	25	25
10	15	15	14	16	20	22	23	25
11	16	17	16	18	21	24	25	24
12	16	17	16	18	20	23	23	24
13	15	17	15	16	20	23	24	23
14	19	12	19	16	21	24	25	24
15	18	16	15	18	20	22	23	23
16	16	16	16	18	20	22	24	24
17	16	17	16	18	20	21	23	25
18	18	16	15	18	20	23	24	24
19	18	16	15	18	21	24	25	24
20	16	17	16	18	21	23	25	24
21	18	16	15	18	20	23	24	23
22	15	15	14	16	20	22	24	24
23	16	16	13	18	20	23	24	23
24	15	17	15	16	21	23	25	24
25	19	12	19	16	20	23	24	24
26	18	16	15	18	20	22	23	24
27	16	16	16	18	20	23	24	23
28	18	16	15	18	20	23	24	25
29	15	15	14	16	20	22	23	24
30	14	15	13	18	20	23	24	24
Total	507	456	477	522	608	682	720	711
Average	16.9	15.2	15.9	17.4	20.26666667	22.7333333	24	23.7

DIMENSION WISE SCORES OF FEMALE TEACHERS								
S.No	Female Pre-Test				Female Post-Test			
	Technological Awareness	Knowledge on Online Tools	Usage	Classroom Management	Technological Awareness	Knowledge on Online Tools	Usage	Classroom Management
1	18	17	16	19	20	23	24	21
2	16	16	12	18	21	23	25	23
3	18	12	12	16	20	23	24	23
4	14	15	13	18	20	21	23	23
5	15	15	14	16	20	23	24	21
6	16	16	13	18	20	21	23	23
7	15	17	15	16	20	22	24	24
8	15	15	14	16	20	23	24	25
9	16	14	15	16	20	22	24	24
10	16	15	15	17	20	22	23	24
11	16	16	15	18	20	22	24	23
12	15	17	16	17	21	23	24	24
13	18	12	12	16	20	22	24	24
14	14	15	13	18	20	22	23	24
15	16	17	16	18	20	22	24	24
16	18	16	15	18	21	24	25	23
17	15	15	14	16	20	23	24	24
18	16	16	13	18	20	22	23	24
19	15	17	15	16	20	22	24	24
20	19	12	19	16	20	22	24	24
21	18	16	15	18	21	24	25	25
22	16	16	16	18	20	23	24	24
23	16	16	15	18	20	21	23	23
24	19	12	19	16	20	22	24	24
25	15	17	16	17	20	23	24	24
26	18	12	12	16	20	23	24	23
27	14	15	13	18	20	23	24	24
28	16	17	16	18	21	23	25	23
29	18	16	15	18	20	22	24	24
30	14	15	13	18	20	24	24	24
Total	485	457	437	516	605	675	718	707
Average	16.17	15.23	14.57	17.2	20.17	22.5	23.93	23.57

DIMENSION WISE SCORES OF RURAL TEACHERS								
S.No	Rural Pre-Test				Rural Post-Test			
	Technological Awareness	Knowledge on Online Tools	Usage	Classroom Management	Technological Awareness	Knowledge on Online Tools	Usage	Classroom Management
1	18	12	12	16	20	23	24	23
2	16	17	16	18	20	23	24	21
3	15	15	14	16	20	23	24	21
4	16	16	13	18	20	21	23	23
5	15	17	15	16	20	22	24	24
6	19	12	19	16	20	21	23	24
7	18	16	15	18	20	23	24	23
8	15	15	14	16	20	23	24	25
9	16	14	15	16	20	22	24	24
10	16	15	15	17	20	22	23	24
11	16	16	15	18	20	22	24	23
12	19	12	19	16	20	22	23	24
13	19	12	19	18	20	22	24	23
14	16	17	16	18	20	22	24	24
15	15	15	14	16	20	23	24	24
16	16	16	13	18	20	22	23	24
17	15	17	15	16	20	22	24	24
18	19	12	19	18	21	24	25	25
19	15	17	16	17	20	23	24	24
20	18	12	12	16	20	23	24	23
21	14	15	13	18	20	23	24	24
22	16	17	16	18	21	23	25	23
23	18	16	15	18	20	22	24	24
24	19	12	19	16	20	23	24	24
25	18	16	15	18	20	22	23	25
26	16	16	16	18	20	23	24	25
27	16	17	16	18	21	24	25	25
28	18	16	15	18	20	23	24	25
29	15	15	14	16	20	22	23	25
30	14	15	13	18	20	23	24	25
Total	496	450	458	514	603	676	716	715
Average	16.5	15	15.3	17.1	20.1	22.5	23.9	23.8

DIMENSION WISE SCORES OF URBAN TEACHERS								
S.No	Urban Pre-Test				Urban Post-Test			
	Technological Awareness	Knowledge on Online Tools	Usage	Classroom Management	Technological Awareness	Knowledge on Online Tools	Usage	Classroom Management
1	16	13	17	18	20	22	24	23
2	18	17	16	19	20	23	24	21
3	16	16	12	18	21	23	25	23
4	14	15	13	18	20	21	23	23
5	18	16	15	18	21	23	25	22
6	16	16	16	18	21	24	25	24
7	15	17	16	17	21	23	24	24
8	18	12	12	16	20	22	24	24
9	14	15	13	18	20	22	23	24
10	18	16	15	18	21	24	25	23
11	19	12	19	16	20	22	24	24
12	18	16	15	18	21	24	25	25
13	16	16	16	18	20	23	24	24
14	16	16	15	18	20	21	23	23
15	19	12	19	16	20	22	24	24
16	15	15	14	16	20	22	23	25
17	14	15	13	18	20	24	24	24
18	16	17	16	18	21	23	25	24
19	18	16	15	18	20	23	24	23
20	15	15	14	16	20	22	24	24
21	16	16	13	18	20	23	24	23
22	15	17	15	16	21	23	25	24
23	15	17	15	16	20	23	24	25
24	19	12	19	16	21	24	25	24
25	16	17	16	18	20	21	23	25
26	18	16	15	18	20	23	24	24
27	18	16	15	18	21	24	25	24
28	16	17	16	18	20	23	23	24
29	18	16	15	18	20	22	23	23
30	16	16	16	18	20	22	24	24
Total	496	463	456	524	610	681	722	711
Average	16.5	15.4	15.2	17.5	20.3	22.7	24.1	23.7

DIMENSION WISE SCORES OF HIGH SCHOOL TEACHERS								
S.No	High Pre-Test				High Post-Test			
	Technological Awareness	Knowledge on Online Tools	Usage	Classroom Management	Technological Awareness	Knowledge on Online Tools	Usage	Classroom Management
1	16	13	17	18	20	22	24	23
2	18	12	12	16	20	23	24	23
3	19	12	19	16	20	21	23	24
4	15	17	16	17	21	23	24	24
5	15	15	14	16	20	23	24	24
6	16	16	13	18	20	22	23	24
7	18	12	12	16	20	23	24	23
8	19	12	19	16	20	23	24	24
9	18	16	15	18	20	22	23	24
10	16	16	16	18	20	23	24	23
11	16	17	16	18	21	24	25	24
12	18	16	15	18	20	23	24	25
13	15	15	14	16	20	22	23	24
14	15	17	15	16	20	23	24	23
15	19	12	19	16	21	24	25	24
16	18	16	15	18	20	23	24	24
17	18	16	15	18	21	24	25	24
18	18	16	15	18	20	22	24	24
19	15	15	14	16	20	22	23	25
20	14	15	13	18	20	24	24	24
21	16	17	16	18	21	23	25	24
22	18	16	15	18	20	23	24	23
23	15	15	14	16	20	22	24	24
24	16	16	13	18	20	23	24	23
25	15	17	15	16	21	23	25	24
26	14	15	13	18	20	23	24	24
27	16	17	16	18	20	23	23	24
28	18	16	15	18	20	22	23	23
29	16	16	16	18	20	22	24	24
30	16	17	16	18	20	21	23	25
Total	496	458	453	517	606	681	717	715
Average	16.5	15.3	15.1	17.2	20.2	22.7	23.9	23.8

DIMENSION WISE SCORES OF HIGHER SECONDARY SCHOOL TEACHERS								
S.No	Higher Secondary Pre-Test				Higher Secondary Post-Test			
	Technological Awareness	Knowledge of Online Tools	Usage	Classroom Management	Technological Awareness	Knowledge of Online Tools	Usage	Classroom Management
1	18	17	16	19	20	23	24	21
2	16	16	12	18	21	23	25	23
3	14	15	13	18	20	21	23	23
4	16	17	16	18	20	23	24	21
5	18	16	15	18	21	23	25	22
6	15	15	14	16	20	23	24	21
7	16	16	13	18	20	21	23	23
8	15	17	15	16	20	22	24	24
9	18	16	15	18	20	23	24	23
10	16	16	16	18	21	24	25	24
11	15	15	14	16	20	23	24	25
12	16	14	15	16	20	22	24	24
13	16	15	15	17	20	22	23	24
14	16	16	15	18	20	22	24	23
15	19	12	19	16	20	22	23	24
16	19	12	19	18	20	22	24	23
17	18	12	12	16	20	22	24	24
18	14	15	13	18	20	22	23	24
19	16	17	16	18	20	22	24	24
20	18	16	15	18	21	24	25	23
21	15	17	15	16	20	22	24	24
22	19	12	19	16	20	22	24	24
23	18	16	15	18	21	24	25	25
24	16	16	16	18	20	23	24	24
25	16	16	15	18	20	21	23	23
26	19	12	19	16	20	22	24	24
27	19	12	19	18	21	24	25	25
28	15	17	16	17	20	23	24	24
29	14	15	13	18	20	23	24	24
30	16	17	16	18	21	23	25	23
Total	496	455	461	521	607	676	721	703
Average	16.53	15.17	15.37	17.37	20.23	22.53	24.03	23.43

ONLINE QUESTION CREATION AND EVALUATION SKILL

TOOL PREPARATION AND VALIDATION WORKSHOP

VENUE: DIET, MAYANUR **DATE: 29.01.2024**

Investigator conducting Tool preparation and Validation workshop

ONLINE QUESTION CREATION AND EVALUATION SKILL

MODULE PREPARATION WORKSHOP

VENUE: DIET, MAYANUR DATE: 05.02.2024 & 06.02.2024

Investigator conducting Training module preparation workshop

ONLINE QUESTION CREATION AND EVALUATION SKILL TRAINING FOR SECONDARY LEVEL TEACHERS

Venue: GGHSS, KARUR **Date: 12.02.2024 &13.02.2024**

Investigator conducting Pre-Test for Teachers

Investigator conducting Online Web tools Training

ONLINE QUESTION CREATION AND EVALUATION SKILL TRAINING FOR SECONDARY LEVEL TEACHERS

Venue: GGHSS, KARUR **Date: 12.02.2024 &13.02.2024**

Investigator guide the teachers to applying assessment tools in lab

Participants practicing Online Assessment tools in High-tech Lab

ONLINE QUESTION CREATION AND EVALUATION SKILL TRAINING FOR SECONDARY LEVEL TEACHERS

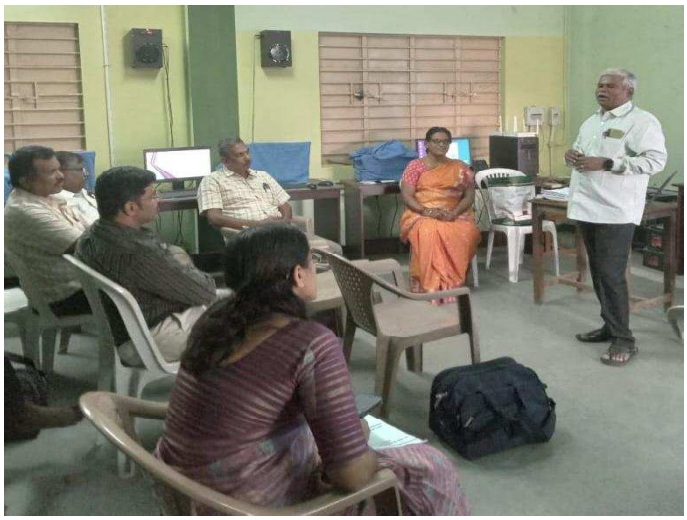
Venue: GGHSS, KARUR **Date: 12.02.2024 &13.02.2024**

Investigator issuing the training Module to the Participants

Participants received the Training Module

ONLINE QUESTION CREATION AND EVALUATION SKILL TRAINING FOR SECONDARY LEVEL TEACHERS

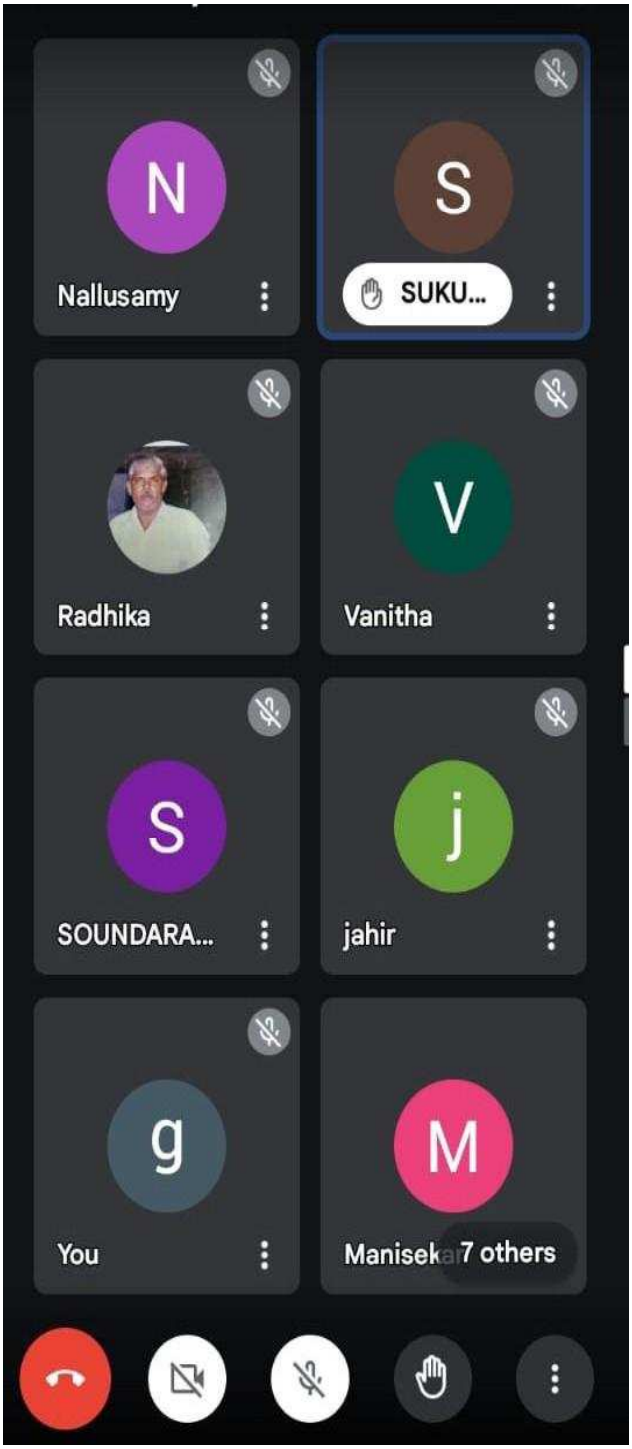
Venue: GGHSS, KARUR **Date: 12.02.2024 &13.02.2024**



Participants expresses their feedback about training

Participants involved in the Web tool assessment on their mobiles after training

GOOGLE MEET 1ST SESSION

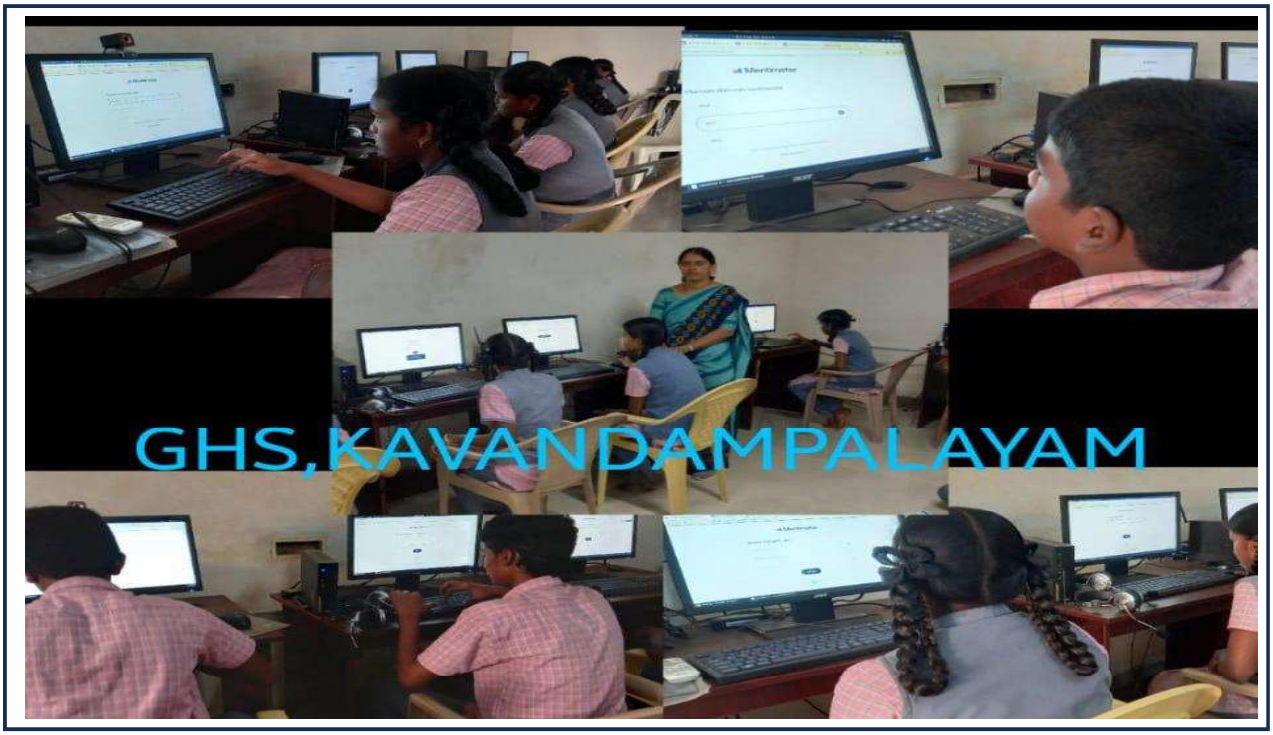


GOOGLE MEET 2ND SESSION

TEACHERS APPLYING ONLINE QUESTION CREATION AND EVALUATION SKILL AFTER TRAINING IN THEIR SCHOOLS

GHSS,THUMBIVADI

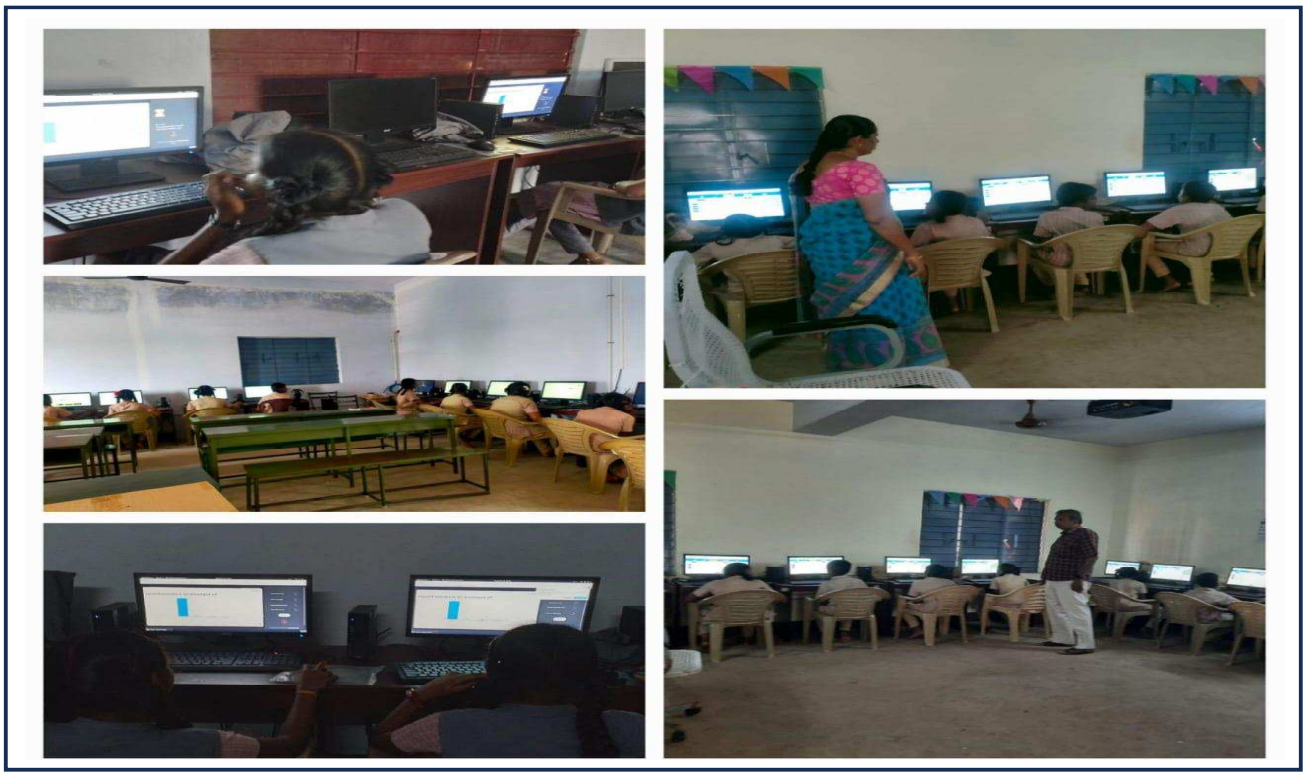
GHSS,THENNILAI



GHS,KAVANDAMPALAYAM

GGHSS,KARUR

MPL KUMARAN HIGH SCHOOL, KARUR



GHSS ESANATHAM, GHS VARIKKAPATTI

RECEIVED FEEDBACK FROM TEACHERS AFTER APPLYING ONLINE QUESTION CREATION AND EVALUATION SKILL IN THEIR SCHOOLS

கரூர் மாவட்ட பள்ளி ஆசிரியர்களுக்கு இணைய வழியின் வாயிலாக வினாக்கள் உருவாக்க மற்றும் மதிப்பீடு செய்வதற்கான திறன்களை வளர்த்தல்

பின்னூட்டம்

பயிற்சியில் விளக்கிய Google forms, Mentimeter என்ற இணைய வழி மதிப்பீடு கருவியை பயன்படுத்தி 9 ஆம் வகுப்பு மாணவர்களை மதிப்பீடு செய்தேன். மாணவர்கள் மிகுந்த ஆர்வத்துடனும் மகிழ்ச்சியுடனும் பங்கேற்றனர். இம்முறையில் மதிப்பீட்டுக்கான முடிவை உடனே தெரிந்து கொள்ள முடியுமாதலால் மாணவர்கள் ஆர்வத்துடன் பங்கேற்றனர். அடுத்த தேர்வையும் ஆவலுடன் எதிர்நோக்கினர்.

இணைய வழி முறையில் மதிப்பீடு செய்வது விரைவானதாகவும் நேரச்சிக்கனம் உள்ளதாகவும் ஒரு முறை தயார் செய்தால் மீண்டும் மீண்டும் பயன்படுத்த கூடியதாகவும் இருப்பதால் ஆசிரியர்களிடையே வரவேற்பை பெற்றுள்ளது.

M. ஜாகிர் அப்பாஸ்,
பட்டதாரி ஆசிரியர்,
அரசு மேல்நிலைப்பள்ளி,
தும்பிவாடி.

Respected madam,

I am Sukeerthi.G, Science BT, PEVR.GHSS, Noyyal.

I evaluated 9std students using mentimeter and Google form. The students answered the questions very interestly. They answered the questions without any exam fear. As a teacher it is very useful tool for evaluating students. Especially if we feed questions once in mentimeter and google forms we can evaluate every year without typing questions again. Moreover, we can edit it easily. It is very useful for us. Now I am typing questions in mentimeter for future evaluation also.

Thank you, madam,

கரூர் மாவட்ட பள்ளி ஆசிரியர்களுக்கு
இணைய வழியான தரமான வினாக்கள் உருவாக்க
மற்றும் மதிப்பீடு செய்வதற்கான திறன்களை வளர்த்தல்

பின்னூட்டம்

பயிற்சியில் கற்றுக் கொண்ட Google form Mentimeter என்ற மதிப்பீட்டு கருவியை எனது பள்ளி ஒன்பதாம் வகுப்பு மாணவர்களிடம் செயல்படுத்தினேன். மாணவர்கள் ஆர்வத்துடனும், மிகுந்த எதிர்பார்ப்புடனும் பங்கேற்றனர். இம்முறையால் உடனுக்குடன் முடிவை தெரிந்து கொள்வதால் மாணவர்கள் அடுத்த தேர்வை ஆவலுடன் எதிர்நோக்குவதோடு தங்களை முழுவதும் தயார்படுத்தி கொள்ளவும் செய்தனர்.

இம்முறையால் மாணவர்களை மதிப்பீடு செய்வது எளிமையாகவும், விரைவானதாகவும் உள்ளது. ஒரு முறை தயார் செய்து அதை பலமுறை பயன்படுத்தவும் முடிகிறது. ஆசிரியர்களுக்கும், மாணவர்களுக்கும் மதிப்பீட்டிற்கான நேரத்தை குறைத்து ஆர்வத்தை அதிகப்படுத்துகிறது. நேரடித் தேர்வு மூலம் மதிப்பீடு செய்வதை காட்டிலும் இணையவழி மதிப்பீட்டு முறை சிறப்பானது, சிக்கனமானது, நம்பகத்தன்மை வாய்ந்தது.

கு. கவிதா,
பட்டதாரி ஆசிரியர்,
அரசு உயர்நிலைப்பள்ளி,
கவுண்டம்பாளையம்.

MPL KUMARAN HIGH SCHOOL, KARUR

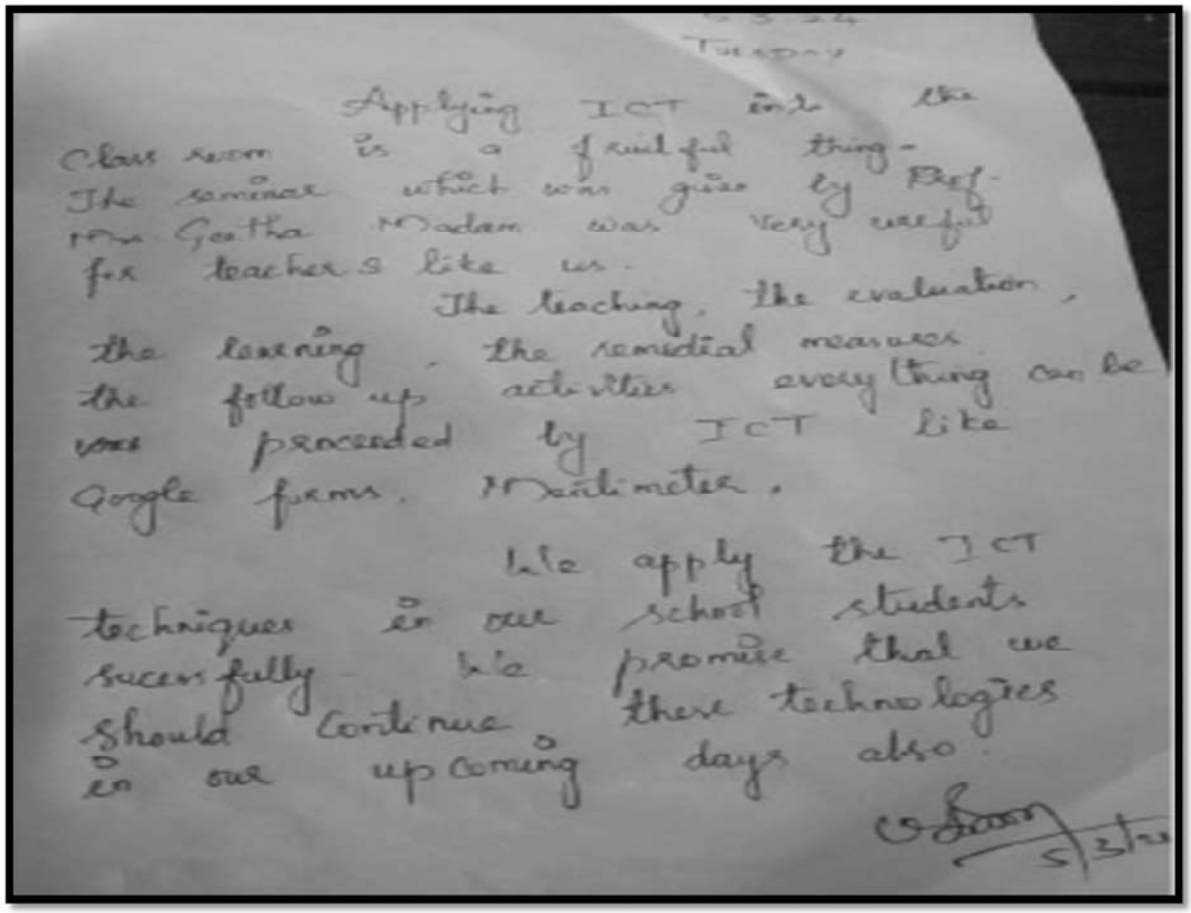
We use a tool Google Forms to Conduct Mcq question to Assess the Students.

It is Very easy to assesses the Students quick and also How many of them answering the questions correct or wrong with help of this chart.

We are able to reinforce the topic and Makes the Students to answer correctly.

I am Very thankful for your online question formulation assessment Skills Training.

Yours faithfully,



Applying ICT in the Class room is a fruitful thing. The seminar which was give by Ref. Mrs Geetha Madam was very useful for teachers like us.

The teaching, the evaluation, the learning, the remedial measures the follow up activities every thing can be proceeded by ICT like Google forms, Mentimeter.

We apply the ICT techniques in our school students sucessfully We promise that we should continue these technologies in our up coming days also.

5/3/20

7/3/2024

Feed back

கரூர் மாவட்டத்தில் உள்ள பட்டதாரி ஆசிரியர். கணினியில் இணைய வழி கேள்வி உருவாக்கம் மற்றும் மதிப்பீட்டுத் திறனை மேம்படுத்துதல் பயிற்சியானது அம்மையார் ந. கீதா, விரிவுரையாளர் - மாவட்ட ஆசிரியர் கல்வி மற்றும் பயிற்சி நிறுவனம், அவர்களால் நடத்தப்பட்டது. அதில் கலந்து கொண்ட நான் என்னுடைய பள்ளி மாணவர்களுக்கு இணையவழியில் கேள்வி உருவாக்கல் அதை செயல்முறை படுத்தினேன். மாணவர்கள் அதை மிகவும் விருப்பத்தோடு மேற்கொண்டனர். இப் பயிற்சியின் மூலம் என்னுடைய திறனையும் மேலாக வளர்த்துக் கொண்டேன். எனக்கும் இது மிகவும் பிரயோஜனமாக இருந்தது. உடன் பாடங்கள் மற்றும் HSP இணைய வழி மூலம் கேள்விகள் எடுத்து என்னுடைய கேள்வி உருவாக்கும் திறனை மேம்படுத்திக் கொண்டேன். மாணவர்களுக்கு link மூலம் அனுப்பப்பட்டு அவர்கள் இக் கேள்வியினை வீட்டிலேயே செய்து விட்டனர். மாணவர்களும் இதன் மூலம் தங்கள் திறனை வளர்த்துக் கொண்டனர். எனக்கு இந்த வாய்ப்பினை தந்த கீதா மேடத்துக்கு நன்றிகள் பல.

"Thank You Miss"

- G. Shoeba Joseph
G. H. S. School,
Thanthonimalai
Karur.