



The Use Of Innovative Techniques And Media For Effective Teaching And Learning In Secondary Schools

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ABSTRACT

This study was carried to investigate teachers' views on utilization of innovative techniques and media for effective teaching and learning in secondary schools. The study is a cross sectional survey research. Four research questions were formulated to guide the study. The population of the study comprised 485 teachers in all the 30 secondary schools in Bharuch district in Gujarat State, India. Simple random sampling technique was used to select 7 respondents each from the 30 secondary schools. Instrument used to collect data was structured questionnaire. An internal consistency reliability of 0.78 was established for the instrument. Data collected were analysed using mean and standard deviation. It was found among others that the individualized instruction, simulation/game, team teaching techniques, PowerPoint presentation and language laboratory instructional media enhance teaching and learning in post primary schools. The educational implications of the results include that more funds are required to provide the necessary facilities/equipment that could support the use of these instructional techniques and media in secondary schools. Also training of teachers is critical for the use and sustenance of these innovative instructional techniques/media the schools.

Keywords: Innovative, Techniques, media, Teaching and Learning, Public secondary schools.

1. INTRODUCTION

The world is moving towards competition. People struggle to learn, and to work hard to create a new learning environment. Research has shown that certain methods and approaches can truly enhance the learning skill. Some innovative methods of teaching could be the combination of various digital media types such as text, images, audio and video, into an integrated multi-sensory interactive application or presentation to convey information to the audience. A technique is way of doing things. It is a systematic way through which a task is accomplished. A technique is called different names by many different scholars. Some refer the term to methods while others call it mode or skill. All these names refer to the procedures used in achieving a purpose. In education, student engagement refers to the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education. In a teaching-learning situation, a technique is a skill, modality, or method a teacher adopts in delivering his/her lesson to achieve instructional objectives. In a teaching-learning situation, a technique is a skill, modality, or method a teacher adopts in delivering his/her lesson to achieve instructional objectives.

2. WHAT IS INNOVATIVE TEACHING?

Innovative teaching means creativity and novelty of the teacher which changes the style and method of teaching. All over the world, educational institutions implementing new ideas, methods, technology based innovations to enhance the students' knowledge. Innovative teaching is necessary for the present and future of education to help students to reach their full potential. Higher education should serve the long term intellectual needs of the student, for example, whether providing new material by teachers helped the student to gain new insights or opened up new channels of intellectual stimulation or enhanced student's essential and creative thinking power? Innovative teaching is a necessity for all teachers in order to meet the educational needs of the new generations. However, teachers' competency for innovative teaching is a key factor influencing innovative teaching performance. Some research points out that many teachers lack competencies for innovative teaching!

2.1 Methods of Innovative Teaching

1. *Love What You Do*

You can give your best only if you truly love what you do. You will be more creative and inspired when you are not stressed. Loving your work keep you relaxed and give you room to experiment new ideas.

2. *Audio & Video Tools*

Incorporate audio-visual materials in your sessions. Supplement textbooks with models, filmstrips, movies and pictorial material. Use info graphics or other mind mapping and brain mapping tools that will help their imagination thrive and grow.

3. *Brainstorm*

Make time for brainstorming sessions into your classrooms. These sessions are a great way to get the creative juices flowing. When you have multiple brains focusing on one single idea, you are sure to get numerous ideas and will also involve everyone into the discussion. These sessions will be a great platform for students to voice their thoughts without having to worry about right or wrong. Set some ground rules before you start. You can go for simple brainstorming or group brainstorming or paired brainstorming.

4. *Classes outside the Classroom*

Some lessons are best learnt, when they are taught outside of the classroom. Organize field trips that are relevant to the lessons or just simply take students for a walk outside of the classroom. The children will find this fresh and exciting and will learn and remember the things taught faster. You can even use this method for teaching preschoolers; just make sure you keep it simple enough to capture their limited attention span

5. *Role Play*

Teaching through role play is a great way to make children step out of their comfort zone and develop their interpersonal skills. This method comes in handy, especially when you are teaching literature, history or current events. The role playing approach will help the student understand how the academic material will be relevant to his everyday tasks

6. Welcome New Ideas

An open-minded attitude can help you innovating new teaching methods. Though open-minded, sometimes most of us show reluctance to new ideas. If you're a teacher never do this, always try to accept new ideas even if it looks like strange at the beginning.

7. Puzzles and Games

Learning is fun where puzzles and games are part of education. Children may not feel they're learning when their lessons are introduced through games. Puzzles and games help children to think creatively and face challenges.

8. Refer Books on Creativity

To be a creative teacher, you need to do some research on creative ideas and techniques. There are a lot of books on creativity. Choose some of the best works and start learning, it will be helpful for your professional development as well.

9. Introduce Lessons like a Story

Just think, why do you watch movies with much interest? You like to watch movies because there is always an interesting story to keep you engaged. Like that, learning sessions become more interesting when you introduce it like a story. If you are creative even math lessons can be related to interesting stories. These innovative ideas are sure to make teaching methods more effective.

2.2 Innovative Learning Methods

1. Crossover Learning

Learning in informal settings, such as museums and after-school clubs, can link educational content with issues that matter to learners in their lives. These connections work in both directions. Learning in schools and colleges can be enriched by experiences from everyday life; informal learning can be deepened by adding questions and knowledge from the classroom. These connected experiences spark further interest and motivation to learn.

An effective method is for a teacher to propose and discuss a question in the classroom, then for learners to explore that question on a museum visit or field trip, collecting photos or notes as evidence, then share their findings back in the class to produce individual or group answers. Since

learning occurs over a lifetime, drawing on experiences across multiple settings, the wider opportunity is to support learners in recording, linking, recalling and sharing their diverse learning events.

2. Learning through Argumentation

Students can advance their understanding of science and mathematics by arguing in ways similar to professional scientists and mathematicians. Argumentation helps students attend to contrasting ideas, which can deepen their learning. It makes technical reasoning public, for all to learn. It also allows students to refine ideas with others, so they learn how scientists work together to establish or refute claims.

Teachers can spark meaningful discussion in classrooms by encouraging students to ask open-ended questions, re-state remarks in more scientific language, and develop and use models to construct explanations.

3. Incidental Learning

Incidental learning is unplanned or unintentional learning. It may occur while carrying out an activity that is seemingly unrelated to what is learned. Early research on this topic dealt with how people learn in their daily routines at their workplaces.

For many people, mobile devices have been integrated into their daily lives, providing many opportunities for technology-supported incidental learning. Unlike formal education, incidental learning is not led by a teacher, nor does it follow a structured curriculum, or result in formal certification.

4. Learning by Doing Science (with remote labs)

Engaging with authentic scientific tools and practices such as controlling remote laboratory experiments or telescopes can build science inquiry skills, improve conceptual understanding, and increase motivation.

Remote lab systems can reduce barriers to participation by providing user-friendly Web interfaces, curriculum materials, and professional development for teachers. Access to remote labs can also bring such experiences into the school classroom. For example, students can use a high-quality, distant telescope to make observations of the night sky during daytime school science classes.

3. SCOPE OF THE STUDY

The study examined teachers' views on the innovative techniques / media for effective teaching and learning in secondary schools in Bharuch district in Gujarat State, India. The study focused specifically on the use of individualized instruction, simulation and game, team teaching, language laboratory and PowerPoint to enhance teaching and learning.

4. OBJECTIVE OF THE STUDY

The general purpose of this study was to ascertain the views of teachers on needed innovative techniques for effective teaching and learning in secondary schools in Bharuch district in Gujarat State, India. Specifically, the study sought to:

1. Ascertain the views of teachers on the use of individualized instruction technique for effective teaching and learning in Bharuch district in secondary schools.
2. Determine the views of teachers on the use of simulation and game technique for effective teaching and learning in Bharuch district in secondary schools.
3. Examine the views of teachers on the use of team teaching technique for effective teaching and learning in Bharuch district in secondary schools.
4. Find out the views of teachers on the use of language laboratory media for effective teaching and learning in Bharuch district in secondary schools.
5. Ascertain the views of teachers on the use of PowerPoint media for effective teaching and learning in Bharuch district in secondary schools.

5. RESEARCH QUESTIONS

The following research questions guided the study:

1. What are the views of teachers on the use of individualized instruction technique for effective teaching and learning in Bharuch district in secondary schools?
2. What are the views of teachers on the use of simulation and game technique for effective teaching and learning in Bharuch district in secondary schools?
3. What are the views of teachers on the use of team teaching technique for effective teaching and learning in Bharuch district in secondary schools?

4. What are the views of teachers on the use of language laboratory media for effective teaching and learning in Bharuch district in secondary schools?
5. What are the views of teachers on the use of PowerPoint media for effective teaching and learning in Bharuch district in secondary schools?

6. METHODOLOGY

Design of the study was a cross sectional survey. Population of the study comprised all the 485 secondary school teachers in 30 secondary schools in Bharuch district in Gujarat State, India. Secondary school teachers only were used for they study because they implement the curriculum at the secondary school level and also close to the students. Simple random sampling technique was used to select Seven (07) teachers each from the Twenty (30) secondary schools used for the study. This gave a total of One Hundred sixty (160) respondents as sample but One hundred twenty five (125) were responded for the study.

Area of the study is secondary schools in Bharuch district in Gujarat State, India. The City was chosen because they are educationally disadvantaged and need to be exposed to the techniques that will make students at secondary school level sound and achieve very high academically. Some of the backward area in Bharuch district. The inhabitants are mostly farmers/ artisans, and few public and civil servants. There are approximant 1,182 primary and 300 secondary institutions in the Bharuch district.

7. INSTRUMENT FOR DATA COLLECTION

Teaching and Learning Researchers -structured questionnaire titled "Innovative Techniques / Media for Effective Teaching and learning Questionnaire" (ITMETLQ) was used as the instrument for data collection. The response option used is a four- point rating scale thus: Strongly Agree-4 points, Agree-3 points, Disagree-2 points and strongly disagree -1 point. The items of the instrument were developed based on the research questions. Each item statement addressed the research question. The items were arranged in clusters of 5 items on each table.

The instrument was validated by three experts; one each from educational technology, curriculum studies and educational measurement and evaluation respectively in the faculty of education University. They were also requested to examine the face and content validity of the instrument. The corrections made by the experts led to the modification draft and production of the final questionnaire for the study.

In determining the reliability of the instruments for the study, a pilot study was carried out using secondary school teachers in Aeklavya Sadhana Vidhyalaya, Thava in Netrang taluka, who were not part of the respondents for the study. Their responses were subjected to reliability of analysis using Cronbach Alpha co-efficient to determine the internal consistency of the instrument. The reliability coefficient of all the clusters was obtained as 0.78. The reliability index was considered high enough for the study.

In collecting data for the study, the researchers employed two research assistants from who were trained on the mode of administration and collation of questionnaire. Specific days were mapped out for distribution of the questionnaire to all the sampled schools. The questionnaire was administered on the respondents and collected the same to ensure maximum return.

The data collected were analysed using mean scores and standard deviation. Decision rule is that mean score of 2.5 and above is regarded as agree; while mean score below 2.5 is regarded as disagree.

8. DISCUSSION OF RESULTS AND FINDINGS

- 1. Research question one:** What are the views of teachers on the use of individualized instruction technique for effective teaching and learning in public secondary schools?

Table-1
Mean response of teachers on the use of individualized instruction technique for teaching and learning in public secondary schools.

S/N	Item statement	SA	A	D	SD	\bar{X}	SD	Decision	
1	Students reading their text books on their own after classroom lesson help them to understand the subject matter better.	7	75	–	–	3.5	0.50	Agree	
2	Student learning on their own with the aid of programmed and recorded lesson in CD/DVD or tape helps to elevate the load of the classroom teacher repeating instructional content	60	75	–	15	3.4	0.66	Agree	
3	Computer as an innovative media enhances student's private study and creative thinking as students can operate the computer and get the information they want	45	105	–	–	3.7	0.46	Agree	
4	Individualized instruction helps students to learn from simple to complex, known to unknown because they are in control of what they are learning.	60	75	15	–	3.3	0.90	Agree	
5	Individualized instruction reduces the time the teacher should have spent in explaining the lesson content because the students can get more information on their own.	60	60	30	–	3.0	1.10	Agree	
6	Individualized instruction takes care of individual student's learning styles because each student learn according to his/her ability.	15	135	–	–	3.9	0.30	Agree	
7	Students engaging in individualized instruction promote lifelong learning in them as what a student finds out him/herself is difficult to forget.	30	105	15	–	3.5	0.92	Agree	
Grand Mean (x)		3.47							

The result of the data analysis in table 1 show that the respondents agreed that the items 1-7 are benefits accruable when individualized instruction is used for instructional delivery in post primary schools. This is evident from the grand mean of 3.47 which indicates that the use of this technique will greatly improve the process of teaching and learning in schools.

Findings: Result in table 1 on views of teachers on the use of individualized instruction for effective teaching and learning in post primary schools revealed positive response in favour of the use of individualized instructional technique for effective teaching and learning in post primary schools.

2. Research Question two: What are the views of teachers on the use of simulation and game technique for effective teaching and learning in post primary schools?

Table -2
Mean response of teachers on the use of simulation and game technique for effective teaching and learning in post primary schools.

S/N	Item statement	SA	A	D	SD	\bar{X}	SD	Decision
8	Students exposed to simulation and games are opportune to see and learn the actual characters of real concepts it represents.	15	75	45	15	2.8	1.33	Agree
9	Simulation and games helps students to develop critical thinking because during the act students think on the next line of action.	0	150	–	–	4.0	0.00	Agree
10	Students thought with simulation and games develop the skill of problem solving because the technique is problem solving in nature.	45	105	–	–	3.7	0.46	Agree
11	Simulation and games helps students to retain what have been thought because they will be actively involved in the act.	30	120	–	–	3.8	0.40	Agree
12	Simulation and games promote transfer of knowledge because similar character of what the students have learnt might reoccur	45	90	–	15	3.3	0.70	Agree
Grand Mean (x)		3.52						

The result of data in table 2 reveal that the respondents agreed with items 8-12 as contributions of simulation and game technique to instructional delivery process in post primary schools. The findings show that the respondents agreed with item: 8-12 as contributions of simulation and game technique lo instructional delivery process in post primary schools. This is evident from the high grand mean score of 3.52 as indicated in table two above

Findings: Result in table 2 on the use of simulation and game technique for effective teaching and learning in post primary schools showed that teachers responded in favour of the use of language laboratory for effective teaching and learning. The positive achievement in favour of simulation might be attributed to the fact that simulation and game influence both affective, cognitive psycho-motor domains which increase

retention achievement and confidence to apply the information taught in a similar situation. But this is contrary to the study of that game strategy did not have any significant effect on the achievement of students in Igbo grammar though those exposed to games achieve a little higher than those exposed to the conventional method. Most of the time resources required to improve instructional process might not be enough or not there at all which can also be obtainable in simulation and games technique. The shortage of either human and materials resources might hinder significant effect of simulation and game.

3. Research Question Three: What the views of teachers on the use of team teaching for effective teaching and learning in public secondary schools?

Table-3
Mean response of teachers on use of team teaching technique for effective teaching and learning in public secondary schools

S/N	Item statement	SA	A	D	SD	\bar{X}	SD	Decision
13	Applying team teaching in instructional delivery helps students to enjoy expertise knowledge of individual teacher as more than one teacher teaches the students.	30	120	–	–	3.8	0.40	Agree
14	Team teaching helps in reducing the errors one teacher might have made on the process of teaching, because another teacher from the team might correct the error.	45	105	–	–	3.7	0.46	Agree
15	Team teaching expands the scope of the content of instruction as individual teacher goes extra mile to get information.	45	90	15	–	3.4	0.92	Agree
16	In team teaching, students are opportune to share in the effective and weakness of teachers because each member of the team teaches the students in his/her own way.	90	60	–	–	3.4	0.49	Agree
17	Team teaching technique promotes teacher-teacher relationship as they work for planning to evaluation of an instruction together.	75	60	15	–	3.2	0.87	Agree
Grand Mean (x)		3.5						

The analysis of data in table 3 show that the respondents agreed in items 13-17 as advantages of the use of team teaching in instructional delivery in post primary schools which translate to the high grand mean score of 3.5 as indicated in the table 3 above.

Findings: Result in table 3 on the opinions of teachers on the use of team teaching technique for effective teaching and learning in post primary schools revealed positive response in favour of the use of team teaching. This is in line with Carpenter, Crawford and Walden (2007) that not minding the insignificant difference in the achievement test scores for the two groups, the final grades were significantly higher among team taught students.

4. Research Question Four: What are the views of teachers on the use of language laboratory media for effective teaching and learning in public secondary schools?

Table-4

Mean response of teachers on the use of language laboratory media in teaching and learning in public secondary Schools.

S/N	Item statement	SA	A	D	SD	\bar{X}	SD	Decision
18	Teaching students in language helps Students to learn the accent of the original natives of the language as they hear from them directly.	30	60	30	30	2.8	1.17	Agree
19	Use of language laboratory in teaching- learning process increases students' listening skills and comprehension	45	105	-	-	3.7	0.46	Agree
20	Integrating language laboratory in language class promotes students' ability to pronounce the spoken language correctly as they listen to the original owners of the language.	60	75	15	-	3.3	0.90	Agree
21	Language laboratory helps the students to make appropriate use of the spoken language, because students are hearing directly from the original source.	30	90	15	15	3.3	0.90	Agree
22	Language laboratory creates room for students to learn at their own pace, as the content to be learned are programmed and taped.	45	105	-	-	3.7	0.46	Agree
23	Language laboratory reduces teacher's load of repeating words, because it is programmed and students learn from the taped.	30	90	30	-	3.2	1.66	Agree
Grand Mean (x)		3.33						

The analysis of data in table 4 reveal that the respondents agreed that items 8-13 are the gains of using language laboratory in teaching and learning in post primary schools as can be seen from the grand mean of 3.33 shown on the table four above.

Findings: Result in table 4 on opinions of teachers on the use of languages laboratory media indicate positive response to the credit of the use of language laboratory for effective teaching and learning in public secondary schools.

5. Research Question Four: What are the views of teachers on the use of PowerPoint media for effective teaching and learning in public secondary schools?

Table - 4
Mean response of teachers on the use of power point media for teaching and learning in public secondary schools.

S/N	Item statement	SA	A	D	SD	\bar{X}	SD	Decision
24	Students taught with PowerPoint understand the topic concepts better because the lesson has audio and visual effect.	45	85	15	07	3.11	0.758	Agree
25	Using PowerPoint in teaching arouses students' interest because the lesson is presented with pictures.	75	75	–	–	3.50	0.500	Agree
26	Presentation of lesson content with PowerPoint make teaching easy as slide design template can be used.	75	60	15	–	3.40	0.663	Agree
27	Presentation of lesson content with PowerPoint makes students to be attentive in the classroom during teaching and learning because of the sound/visual effect.	75	75	–	–	3.50	0.500	Agree
28	Students taught with the aid of PowerPoint retain longer what was taught because the lesson could be presented with animation.	15	105	30	–	3.00	0.632	Agree
29	Presentation of lesson with the aid of PowerPoint enhances teacher-students interaction because of the use of formatted texts.	30	90	30	–	3.00	0.632	Agree
30	Using PowerPoint in teaching sustains students' interest because of the use of graphics.	53	83	7	7	3.21	0.736	Agree
31	Students taught with the aid of PowerPoint make learning easy because of the use of auto content wizard.	45	75	30	–	3.10	0.700	Agree
Grand Mean (x)		2.85						

The result of data analysed on table 5, show that the respondents agreed in items 24-31. This implies that use of power point as an instructional medium enhances effective teaching and learning in secondary schools.

Findings: Result in table 5 on opinions of teachers for effective teaching and learning revealed positive response in favour of the use of PowerPoint for effective teaching and learning in public secondary schools.

9. RECOMMENDATIONS

Based on the findings of study, the following recommendations were made:

1. Students' centred instructional techniques should be applied by teachers in delivering their instructional content to achieve lifelong learning in students.
2. Government and school management should supply enough and required facilities for language laboratory for promotion of language studies.
3. School management should endeavour to recruit qualified and enough teachers for each subject to encourage team teaching and to promote quality education.
4. As PowerPoint can have audio and visual effects which makes lesson concepts real thus, teachers should endeavour to use it in presenting their lessons.

5. Instructional simulation and games should be encouraged and promoted by the school management by providing designed instructional simulation/game course ware and soil ware as it enhances student's active participation during lesson

10. CONCLUSION

In this paper focuses innovative teaching and learning methods in the class room by giving the students a new way to train their skills. Encouraging teachers to adopt new method technology into the classroom and use multimedia to modify the contents of the material. It will help the teacher to represent the lessons in a more meaningful way. To enrich teaching-learning process in post primary schools, some techniques such as individualized instruction, language laboratory, team teaching, PowerPoint, simulation and game should form the integral part of teachers' mode of instructional delivery as they are more of students' centred approach to instruction. They promote students' mastery of concepts, active participation, critical thinking and retention. Teaching depends upon successful mode of communication. Innovative teachers and faculty developers need each other. Instructional consultants in teaching improvement centres are the cheer leaders and reinforces of those who bring inventiveness into their teaching innovative teachers are advocates and models of effective teaching.

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