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DIGITAL TECHNOLOGIES IN INNOVATIVE EDUCATION

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ABSTRACT :

   Today's perspective, digital technologies represent a field which is already very extensive and internally differentiated, yet very closely interrelated. Therefore, even in the context of school education, it is no longer possible to pursue the concept, where merely isolated skills are developed with the aim of mastering such individual computer programs that are expected to be encountered by the educated generation in their everyday life. The purpose of this study was to investigate innovative education approaches when teaching in a multiple intelligence technology education classroom. This study focused on a small sample of technology education classrooms and their integration of Gardner's Multiple Intelligences in the classroom.

KEYWORDS : Multiple Intelligence, Teaching Innovation, Digital Technology.

INTRODUCTION

   The new and emerging technologies will speak to, and nurture, a wider range of intelligences. The effect of technology on multiple intelligences can also be seen in the practices towards creating educational resources for modern students of English language and literature. Teachers of English who have always used textbooks, handwritten notes, chalks and blackboards are now adept at smart-boards, computers and flash-drives. The students, too, on their part have stopped depending heavily on the actual classroom learning and have started using internet, e-library and online learning facilities to maximize the ratio between their efforts and desired outcome. Though initial inclinations of use of technology in adoption of multiple intelligences can be associated with computers, the recent practices have gone beyond the computers and resorted to newer technologies.

OBJECTIVES

- To study the development of multiple intelligence through digital technology at school students.

RESEARCH SAMPLE

   The sample for the present study was taken from Government/Aided and Self-financing Schools in Coimbatore District, 186 students were taken as the sample for the study. The present study deals with the digital technology in innovative education develop the multiple intelligence.

HYPOTHESES

1. There will be significant mean score difference in the development of multiple intelligence through digital technology between the group based on the type of institute.
2. There will be significant mean score difference

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in the development of multiple intelligence between the groups based on using digital resources.

MULTIPLE INTELLIGENCE

As educators, however, they often face students who do not share this 'linguistic intelligence', but rather variations of   the eight intelligences devised in 1983 by Howard Gardner, developmental psychologist and current Professor of Cognition and Education at Harvard. Gardner developed his theory of multiple intelligences to document "the extent to which students possess different kinds of minds and therefore learn, remember, perform, and understand in different ways." (1991).

He sought to challenge traditional perceptions of intelligence based on I.Q. and instead proposed eight different intelligences that could capture a broader range of human mental capacity and potential. These intelligences are:

1. Linguistic intelligence ("word smart")
2. Logical-mathematical intelligence ("number/reasoning smart")
3. Spatial intelligence ("picture smart")
4. Bodily-Kinesthetic intelligence ("body smart")
5. Musical intelligence ("music smart")
6. Interpersonal intelligence ("people smart")
7. Intrapersonal intelligence ("self smart")
8. Naturalist intelligence ("nature smart")

The challenge, then, is for educators to keep all eight intelligences in mind when designing course instruction. They should resist the inclination to implement methods and activities that target those with 'linguistic intelligence', although this may be their primary avenue for acquiring information. Not all of the students who educators encounter in higher education learn in this same way, and therefore educators have to adapt their methods and activities to most effectively foster student learning.

Verbal/Linguistic Intelligence

It is the ability to produce and to use the language effectively that includes complex events such as thinking and expressing with words, evaluating complex meanings on the language, understanding meaning and structure in words, reading poetry, humor, storytelling, grammar knowledge, metaphorical expression, analogy, abstract and symbolic thinking, concept creation and writing.

Digital Technology Method

eBooks, Internet lesson plans, online assignments and word processing software, or a subset of the above, are now ubiquitous in schools. Technology allows addition of multisensory elements that provide meaningful contexts to facilitate comprehension, thus expanding the learning ground of language and linguistics.

Logical-Mathematical Intelligence

It is the ability to think by numbers, to make calculations, to draw conclusions, to establish logical relationships, to develop hypotheses, to solve problems, to think critically, to know abstract symbols such as numbers and geometric shapes, and to make connections between pieces of information.

Digital Technology Method

Logical learners enjoy problem solving. This is why eLearning activities that include logical reasoning tasks, **graphics** such as Venn diagrams, charts, or tables, as well as critical thinking **branching scenarios**, where your learners are required to find the answer using a series of clues, can significantly help them to analyze information in a logical manner, and thus easily **memorize** it.

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Spatial Intelligence

It is the ability to think by pictures, images, shapes and lines, to perceive and reason three dimensional objects.

Digital Technology Method

Visual learners respond well to **color**, **images**, illustrations, and graphics, as well as games and multimedia that are **visually appealing**. Consider integrating these elements into your eLearning course, and you will be able to automatically engage your visual learners.

Bodily-Kinesthetic Intelligence

It is the ability to express oneself with motion, gestures and mimics, and to use brain-body coordination effectively.

Digital Technology Method

Kinesthetic learners learn by doing; they are more easily engaged when given the opportunity to explore virtual environments and do activities that require physical involvement, such as drag and drop interactions, eLearning games, and simulations. Include several interactive methods and techniques to encourage kinesthetic learners feel, touch, move, and manipulate objects.

Musical Intelligence

It is the ability to think by sounds, notes, and rhythms, to recognize different voices, and to produce new voices and rhythms.

Digital Technology Method

Musical learners think and learn in terms of **music**, which means that they respond particularly well to eLearning material that includes music and sound, such as **multimedia** presentations with **audio**

Interpersonal Intelligence

It is the ability to work collaboratively within the group, to communicate verbally and nonverbally, to understand, share, express, and interpret feelings, thoughts and behaviors of people, and to persuade people.

Digital Technology Method

Social learning is by far the most effective way to engage interpersonal learners, who really enjoy learning by collaborating, interacting, and building relationships with their peers. Encourage them to exchange ideas and share their concerns in online discussions in and out of **social media**, and ask them to make decisions while putting themselves in someone else's shoes in scenario-based activities.

Intrapersonal Intelligence

It is the ability of people to recognize their own feelings, their degree of emotional reaction, and process of thinking, to evaluate oneself, and to set goals for themselves. It covers all other types of intelligence.

Digital Technology Method

Intrapersonal learners focus on the internal aspects of learning; therefore, they are more likely to be motivated when asked to think how to apply what they are learning to their own lives. **Scenarios that offer real world benefits** is ideal for them, as they become more engaged when introspecting and reflecting. Moreover, don't hesitate providing your intrapersonal learners with material for further private study, as it

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will help them gain a sense of what they want to achieve or what are the **mistakes to avoid** in their personal or professional lives.

Naturalist Intelligence

It is the ability to recognize and research all living beings in the nature, and to think about their creation. Traditional education considers only numerical and verbal ones. However, the one-way intelligence approach potentially limits the development of human mind.

Teaching innovation

A teacher tries the best way to impart knowledge among students so that they can use it & understand it. So, communication methods that serve this purpose without losing the objective could be considered as innovative methods of teaching. The use of these methods in educational institutions not only improve education, but also empower people and galvanize the effort to achieve the human development goal for the nation. There are a number of ways that teachers can go around the system and offer students an innovative mindset. This study emphasizes basic element of innovative teaching like innovative culture and effective teaching practices

Innovative Culture

Innovative culture refers to optimum collaboration between the teacher and environment.

Effective Teaching Practice

Different people have different perspectives of effective teaching. Effective teaching means optimum collaboration between the teacher and student. Effective teachers are those who accomplish the goals which they set for themselves and others.

Table 1: Computer based Teaching

S.No.	Program/Application	Dominant Intelligence	Use
1.	Ms-Word, Adobe Pagemaker	Verbal/Linguistic Intelligence	Text Box
2.	Ms-Excel	Logical/Mathematical	Tables, Charts, Graphs
3.	Ms-Powerpoint	Kinaesthetic	Audio, Video, Graphical Presentations
4.	Ms-Paint, Adobe Photoshop	Visual/Spatial	Drawings, Pictures
5.	Ms-Publisher	Verbal, Visual	Newsletters, Brochures, Business/Greetings Cards
6.	Ms-Access, Ms-Outlook	Verbal, Logical, Visual	Classification, Analysis, Basic Programming of Data, Web-based Synchronization of Data
7.	Windows Media Player	Musical	Play, Edit and Collect Audio and Video Files
8.	Windows Movie Maker	Musical, Visual, Kinaesthetic	Play, Edit and Create Movies
9.	Ms-Clip Organiser	Visual/Spatial	Organisation of Images and Shapes
10.	Ms-Picture Manager	Visual, Kinaesthetic	Editing of Images, Pictures and Photos

The above table shows how various program and applications inbuilt in Windows based computer can cater to teaching and learning resources under an MI-embedded methodology. Teachers and students of English language and literature have used the above facilities on computers for many years now.

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Table 2: Skill based Teaching

S.No.	Skill	Content	ICT Tools
1.	Listening	Songs, rhymes, conversations, speeches, situational dialogues, recitations	Audio-books, audio recordings, MP3/MP4 files, Podcasts, online audio clips
2.	Speaking	Conversations, dialogue readings, speeches, debates, discussions	Online videos, movies, video recordings of real conversations, documentaries, interviews, talk-shows
3.	Reading	Books, magazines, articles, brochures, essays, research papers, stories, novels, plays, poetry	E-books, e-journals, emagazines, Calibre, Kindle, ePub Reader, Google Books, Magic Scroll, Kobo
4.	Writing	Letters, notes, essays, summaries, critical appreciation, memos, minutes, advertisements, stories, poems, plays, scripts, dialogues	Emails, Blogs, online tests on language learning, online writing courses from universities like Stanford, Iowa, Michigan, Sheffield, Ohio, Duke, Queensland, California, Berkeley

Hypothesis 1: There will be significant mean score difference in the development of multiple intelligence through digital technology between the group based on the type of institute (government/aided and self financing).

Table-3

Intelligences	Variables	N	Mean	SD	Df	t-value	p-value
Verbal/Linguistic Intelligence	Government/Aided	105	21.20	3.37	184	1.062	.290
	Self-financing	81	20.74	2.22			
Logical/Mathematical Intelligence	Government/Aided	105	21.20	3.37	184	0.375	.708
	Self-financing	81	20.74	2.22			
Visual/Spatial Intelligence	Government/Aided	105	20.78	3.03	184	1.939	.054
	Self-financing	81	21.64	2.96			
Bodily/Kinesthetic Intelligence	Government/Aided	105	20.60	3.23	184	0.346	.730
	Self-financing	81	20.44	2.79			
Musical Intelligence	Government/Aided	105	21.46	3.42	184	1.171	.243
	Self-financing	81	22.01	2.91			
Interpersonal Intelligence	Government/Aided	105	19.72	2.79	184	2.818	.005*
	Self-financing	81	20.92	2.99			
Intrapersonal Intelligence	Government/Aided	105	21.35	3.02	184	2.169	.031*
	Self-financing	81	22.31	2.93			
Naturalist Intelligence	Government/Aided	105	16.66	2.81	184	0.866	.387
	Self-financing	81	16.99	2.24			

Table-3 indicates that the calculated t-value of Verbal/Linguistic Intelligence, Logical/Mathematical Intelligence, Visual/Spatial Intelligence, Bodily/Kinesthetic Intelligence, Musical Intelligence and Naturalist

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Intelligence respected values 1.062, 0.375, 1.939, 0.346, 1.171 and 0.866 is less than the table value (1.96) at 0.05 level of significance. This concludes that there is no significant difference between Government/Aided and self financing in Verbal/Linguistic Intelligence, Logical/Mathematical Intelligence, Visual/Spatial Intelligence, Bodily/Kinesthetic Intelligence, Musical Intelligence and Naturalist Intelligence and t-value of Interpersonal Intelligence and Intrapersonal Intelligence respected values 2.818 and 2.169 is more than the value (1.96) at 0.05 level of significance. Hence it can be concluded that there is a significant difference between Government/Aided and self financing in Interpersonal Intelligence and Intrapersonal Intelligence.

Hypothesis 2: There will be significant mean score difference in the development of multiple intelligence between the groups based on using digital resources (regularly/occasionally).

Table-4

Intelligences	Variables	N	Mean	SD	Df	t-value	p-value
Verbal/Linguistic Intelligence	Regularly	61	20.66	2.50	184	1.122	.2663
	Occasionally	125	21.17	3.11			
Logical/Mathematical Intelligence	Regularly	61	21.48	3.05	184	1.167	.245
	Occasionally	125	22.06	3.25			
Visual/Spatial Intelligence	Regularly	61	21.36	2.99	184	0.644	.520
	Occasionally	125	21.06	3.05			
Bodily/Kinesthetic Intelligence	Regularly	61	20.13	2.79	184	1.260	.209
	Occasionally	125	20.73	3.14			
Musical Intelligence	Regularly	61	22.07	3.13	184	1.089	.278
	Occasionally	125	21.52	3.24			
Interpersonal Intelligence	Regularly	61	20.51	3.23	184	0.845	.399
	Occasionally	125	20.12	2.79			
Intrapersonal Intelligence	Regularly	61	22.08	2.87	184	0.991	.323
	Occasionally	125	21.62	3.08			
Naturalist Intelligence	Regularly	61	16.64	2.61	184	0.597	.551
	Occasionally	125	16.88	2.57			

Table-4 shows the mean score difference in the development of multiple intelligence between the groups based on using Digital Resources (regularly/occasionally) among school students. According to the table, all type of intelligences is not statistically significant at 0.05 level. Hence, it can be concluded that the variable using Digital Resources does not have any impact on the types of multiple intelligences among the selected students.

CONCLUSION

The awareness of the different intelligences and the different teaching strategies can optimize learning motivation and enhance memory in accelerating the learning process. It also permits a more enlightened search for remedies of difficulties in teaching and learning in science and mathematics as well as

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suggests alternative routes to an educational goal like learning mathematics via spatial relations; learning music through linguistic techniques etc. Teachers should be aware that there is no single and absolute method in any teaching and learning process. Multiple intelligence theory provides a platform and guidance to teachers to use integrated strategies and instructional activities to cater to the different needs of students in terms of intelligence profiles, learning styles and learning preferences. Hence, it is evident that to ensure successful and effective learning, educators, students and society in general will need to redefine the role of a student, the remedy of effective teaching and learning as well as the types of knowledge, skills and strategies deemed important. The relationship between intelligences and teaching and learning process should be a fundamental element in coming up with ways to promote higher academic performances, learner success and lifelong learning.

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