ROLE OF TECHNOLOGY IN ENHANCING LEARNING AND TEACHING PRACTICES IN EDUCATION SECTOR

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ABSTRACT

The education sector has been adapting technology-oriented learning as well as teaching in the present era. Technology has a significant effect on the learning and the teaching process when there is no way to face-to-face communication. The present study aims to identify the factors affecting the students' knowledge and teaching in the education sector. The convenience sampling technique was used for collecting data from the students and teachers. Various dimensions were extracted by employing exploratory factor analysis. It has been concluded that the support of technology shows the improvements in teaching and students' learning capabilities. The education curriculum should be activity-based and stress-free. To meet the requirements of the global market, we need to focus on professionalism in education. Nowadays, youngsters have become more techno-savvy, but some students and teachers hesitate to use the application of e-learning. Hence, it is recommended that the students and teachers be well informed on using the appropriate instructional material and teaching methods to imbibe with the technological age, respectively.

Keywords: Education Sector, Online Learning and Teaching, Profession Courses, Technology.

INTRODUCTION

In a traditional education setting, technology's role is to facilitate, through increased efficiency and effectiveness of knowledge and skills. The era of technology has significant involvements in higher education. "Technology" refers to a computer-based system that combines several texts, sound, still images, full-motion video, animation, and computer graphics. The learner views a screen, listens via speakers or headphones and responds via keyboard and mouse (Moore & Velleman, 1996) 1. A combination of hardware and software advances has been enhancing learning facilities and attention to individual users' specific needs. Students can use technology (such as PowerPoint) to create interactive presentations containing text, art, animation, audio, and video. Technology-oriented education increases the retention of the subject matter over a long period. Students feel like paying attention to the lecture with the help of multimedia technology. Technological innovations are essential for the student's development. Therefore, technology-based learning is representing a vital function in heightening the efficiency of the students. Students should have the necessary technical knowledge for the economic and social development of the country. The multimedia-oriented teaching and learning development and enhances activity-based learning.

Technology leads to more active and interactive modes of learning among the student. Instructors regularly search for more effective ways to engage their students during learning and increase student learning outcomes. Various technologies have been touted to provide the

Citation Information: Kumar, R., Sngh, A., & Kumar, S. (2022). Role of technology in enhancing learning and teaching practices in education sector". *Academy of Marketing Studies Journal, 26*(6), 1-12.

ultimate delivery mechanism to achieve these commendable goals (Krippel et al., 2010; Barr et al., 2005) 2. Although computers and their applications have enhanced many courses' quality, their impact has been minimal in classroom lectures. Overall the integration of new technologies into classroom instruction has been slow. Technology cannot replace teaching, but it can enhance them (Braul, 2006; Burniske & Monke, 2001). However, these efforts have been limited to very few institutions because most instructors are hesitant to convert their lecture notes into an interactive package and make it available to students.

Teachers want that students acquire a basic understanding of the subject matter and methods before leaving their classrooms. Further, they have good skills to apply these methods to solve future realistic problems.

Implementing IT-enabled change introduces several challenges, some related to the presence of technology (e.g., technical difficulties, fear, and limited skills of users), others more simply associated with the very notion of change.

Whenever processes are redesigned, or the availability of information is modified (e.g., detailed information is made available to a larger or merely a different group of individuals), work practices must be changed, existing social patterns are threatened. The power and influence structure that has slowly evolved can be secured (Manzoni & Angehrn, 1998; Anderson & Speck, 2001). Technology has proliferated during the late 1980s and 1990s due to improved technologies that allowed better compression, better graphics accelerators, faster chips, and two or three-dimensional images with various file formats and quicker connections online (Jalobeanu, 2003; Baytak et al., 2011; Hennessy, 2005).

Technology-Oriented Learning In the Aspects of Students

Technology-oriented learning is one of the aspects that are related to the students. Technology is a beneficial mechanism for students to intensify their skills and proficiency. Multimedia is part of technology-oriented education. Engaging students in learning networks through deliberate strategies with defined learning outcomes and assessment activities can achieve many quality education elements (Rusten & Arias, 1999; Hennessy et al., 2005). Nowadays, the education sectors highly familiar with technology in the pandemic situation. Technology-oriented learning, through Zoom, helps the students pass the exam; instead, they face the global edge challenges and get new jobs in the future. Technology can help students build local and international communities that connect them with interested people and expand learning opportunities (Kozma, 2003; Delen & Bulut, 2011; Riasati et al., 2012). The multimedia presentation helps to reduce the paperwork and give relief from academic learning. Moreover, technology-oriented education helps in becoming tech-savvy and creates a friendly relation with technology. Technology-oriented learning magnifies activity-based learning (Rodinadze & Zarbazoia, 2012; Rogers, 2000). But sometimes, technology makes some problems, such as multimedia presentations increase the workload and stress among the students. When the students present the exhibition through multimedia, they often face technical issues such as power cuts and other software problems. Moreover, students feel hesitation while giving seminars or other presentations through multimedia.

Technology-Oriented Teaching in the Aspects of Teachers

Technology-oriented teaching is interrelated to the teaching approach. Technology-oriented education is also serviceable for teachers. Teachers should be more generous with the

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technology to enhance the inner personality vis-à-vis improve the education access equity and quality. The technology incorporates additional valuable skills into the core curriculum for their promotion. Besides, technology also helps in developing a good rapport between the students and teachers. The primary objective of the technology is not to replace the teacher but to enhance its fundamental role. Technology must be extraordinarily well designed to simulate the best teacher by combining in its design the various elements of the cognitive processes of the technology. The students analyze the real data to reinforce and assess the learning of new concepts and skills and as a base for motivating the concerns of inference (Moore & Velleman 1996). All factors improve activity-based teaching with the help of technology-oriented education. Despite many advantages still, the system faces many disadvantages. Hence, the teachers meet the problem. Technology usage gives the teachers a hectic schedule while reviewing the multimedia material, which incorporates them into a lesson plan. Sometimes the technology doesn't entirely work. The multimedia presentation takes a lot of effort, time, knowledge, and creativity to make useful educational material.

REVIEW OF LITERATURE

Different researchers in various fields have considered the influence of technology on education. These researchers acknowledged that technology supports teachers in improving their teaching practices and increasing their knowledge (Frigaard, 2002; Pourhosein & Sabouri, 2014; Albirini, 2006). Solanki and Shyamlee mentioned that new technologies emerge and disseminate learning among the students and teachers through technology (Gillespie, 2014). However, learners control their learning process and have access to further information that their teachers cannot maintain (Pourhosein & Sabouri, 2014; Cuban, 2001).

Previous researches mentioned that technology can be used as an instructional mechanism in teaching and learning skills. Bruce & Levin (2003); Pourhosein (2013) stated that technology can be beneficial in the classroom by improving communication, forming teaching products, and supporting learners' self-expression. As per Pourhosein (2013), technology is considered a critical role in instruction, education, or training issues. A Limited study revealed that the utilization of technologies in education opens a new field of knowledge and implements a tool that can improve the existing teaching approaches (Baniabdelrahman, 2013; Billings & Mathison, 2012; Costley, 2014; Cuban et al., 2001). Frigaard (2002); Miner opined that technology enhances the expansion of teaching techniques and learners' knowledge. Lam and Lawrence elaborated that technology encourages learners to improve their learning means and access any knowledge that their educators cannot present. Pourhosein & Leong, L.M (2012) expressed that the unique technologies provide new tools, strategies, and teaching and learning. Moreover, Solanki and Shyamlee showed that technologies are extensively widespread, influencing many social and work appearances, and technology satisfies the learners' visual and auditory senses. Graddol (1997) examined that technology is the heart of the globalization era and influences education culture (Ferguson, 1997; Field, 2008; Galavis, 1998).

With the increasing innovations, our focus has been shifted to technology-oriented education from the education sector's traditional teaching and learning method. Technology is at its vital stage in today's education sector (Chapelle, 2001). Technology-oriented learning helps to improve critical thinking and system thinking among the teachers and the students. Moreover, technology-oriented teaching helps to develop a friendly relation with the technology. Therefore, the present study's need is to analyze the role of technology to enhance activity-based learning.

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Furthermore, technology is going to play a crucial role in imparting education (Fishman & Davis, 2006; Ghaznavi et al., 2011).

The present study is to analyze the effectiveness of the role of technology in the education sector. To identify and explore the factors affecting the effortless learning and teaching among students and teachers through technology in the education sector.

RESEARCH METHODOLOGY

This study has been covering the following methodology for the research work:

Nature of the Study

The nature of the data means the source of the data. The primary data was collected from the education sector for this study. The convenience sampling technique was applied to collect the data from the respondents. The respondents were the students and teachers.

Sample Size and Data

The 100 students and 30 teachers were approached for the data collection, and their responses were taken for the study's rationale. For this study, the primary data collection has been taken, which was administered to all the respondents personally. In this study, a sample of 120 respondents was approached with a well-structured and non-disguised questionnaire. But due to ambiguous responses, the adequate sample has taken as 100 respondents for finding the problems and fulfilling the purpose.

The questionnaire was designed using statements from different sources. A 5-point Likert scale was used, ranging from “Strongly Agree” to “Strongly Disagree.” A score ranging from 5 to 1 was allocated to the response categories, respectively. The Exploratory factor analysis technique was applied to identify the significant factors that play a vital role in enhancing students learning and teaching via modes of technology. SPSS software was used for the present study.

Data Analysis and Interpretation

Data was collected from 100 respondents as students and 30 as teachers. This section was divided into 2 sections. Section-A clearly shows the analysis of student’s technology-oriented learning and section-B deals with teacher’s technology-oriented teaching.

STUDENTS POSITIVE DETERMINENTS

Factor 1-Effortless Learning

Table 1
EFFORTLESS LEARNING

Variables	Statements	Factor Loadings
P14	Gives a relief from screen text	0.770
P15	Incorporate the additional skills into the curriculum	0.767

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This factor explains the variance 12.498 percent age. The variable, relief from screen text (p14) and incorporate additional skills (p15) are the ones that are loaded highly on factor 1 with factor loadings 0.770 and 0.767 respectively is shown in Table 1. This involves the technology-oriented presentation gives relief from screens of text, stimulates the eye, and incorporates the additional skills into the curriculum.

Factor 2-Self-Satisfaction

This factor explains the variance 11.978 percent age. The variable, satisfaction (p6), develop the inner personality (p7) and education, equity and quality (p16) are the ones that are loaded highly on factor 2 with factor loadings 0.850, 0.680 and 0.617 respectively is shown in Table 2. This involves the technology-oriented presentation; they feel satisfied in attending the lecture with the use of technology, develop the inner personality and enhance the education equity and quality.

Table 2
SELF- SATISFACTION

Variables	Statements	Factor Loadings
P6	I feel satisfaction in attending the lecture with the use of technology	0.850
P7	Multimedia develops the inner personality	0.680
P16	Technology improves the educational Access, Equity and Quality.	0.617

Factor 3-Innovative Ability

This factor explains the variance 11.134 percent age. The variable, creating something new (p2), increase the critical thinking (p5) and interacts with the technology (p12) are the ones that are loaded highly on factor 3 with factor loading 0.751, 0.530 and 0.790 respectively is shown in Table 3. This involves, that the Multimedia helps in creating something new and increase the critical thinking. Multimedia learning increases the interaction with the technology.

Table 3
INNOVATIVE ABILITY

Variables	Statements	Factor Loadings
P2	Technology creating something new	0.751
P5	Technology helps to enhance the critical thinking	0.530
P12	Multimedia helps to interacts with technology	0.790

Factor 4-Friendliness

Table 4
FRIENDLINESS

Variables	Statements	Factor Loadings
P3	Multimedia presentation helps attending the lecture in effective comportment.	0.798
P13	Multimedia helps to make the good rapport between students and teachers	0.820

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This factor explains the variance 10.342 percent age. The variable effective comportment (p3) and make the good rapport with the multimedia (p13) are the ones that are loaded highly on factor 4 with factor loading 0.798 and 0.820 respectively is shown in Table 4. This involves, that the multimedia-oriented learning helps to make the effective comportment and make the good rapport between students and teachers.

Factor 5 –Retention and Congenial

This factor explains the variance 9.021 percent age. The variable retains the subject matter (p1) and more enjoyable with the multimedia (p11) are the ones that are loaded highly on factor 5with factor loading 0.770 and 0.764 respectively is shown in Table 5. This involves, that the technology-oriented learning enhances the retention power over a long period and keep the interest.

Table 5
RETENTION AND CONGENIAL

Variables	Statements	Factor Loadings
P1	Multimedia helps to retain the subject matter over a long period of time.	0.770
P11	Technology makes the work more enjoyable as compare to bookish learning.	0.764

Factor 6-Burden Less and Tech Savvy

This factor explains the variance 8.892 percent age. The variables, tech savvy (p9) and lesser burden of paper work (p10) with the multimedia are the ones that are loaded highly on factor 6 with factor loading 0.869 and 0.732 respectively is shown in Table 6. This involves, that the multimedia helps to become the techno savvy and less the burden of paper works with the use of technology.

Table 6
BURDEN LESS AND TECHNO SAVVY

Variables	Statements	Factor Loadings
P9	Multimedia helps to become the techno savvy	0.869
P10	Technology helps to reduce burden of the paper work	0.732

Factor 7-Self-Reliance

Table 7
SELF-RELIANCE

Variables	Statements	Factor Loadings
P4	Multimedia increases my competence of completing my work on time.	0.665
P8	Multimedia presentation helps to build the confidence	0.836

This factor explains the variance 8.722 percent age. The variables, completion my work on time (p4) and build the confidence with the technology (p8) are the ones that are loaded highly on factor 7 with factor loading 0.665 and 0.836 respectively is shown in Table 7. This involves, that the technology increases my competence of completing my work on time and build the confidence.

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STUDENTS NEGATIVE DETERMINENTS

It has been noted that student's negative determinants have been explored with the help of exploratory factor analysis as under:

Factor 1-Technical and Other Problems

This factor explains the variance 28.914 percent age. The variables, takes a lot of efforts (N3), unfriendliness (N5), increase the work load (N6), power cut and other technical problem (N9) and too costly at initial stage with the multimedia presentation(N10) are the ones that are loaded highly on factor 1 with factor loading 0.686, 0.882, 0.534, 0.840 and 0.564 respectively is shown in Table 8. This involves, that the multimedia takes the lot of efforts and feel unfriendliness with the technology. The multimedia presentation increases the workload and it's too costly at initial stage. The students face the technical problem when they use the technology during presentation.

Table 8
TECHNICAL AND OTHER PROBLEMS

Variables	Statements	Factor Loadings
N3	Multimedia presentation takes a lot effort, knowledge and creativity to make useful educational material.	0.686
N5	Problem of unfriendliness with the technology.	0.882
N6	Technology oriented student life increases the workload.	0.534
N9	Technology based learning face the problem such as power cut and other technical problem.	0.840
N10	Technology based learning can be costly at initial stage.	0.564

Factor 2–Hectic Schedule

This factor explains the variance 22.185 percent age. The variable, doesn't simply work (N1), increase the stress (N7) and lack of confidence with the technology-oriented learning (N8) are the ones that are loaded highly on factor 2 with factor loading 0.917, 0.651 and 0.663 respectively is shown in Table 9. This involves, that the presentation doesn't simply work and increase the stress. Students feel the lack of confidence.

Table 9
HECTIC SCHEDULE

Variables	Statements	Factor loading
N1	Sometimes the technology simply doesn't work.	0.917
N7	Multimedia-oriented education increases the stress.	0.651
N8	Lack of confidence while presenting the presentation on multimedia.	0.663

Factor 3-Time Consuming

This factor explains the variance 13.231 percent age. The variable, more time required (N2) and more processing time with the multimedia- oriented learning (N4)are the ones that are loaded highly on factor 3 with factor loading 0.672 and 0.585 respectively is shown in Table 10. This involves, that the presentation takes the more time and takes the processing time for developing the effective presentation.

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Table 10 TIME CONSUMING		
Variables	**Statements**	**Factor Loadings**
N2	Time required planning, designing, developing and evaluating the multimedia presentation.	0.672
N4	Process of developing effective multimedia takes time.	0.585

Section-B: Showing the Results of the Perception of Teachers Towards Technology-Oriented Teaching As a Tool For Activity-Based Teaching.

This section shows the results of taking sample from the teachers and constructs have been explored. In this study, both positive and negatives measures have been determined in two sections as under.

POSITIVE ASPECTS OF THE TECHNOLOGY-ORIENTED TEACHING

Factor1-Personal Development

This factor explains the variance 14.156 percent age. The variable develops the inner personality (P6), increase the critical thinking (P8) and lesser the burden of work with the technology teaching (P10) are the ones that are loaded highly on factor 1 with factor loading 0740, 0.761 and 0.693 respectively is shown in Table 11. This involves, that the multimedia oriented teaching develops the inner personality and increase the critical thinking. Technology-oriented teaching lessens the burden of the paper work.

Table 11 PERSONAL DEVELOPMENT		
Variables	**Statements**	**Factor Loadings**
P6	Multimedia oriented teaching helps in developing the inner personality and builds the moral of the students.	0.740
P8	It increases student's critical thinking towards the pictorial and graphical presentations.	0.761
P10	Multimedia presentation lesser the burden of paper work.	0.693

Factor 2 –Effortless Teaching

Table 12 EFFORTLESS TEACHING		
Variables	**Statements**	**Factor Loadings**
P3	Deliver the lecture effectively	0.775
P4	Increasing efficiency of completing	0.481
P9	Become a techno savvy	0.846

This factor explains the variance 13.999 percent age. The variable, deliver the lecture effectively (P3), increasing efficiency (P4) and become a techno savvy (P9) work with the technology teaching are the ones that are loaded highly on factor 2 with factor loading 0.775, 0.481and 0.846 respectively is shown in Table 12. This involves that deliver the lecture effectively and increasing the efficiency with the help of technology. It helps in become a techno savvy.

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Factor 3-Innovative Teaching

This factor explains the variance 13.899 percent age. The variable, retention of subject matter (P1), creating something new(P2), lecture deliver helps in interacts (P11) and keeps the students interest (P14) are the ones that are loaded highly on factor 3 with factor loading 0.740, 0.540, 0.859 and 0.457 respectively is shown in Table 13. This involves that technology-oriented teaching increase the retention power of the students, and creates something new. It helps to interacts and keeps the students interest.

Table 13
INNOVATIVE TEACHING

Variables	Statements	Factor Loadings
P1	Helps in retention the subject matter	0.740
P2	Creating something new	0.540
P11	Lecture deliver helps in interacts	0.859
P14	Keeps the students interest	0.457

Factor 4-Skill Conservation and Development

This factor explains the variance 12.783 percent age. The variable, gives the relief from the screen (P15) and incorporate the additional skills (P16) are the ones that are loaded highly on factor 4 with factor loading 0.859 and 0.772 respectively is shown in Table 14. This involves that multimedia teaching gives the relief from the screen text and incorporate the additional skills into the curriculum for promotion.

Table 14
SKILLS CONVERSATION AND DEVELOPMENT

Variables	Statements	Factor Loadings
P15	Gives the relief from the screen of text	0.859
P16	Incorporate the additional skills	0.772

Factor 5–Education Equity and Satisfaction

This factor explains the variance 11.345 percent age. The variable gives the satisfaction (P5) and improves the education equity and qualities (P13) are the ones that are loaded highly on factor 5 with factor loading 0.782 and 0.786 respectively is shown in Table 15. This involves that the teacher feels satisfied in delivering the lecture with the use of technology and improves the education equity and quality.

Table 15
EDUCATION EQUITY AND SATISFACTION

Variables	Statements	Factor Loadings
P5	Satisfaction from multimedia oriented teaching	0.782
P13	Improves the education equity and quality	0.786

Factor 6-Relationship and Confidence Enhancement

This factor explains the variance 9.976 percent age. The variable, develop the good rapport (P12) and enhances the confidence in lecture deliver (P7) are the ones that are loaded highly on factor 6 with factor loading 0.855 and 0.638 respectively is shown in Table 16. This

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involves that the technology develops the good relations between teachers and students and enhances the confidence in lecture delivery.

Table 16
RELATIONSHIP AND CONFIDENCE ENHANCEMENT

Variables	Statements	Factor Loadings
P12	Develops the good rapport between the students and teachers	0.855
P7	Enhances the confidence in the lecture	0.638

NEGATIVE ASPECTS OF THE TECHNOLOGY-ORIENTED TEACHING

Factor 1-Technical and Financial Hazards

The factor explains the variance 48.170 percent age. The variable, doesn't simply work (N1), more time required (N2), takes a lot of efforts (N3), unfriendliness (N5), increase the workload (N6), power cut and technical problem (N9), and too costly (N10) with the technology oriented teaching are the ones that are loaded highly on factor 1 with factor loading 0.780, 0.787, 0.785, 0.790, 0.690, 0.866 and 0.879 respectively is shown in Table 17. This involves, that the multimedia oriented teaching takes a lot of time and effort. Moreover technology increases the workload and some other technical problems. Technology oriented education is too costly.

Table 17
TECHNICAL AND FINANCIAL HAZARDS

Variables	Statements	Factor Loadings
N1	Sometimes the technology simply doesn't work.	0.780
N2	Time required planning, designing, developing and evaluating the multimedia presentation.	0.787
N3	Multimedia presentations take a lot of effort, knowledge and creativity to make useful educational material.	0.785
N5	Problem of unfriendliness with the technology.	0.790
N6	Technology oriented teaching increases the workload.	0.690
N9	Technology based teaching faces the problem such as power cut and other technical problems.	0.866
N10	Technology based lecture delivery can be costly at initial stage.	0.879

Factor 2-Work Stressors

Table 18
WORK STRESSORS

Variables	Statements	Factor Loadings
N4	Multimedia usage gives the hectic schedule to the teachers while to review the multimedia material and that material incorporates them into a lesson plan.	0.868
N7	Multimedia oriented teaching increases the stress.	0.609
N8	Lack of confidence while presenting the presentation on multimedia.	0.808

The factor explains the variance 23.580 percent age. The variable hectic schedule (N4), increase the stress (N7) and lack of confidence (N8) with the technology oriented teaching are the ones that are loaded highly on factor 2 with factor loading 0.868, 0.609 and 0.808

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respectively is shown in Table 18. This involves, that the multimedia oriented teaching works in hectic schedule, technology increases the stress and they feel lack of confidence while presenting the presentation on multimedia.

CONCLUSION, IMPLICATIONS AND LIMITATIONS

From the above discussion, it can be concluded that technology's role enhances activity-based learning and teaching. The education sector is implementing technology-based learning and teaching to make the education curriculum stress-free and burden-less. A study revealed that there is a significant difference between traditional learning and teaching and technology-oriented education. The study has exposed a difference between conventional and technology-oriented education as technology enhances effortless learning vis-à-vis develops the competence and attitude towards the technology in both teachers and students. The respondents feel that technology-oriented education is helpful to improve activity-based learning and teaching. Although, the one reason behind technology-oriented education is that the students and teachers become techno-savvy. Last but not least, it is recommended that the students and teachers be well informed about using the appropriate instructional material and teaching methods to imbibe with the technological age, respectively.

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Received: 30-Jul-2022, Manuscript No. AMSJ-22-12398; **Editor assigned:** 02-Aug-2022, PreQC No. AMSJ-22-12398(PQ); **Reviewed:** 16-Aug-2022, QC No. AMSJ-22-12398; **Revised:** 22-Aug-2022, Manuscript No. AMSJ-22-12398(R); **Published:** 23-Sep-2022

Citation Information: Kumar, R., Sngh, A., & Kumar, S. (2022). Role of technology in enhancing learning and teaching practices in education sector". *Academy of Marketing Studies Journal, 26*(6), 1-12.