Structuring Learning Analytics through Visual Media and Online Classrooms on Social Cognition during COVID-19 Pandemic

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Abstract. Media as the core source of information and knowledge disperse in the society, its effect on the learning, understanding and analysing about the society in the human minds and cognition is certainly impacted. In focal to the visual media such as advertisement, movies, video etc., it enunciates and indicates a high level of learning process and social learning. Media has a huge impact on the different aspects of cognition in the population, especially on the age category of teenagers and young adults. With the current situation of covid 19, there has been a paradigm shift within the educational sector, forcing visual media as the key source of education and learning, with many countries utilizing remote learning or digital learning to cope with the current educational crisis. This study therefore aims to investigate and understand the impact of the visual media and different video learning platforms in improvement of the social cognition and learning among student. Questionnaire survey method was employed as a tool to collect data from the sample of 250 students between the age group of 16 – 25 and a sample of 155 teachers with the experience of 1 -10 + years in the field of education across UAE and India. The result indicates that the student population showcase a keen interest and participation on the information and knowledge dispersed through screens such as movies and presentation rather than the content published such as newspaper and books. It helps students foster self-awareness, cultural value, cognitive skills and moral wellbeing with the help of visual media.

1. Introduction

People learn and behave according to what they see and involve with, this is the learning imparted by the famous cognitive and social psychologist Albert Bandura in 1977 in his Social Cognitive/ Learning Theory, Social cognition is enunciated as a cognitive approach that includes the involvement amongst the people along with the way a person understands, interpret and learn about others and themselves. It crams about different characteristics and strands of society such as, social influence, social knowledge, social structure, group behavior social category, stereotyping etc. along with the positive and negative impact these features can cause in the society and in the minds of human being. The theory of Albert Bandura enunciates that humans learn and act according to external factors. His theory stated the effects of the visual media on children. In the famous Bobo doll experiment, the children of young age noticed and observed that people punishing the bobo dolls on film, inducing the same form of replication in the
activities of the children with the bobo doll. This experiment indicates the importance and the impact of observational learning. Similar effect can be induced by the media in the lives of human being, it could teach, reinforce, and prompt behaviors portrayed on the screen of visual media. It also examines the selective perception of an individual rather than the behavioral effects of those selections [1].

Fig. 1: social learning occurs when a person observes, remember, duplicate and initiate the stimulus they collect from the environment.

The information and knowledge imparted through the visual media such as television, influence the developing of social relationships of the Children as they duplicate the relation and social understanding they develop with on-screen characters. The findings suggest that social learning is from visual media [2]. Related studies showcase that various types of electronic gadgets and media have a direct relation with the cognitive skills of school-aged children and adolescents. The result suggest that the materials and knowledge imparted through electronic media is far more influential and effective than any other media themselves [3].

As the world tries to cope with the sudden transition in normalities in lives due to the Covid-19 pandemic. The field of education is not different, there more than 1.2 billion children across 186 countries affected by school closures due to this pandemic [4]. Educational portal and online video platforms emerged as the subsist for the traditional classrooms and learning. The existence of educational technologies such as the language apps, virtual tutoring, video conferencing tools, or online learning software was formally co-exhibiting, yet the pandemic shift forced a significant surge in usage of educational technologies [4].

At the current situation of covid 19, many countries are utilizing remote learning or digital learning to cope with the current educational crisis. It is also evidently seen that the World Bank is working with Ministry of Education across different countries to support their efforts in providing remote learning opportunities for students [5].

“A study of the effects of digital learning on learning motivation and learning outcome.” enunciates the effect of digital learning in its learning outcome and motivational level among student. The study employed 116 students in which findings suggest that there seems to be a positive effect on learning motivation and learning outcome in comparison to traditional classroom. With the current teaching trend, it is important to utilize full advantages of digital learning to develop teaching strategies and its effectiveness in learning outcome [6].

The studies have explicitly indicated and enunciated that watching and learning from educational shows has a much more positive influence in academic achievement, when it comes to cognitive skills, similarly video games helps to enhance the visual spatial skills and characteristics such as visual tracking, mental rotation, and target localization along with improving problem-solving skills. The research indicates that youth and young adults can apply what they learn from electronic media to the real-life application, yet at the same time the certainty on the transfer of knowledge is debatable [3].

Online education is an existing educational domain and market that provide opportunity to gain education to those students that have difficulties in enrolling in a traditional classroom and who need to work on their convenience on time and pace. With the sudden changes in the normality due to Covid – 19, the mainstream education undergoes a paradigm shift and adapted to the immediate solution of online classrooms [7].

The statistics showcase the global e-learning market is estimated to grow by USD 93.64 billion during 2020-2024 [8]. Due to the sudden shift in the mainstream education format the already blooming global E-learning is expected to reach $336.98 billion by 2026, at a compound annual growth rate (CAGR) of 9.1% from 2018 to 2026 [9].
The online education market of China’s estimated to reach 251.76 billion Yuan business growth with in 2018 with a Year over year growth of 25.7%, which was enunciated to keep an accelerating growth rate of 16%-24% in the following 3-5 years, as the amount of online education users estimates to reached 135 million in 2018, the growth is estimated to remain in the range of 14%-21% in the next 3-5 years. (Graph-1)[10].

Over a period of time, it can be seen that there is an increase in the usage of internet and phones in students above 16+ in UK population and it has been persistently above 98% of the total population of students, indicating a high level of dependency of internet, online platforms and mobile phones in the use of education, social and personal constructs irrespective of any gender differences (Graph-2).

2. Literature Review

2.1 To study the impact of visual/digital media platform on the development of social cognition and learning.

A study explored the effect of viewing the award winning drama and its effect on the theory of mind by assessing their performance, 2 groups of population were selected at a random. One of the group was randomly assigned to watch either an award-winning TV drama or a TV documentary. After the watch of the TV drama and documentary by one of the group, both the groups were presented with a social intelligence test called “the reading the mind in the eye test”. The findings expressed that the population who watched TV drama preformed highly in the test compared to the other set of population [11]. It also voiced out the reason for high result by the watch-population group which was due to the connection with characters in the TV drama that helped them in performing the test [11].

A study explores and enunciates the perceptions of social media among teenagers aged between 11 and 18 years in creating mental health awareness. This study employed focus group interviews and analysis with adolescents, educational professionals and mental health practitioners [12].
that social media has a positive influence in creating mental health awareness. Adolescent seek information from social groups regarding mental health. Thus it has been concluded, despite challenges posed by using social media and its risks, when used properly it helps in educating and creating awareness to promote mental wellbeing among adolescent [12].

A recent study conducted in china on promoting the citizen engagement through government social media during the COVID-19 pandemic. It investigated how the Chinese government and the officials utilize social media as a mean to promote citizen engagement during the COVID-19 crisis which was collected from ‘Healthy China’ database. It examines the factors such as media richness, emotional valence, content type and dialogic loop which influence citizen’s engagement. The findings indicate that media richness predicts citizen engagement through government social media negatively, whereas dialogic loop facilitates engagement. Latest news about the crisis and the government's handling of the event positively affects citizen engagement through government social media. Importantly, all relationships were contingent upon the emotional valence of each Weibo post [13].

Another study focused on the source of media that had a major influence in the learning process, whether visual media or print media. The findings suggest that visual media has a huge influence on the people as they provide more information to the people at a short span and also reach out to a bigger audiences who lack political information such as children, passengers, adolescent, expatriate and irresponsible citizens. This passage of information influences the vote of the people causing one political party to win over the other [14].

A study emphasis on the influence between media and social knowledge and social understanding in people. The results suggest us that visual representation of reality, helps in understanding the abstract concepts of reality. Thus, it also increase the conceptual abstraction [15]. Furthermore, the digital media helps in processing information, which helps in shaping the cognition of the people.

2.2 To study the effect of educational technology video platform in the education system during covid-19 pandemics

A study revealed the effectiveness of using 3D digital animation in teaching human anatomy in a regular class setting, which was conducted on two groups that required an anatomy exam. The first group were taught using a 2D pictures and slides while the second group was taught using a 3D hologram and videos. It was observed that the 3D group performed better than the 2D group in terms of special questioning of anatomy and had a better understanding in the subject compared to the 2D group. The research also found that digital teaching and learning had upper hand in comparison to traditional methods [16]. Another research focused on the visual Literacy in teaching and learning, showcase us that applying visual media mode in education through teaching can improve learning in children and it also states that using visual tools in education helps in development other skills such as verbal, quantitative and qualitative aptitudes [17].

A research investigates the use of WhatsApp mobile as a tool for learning platform among university students on their achievement and attitudes. The sample study involved 15 students in an experimental group and 15 students in a control group from a university class. In the experimental group students were involved with the e learning process through WhatsApp mobile learning activities whereas in the control group it was through regular classroom instruction. The results suggest that the experiment group shows higher achievement and attitudes in comparison with the control group. Thus proving that WhatsApp mobile learning activities contribute to significant improvement in attitudes and achievements among university student [18].
A study explored flipped classrooms efficiency and its perception among students. This study included the comparison in grammar and vocabulary between traditional and flipped classroom knowledge by using pre- and post-tests. Findings suggest that there were significant changes in both vocabulary and grammar knowledge by Wilcoxon signed-rank which was produced by flipped classroom. It was also suggested that flipped classrooms involved more interaction and achieved learning goals. Thus, creating positive satisfaction, helpfulness, and in-class activities among students. It was also found that Especially Blackboard app provided a flexible learning environment and technology-based activities in and out of class [19].

Another study on web technology as a teaching and learning platform on undergraduate students. It involved collecting experiences from students using iPad-enabled mobile learning projects conducted during an excursion in support of the university’s technology-enabled learning vision. It also investigated collaborative social learning platform websites such as Google Site, Edmodo, animated videos, etc. in elective found that interactive digital technologies helped both instructors and students in facilitating the learning process effectively, when implementing and institutionalizing technology-enabled teaching and learning platform in higher education, it was found to be challenging [20].

A study on student’s cognitive reasoning and perception on digital learning using questionnaire survey on 116 students. The findings stated that digital learning has a positive effect on learning motivation than traditional teaching does, digital learning shows positive learning outcome and also learning motivation influence positively in learning outcome. Finally learning motivation has a positive effect on learning gain in learning outcome [6].

A study investigated the role of social media as a learning technology, which involved collecting data through questionnaire from a sample size of 450 students from Masters’ and Bachelor who were using social media more than 3 years and in their final semesters in the departments of Social Sciences in Pakistan. Findings illustrate social media has a remarkable role as a learning technology. It provides virtual interactions among university students, quick access to multiple, reliable, latest sources of information in students' preferred learning. It facilitates in fostering problem solving skills, critical thinking and argumentation among university students through visual illustrations and videos [21].

Another study revealed the digital learning module in improving Students problem-solving skills, which explores using problem based digital learning module to improve problem solving skills. It was conducted on 60 students and the results revealed that problem-based digital learning module integrated with religious values can influence students’ problem-solving skills better than the PowerPoint learning media [22].

3. Methodology

3.1 Research Method

Research methodology is an extensive path where the research identifies the problem and formulate the objectives to present the result of the data collected during that period of research. [23]. This paper employs quantitative method of data collection. The source of the data collected were from primary source of questionnaire survey which are collected from a random snowball population of teachers with 1 -10+ years of experience and students between the age group of 16-25.

3.2 Objective

A. To study the impact of visual/digital media platform on the development of social cognition and learning.
B. To study the effect of educational technology video platform in the education system during covid-19 pandemics

3.3. Hypothesis

A. There is positive impact of visual/digital media platform on the development of social cognition and learning.

B. Video learning platforms has positive impact in the education system during covid-19 pandemics.

3.4 Procedure

This study employed a questionnaire survey method, it was used on a sample of 250 student within the age range of 16-25 and on 155 teachers. There were 2 different questionnaire prepared one for teachers and another for the students. Prior to the test a well rapport was established among the respondents and made them feel comfortable, so that they were able to attend the survey. All clear instruction were explicitly stated in the questionnaire survey, which would enable the respondent to complete the survey with ease. The survey was conducted to understand the objective of the study and prove the established hypothesis. All the data were collected from the surveys and have been put as a graphical representation.

4. Result

Exploring the results extracted from the surveys implied on both the sample space, it was found that among the many video learning platforms available online as a tool for learning and teaching among student and teachers. The most common tool used during the times of pandemics are; zoom, Microsoft teams, Google meet, Cisco WebEx, Google hangouts, Flipped classes, Go to meeting, Whiteboard classes and what’s app. It was found that the majority of the teachers sample used zoom as a video learning platform and the 2nd highest being Microsoft where it accounts for 23.9% whereas, in the student survey it shows that 68% use Microsoft and leading with it is Zoom, which accounts about 19.6% among student users.

A. Teachers Survey

Analysing the response of 155 teachers (99 Female and 56 Males) employed in schools, college & universities and other institutes in the ratio of 15:15:1 on the impact of visual/digital media platform on the development of social cognition and learning enunciates that

(1). 1/5th of the population exclusively follows the social constructs and behaviour projected in the visual media whereas the half of the population conflicts and tends to follow the norms projected in the media platform. (Refer to figure 4.1)

![Fig. 4.1 – the influence of media on the social and behavioural constructs of social cognition.](image)

(2). 34.8% of the sample population indicates that visual/ digital media as the source of positive attributes such as altruism, compassion and generosity, 58.1% taking a neutral stand projecting visual media educate both
positive and negative attributes. Leaving 7.1% of the population claiming visual media as the source of negative perception in the present generation. This estimation indicates that visual media have a higher emphasis on projecting positive perception to the generation and their development of social cognition and learning. (Refer to Figure 4.2)

![Fig. 4.2](image)

Fig. 4.2 – the nature of perception projected by visual media on the cognitive development

(3). 90.3% of the sample population strongly emphasis (strongly agree -67.7% & agree -22.6%) that creating videos or using visual media as the part of the learning plan increase transferable skills such as interview skills, presentation skills, social skills which influence the development of social cognition and learning. (Refer to Figure 4.3)

![Fig. 4.3](image)

Fig. 4.3 – the effect of visual media on the transferable skills

B. Students Survey

Analysing the response of 250 students (206 females and 44 males) between the age of 16 -25 in different level of education such as high school, undergraduate level and master level, on the impact of visual/digital media platform on the development of social cognition and learning enunciates that

(4). The visual media have a zealous positive effect and facilitate their global knowledge the three folds than the negative impact projected by the visual media. Approximately 3/4th of the population expects both positive and negative impact of visual media. (figure 4.4)

![Fig. 4.4](image)

Fig. 4.4 – The fostered perspective forth and against visual media in the sample space

(5). 94% of the population emphasis that their emotions are completely or partially altered positively by the visual/digital media indicating its significance on social cognition. (Refer to Figure 4.5)
(6). 94\% of the population emphasis that visual media have a complete or partial influence on the development of the cultural values and family relationship indicating its significance on social relations and cognition. (Refer to Figure 4.6)

(7). 63.6\% of the population emphasis that visual/social media platform such as Facebook, Instagram, Twitter, Snapchat, LinkedIn, YouTube have complete to significant role in their decision making and understanding (8.4\% strongly agree and 55.2 \% Agree), it also signifies the impact of visual media on the social cognition and social learning. (Refer to Figure 4.7)

(8). 77.6\% of the population experience complete to partial positive experience in using visual media/educational technology in their educational/learning plans. (Refer to Figure 4.8)

(9). 72.8 \% of the population feels motivated to participate and function in the class in using of visual aids and visual media platforms of education. (Refer to figure 4.9)
Fig. 4.9 – the graph emphasis the level of motivation experience in the learning process with the addition of visual aids.

(10) 47.2% among the student user’s population feels the recording option in the video platform helps them to review the topics even after the classes indicating the visual imputes to have greater impact in the learning processes. (Refer to figure 4.10)

Fig. 4.10 – the graph emphasis on the features of visual media platform and educational platform that accelerates the learning process.

5. Discussion

The study focused to understand the impact of visual/digital media and education platform on the development of the social cognition and learning, along with the nature of the impact in the education system, teachers and the students during the period of pandemics. A questionnaire survey method was employed as the instrument of measure on the sample of 250 students between the age group of 16 – 25 and a sample of 155 teachers with the experience of 1-10+ years in the field of education across UAE and India, both the sample space where provided with different set of questionnaire in order to understand the objectives of the study.

The result (1) – (2) and (4) – (7) alliance with the first objective of the study i.e. a. To study the impact of visual/digital media platform on the development of social cognition and learning. The results enunciates that people heavily emphasis on the knowledge put forth by the visual media and educational platforms, these information’s that received through visual sensory inputs impact an individual’s social constructs, behaviour, emotions, motivations, decision making, learning, and social cognitions in positive and negative manner, it is also enunciated that these influences are highly on the positive nature and teachers characteristics such as altruism, compassion and generosity.

The result (3) and (8) – (10) alliance with the second objective of the study i.e. b. To study the effect of educational technology video platform in the education system during covid-19 pandemics. The study showcase that zoom, Microsoft teams, Google meet, Cisco WebEx, Google hangouts, flipped classes, Go to meeting, Whiteboard classes and what’s app are the platforms relied to facilitate education during the pandemics. Using visual media, educational platforms or any form of visual aids facilitate transferable skills in the students and enable students with personal and career driven skills along with motivation to participate in the classes. The survey also indicates few benefits of video platform that foster a positive influence in the education system such as (1) saves time as they can be accessed anytime (2) accessed in any location (3) recording option that helps to review the topics even after the class (4) encouragement & motivation to do more search on the topic covered in the class (5) communication options in the platform makes the class interesting and bridging the physical gap.
Therefore, the first hypothesis proves true that there is positive impact of visual/digital media platform on the development of social cognition and learning and second hypothesis also proves true that there is positive impact of educational technology video platform in the education system during covid-19 pandemics.

6. Conclusion and Implication

This paper aims to study Impact of Visual Media and Online Classrooms on Social Cognition and Learning during COVID Pandemic. The findings of the first objective states that there is a positive correlation between visual media and its effect on social cognition and learning process. It is observed that students are able to grasp information through visual aid much faster than other learning techniques. Apart from that, it moderately influences an individual’s social constructs, behaviour, emotions, motivations, decision making, learning, and social cognitions in positive and negative manner. The findings for second objective states that video learning platform has a positive impact on the education system during the covid-19 pandemics, there has been a major shift in the education industry, integrating the use of digital learning or online learning platform to meet the educational need of the student. During this covid-19 pandemic, it helped educational institutes to employ video learning plat form such as Zoom, Microsoft teams, Google meet, Cisco WebEx, Google hangouts, flipped classes, Go to meeting, Whiteboard classes and what’s app facilitate between the learning and teaching process among students and teachers. It also provided flexibility to students as some video learning platform provided a recording feature, which would enable the students to review their lesson anytime. Similarly for the teacher it helped to tailor the educational need of the students, which also provided them with flexibility in the teaching process as well as introducing assignment in a practical way. Thus these video learning platform has a positive influence in the learning process.

There has been major shift within the education sector, in terms of integrating digital learning or online learning platform into their system. There has been many study which points on the effectiveness of using these medium or platform as a learning aid. There are positive and negative aspect on using video learning platform as a tool for learning. It depends on individual differences and the purpose of using these platforms. When schools or educational institute employ these video learning platform, they need to monitor students’ performance and their attendance throughout the lesson or class. Educational ministry must encourage school to opt for distance learning or video learning platform, in case we encounter another epidemic or pandemic. Apart from that, today’s technological world is dynamic and is at a very fast pace, many people choose convenient and flexible tools as a mean for learning process. Thus having these platform would be convenient and effective way of learning.

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