Research Article

Relevance of eContent in Learning-Teaching of Geography with special reference to School Education in India

Nidhi Singh[1] & Vishal Verma[2]

[1] Assistant Professor of Geography, Amity Institute of Social Sciences (AISS), Amity University Noida, U.P.

Email: nidhisingh.cietncert@gmail.com

[2]Ph.D. Research Scholar, Faculty of Technology, Cluster Innovation Centre, University of Delhi

Abstract

Geography as a discipline has seen various paradigm shifts in approaching the goal of studying human-environment relationships. Comparatively recent developments in studying Human Geography have incorporated themes like the use of Information and Communications Technology (ICT) in making quality education accessible to the masses and also helping in enhancing the understanding of the subject. India, being a developing country with a large population, is still struggling with making quality education accessible to its learners living in various locations. The integration of ICT with different aspects of learning-teaching has not only enhanced the relevance of digital content in the present context but has also given new dimensions to various subjects, including Geography.

This paper reflects on the effectiveness and relevance of the use of digital content, specifically video content, for learning concepts in Geography. Videographic Geography is an emerging concept to promote learning, teaching and research in Geography and is being considered as an innovative way of learning and teaching, especially in the case of India. This paper therefore, tries to explore this area of use of video resources for learning-teaching of Geography. Based on a field survey, this paper, therefore, aims to explore the possibilities, effectiveness and relevance of video content on Geography for school students in India. With the increased engagement of learners with computers and other hand-held devices, the use of video resources can be considered useful in catering for their educational needs. The National Education Policy (NEP) 2020 also suggests the use of eContent in learning-teaching of various subjects. Considering these aspects, the paper also tries to explore present and future prospects of video content in the learning-teaching process.

Keywords: Digital Learning, eContent, Geography, Educational video, Geography Teaching, Videographic Geography

Introduction

Human Geography has evolved immensely from the mere study of the distribution of human beings to the use of technology and its impact on the educational achievements of learners. Educational films (videos) and videos are one such domain where human geography has expanded. Films have been considered as representatives of identities and social constructs (Cresswell & Dixon, 2002) and modes of instruction for the enhancement of learner's understanding of a particular topic. Film has been considered as an

instructive mode through which an understanding of geographical issues, and a key site in the communication of geographical knowledge (Saunders & Strukov, 2018) can be achieved. There are various forms of popular culture of interest to human geographers – including cartoons (Thorogood, 2020), comic books (Holland & Dahlman, 2017) and television series (Glynn & Cupples, 2015). A close analysis of gaming scores offers new ways of understanding the spatiality of musical style, structure and form (Kirby, 2022) that can be yet another area of research. Ilesanmi (2022) points out, "By using different media avenues, such as models, audio-visuals, audios, and presentational tools, a friendly learning environment and experience will be enabled for learners to promote knowledge acquisition".

The need for digital content has been identified in transforming education in terms of accessibility to quality education and enhancement in learning outcomes, at least to some extent (Li Sandy C. & Karen B. Petersen, 2022 Bazelais P et al. 2022). In the rapidly growing world of ed-tech institutions, the development of creative content, dissemination of information, and technological awareness seem to be prolonged requisitions. Digital learning-teaching is strongly dependent on mastering and fostering the use of ICT in an effective manner. The traditional curriculum of Geography and geographic knowledge is seeing a revival with the integration of technologies and even Artificial Intelligence (AI)-enabled systems of learning-teaching. The strategized use of Remote Sensing and Geographical Information Systems (RS and GIS) has been effectively used in location analysis, climatic and planning activities. It is said that it may bring a technocentric revolution in learning and teaching of Geography (Kadhim, 2020). Coming to the use of eContents in the form of video resources, learning-teaching of Geography has taken a newer face in India with the aim of making quality content available to learners belonging to various socio-economic groups and geographical locations. Videographic Geography has increasingly been considered as a way of dealing with the study of various concepts of Geography (Garrett, 2011).

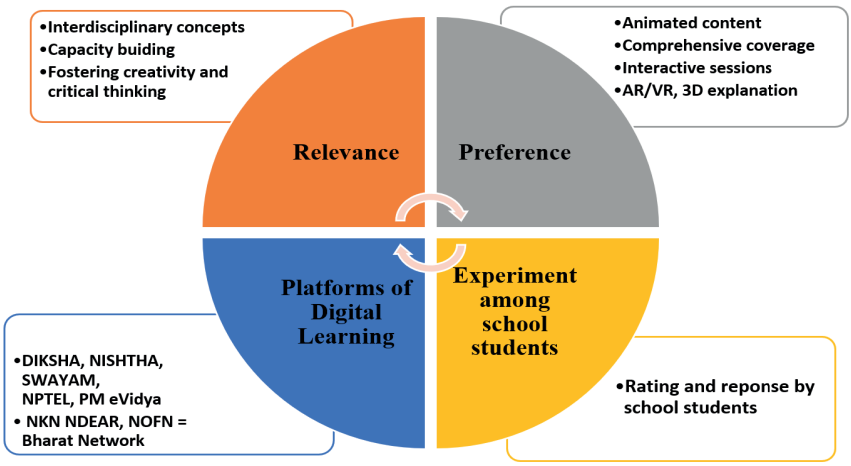
With the improvement in digital technology, creating videos have become easier and there has been reduction in the cost of their production and distribution. Apart from these benefits, videos can be used in the classroom for recording and analyzing interactions between students and with the teachers, develop critical thinking, creativity and enhance collaborative learning (Evangelou, 2023).

This paper deals with the use of eContent in the form of video in teaching Geography at the school level in the Indian context. It presents the outcomes of a field trial carried out through a questionnaire to find out the effect of video as a learning resource. It tries to study the interest of students and probabilities of learning-teaching in Geography through video content. Therefore, the study is part of an experiment that can be taken up further for the development of educational videos.

Conceptual Framework and Background of Study

The utilization of digital content can be associated with four main factors- relevance, preference, platforms of digital learning and experiment of video content for school students in India.

Figure-1: Conceptual Framework of Utilization of eContent in India



Like many other parts of the world, the use of eContent in general and video resources in particular, in India got a sudden thrust after the outbreak of the COVID-19 pandemic in the year 2020. Since there was a sudden closure of physical schools all across the country and there existed a sharp digital divide between the learners of various socio-economic groups and living in various geographical locations, the Government of India (GoI) decided to freely disseminate quality educational eContent through various modes i.e. internet-based platforms and mobile apps, television telecast and radio broadcast under the PM eVidya initiative (https://ciet.nic.in/pages.php?id=pmevidya). The enhanced focus was on school education, keeping in mind more than 264 million school students and their limited access to digital modes.

Various institutions started developing eContent, especially videos, to cater to the needs of learners. National Council for Education Research and Training (NCERT), being one of the central institutes in India working for the development of curriculum, textbooks and learning-teaching materials at the school level, was given the responsibility of developing curriculum-based quality content. These eContent were based on the NCERT's curriculum, which is widely used in the country, especially in the Government-run schools. Dissemination of learning-teaching material through a multi-modal strategy was undertaken as part of the recommendations made in the newly developed National Education Policy (NEP) 2020 of the country (https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf). These modes of dissemination, also low-cost in nature ensured greater access to these quality learning resources. Availability of these curricular videos (in the context of this paper) in English and Hindi languages further enhanced the access to these resources as these two are the most widely spoken languages in India. Given

the continuation of dissemination of videos through internet-based platforms and apps and television even after the opening of schools, the need was felt to make these supplementary resources for continued access to these quality videos for the learners. Currently, about 7,000 such videos are being disseminated for classes 1-12 of school education in the country. In order to have a sustained interest of learners, the quality of videos needed to be enhanced to make them more engaging for the learners. The development of the video used in the present study is a part of this continued effort to make quality learning resources freely accessible to learners of diverse backgrounds.

Objectives:

The following are the objectives of this paper:

1. To assess the impact of learning-teaching through videos at the school level.
2. To find out the relevance of video content in learning-teaching of Geography.
3. To list out the challenges and future prospects of the use of video content in learning-teaching of Geography.

Sample and Methodology

The survey to assess the impact of the use of video resources in learning-teaching Geography was conducted in two schools- Jawahar Navodaya Vidyalaya, Gurugram, Haryana (Government) and Bal Bharti Public School, Ghaziabad, Uttar Pradesh (Private) of Delhi-National Capital Region (NCR). The survey was conducted in September-October 2022 in a face-to-face mode. The sample schools were randomly selected and are located on the outskirts of the Indian capital city, New Delhi. The idea was to take responses from learners who are not much exposed to such high quality video resources specifically designed for topics related to their curriculum. These schools were also found to be using ICT-like smart classes in learning-teaching processes. Some of the teachers of Jawahar Navodaya Vidyalaya were also engaged in creating video content and reviewing videos for various subjects for PM eVidya and DIKSHA initiatives of the MoE during the COVID-19 pandemic. The sample consists of 101 students from classes 8-9 in accordance with the content of the video. That is, they would have studied the concept in the previous class.

The video used for the survey titled, Origin of the Earth', was developed in the Central Institute of Educational Technology (CIET), NCERT, New Delhi, in the year 2022. The development of the video was done as part of the PM eVidya initiative of the Ministry of Education (MoE), Government of India (GoI), initiated during the outbreak of the COVID-19 pandemic in 2020. The video uses emerging technologies such as Augmented Reality-Virtual Reality (AR-VR) to explain the concept of the origin of the earth. This video is the first part of the series of Geography programmes, Earth's Processes. The video is accessible through the link https://diksha.gov.in/play/content/do_31356501790449664011 29

The questionnaire was designed as part of the field trial of the video and was reviewed by experts for suggestions. It is attached in the Annexure. It consists of two sections: one based on general questions related to an educational video and the second with questions specific to the content of the video. In total, there were seventeen questions (10 in section 1 and 7 in section 2). The responses were collected for both sections and were used for analysis. As the questionnaire was given after showing the video, it can be categorised as a post-test survey.

Analysis

This paper is an attempt to analyse the use of videos for learning-teaching of concepts of Geography and the objectives mentioned in the beginning of this paper. The study of eContent (video) is based on asynchronous interaction, as the video was developed beforehand. Studies have shown that e-learning generates more interest in learning-teaching that improves academic achievement (Saunders & Strukov, 2018 and Kambar & Bamagond, 2018 Li Sandy C. & Karen B. Petersen, 2022). It also sets free the learning-teaching process from the constraints of time and place (Kambar & Bamagond, 2018). Video content has been found to facilitate a visual form of learning-teaching through animations, demonstrations, simulations, and visualization of complex concepts. It is believed to have more power to engage the learners for a longer duration of time as compared to the traditional mode of learning. Video, just like films/movies, captures the attention of the learner/ viewer, which implies that learners can retain the information for a longer time also through active participation. Videos can also act as an effective way to record geographical phenomena and explain the concepts in space and time. Videographic works also provide an avenue to describe any place, society, movement, anthropology or any other narrative (Garrett, 2011).

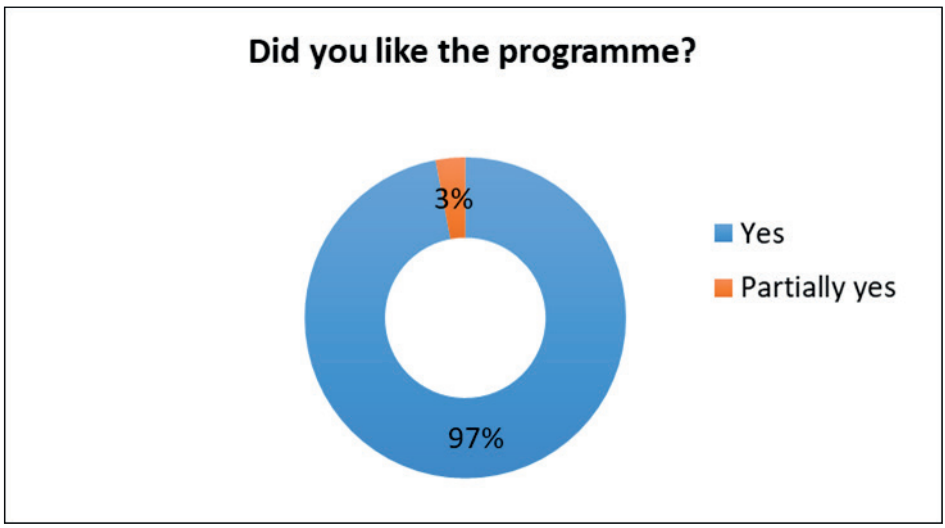
The impact assessment of learning carried out through the questionnaire had a positive response towards the use of video in learning-teaching of geography at the school level. As mentioned earlier, the questionnaire had two sections with a total of seventeen questions focussing on different aspects of the video programme. The details of responses received for these questions have been given here.

Section one had ten questions related to the video, in general. A question-wise analysis has been done.

1. Did you like the programme? (Yes/No/Partially

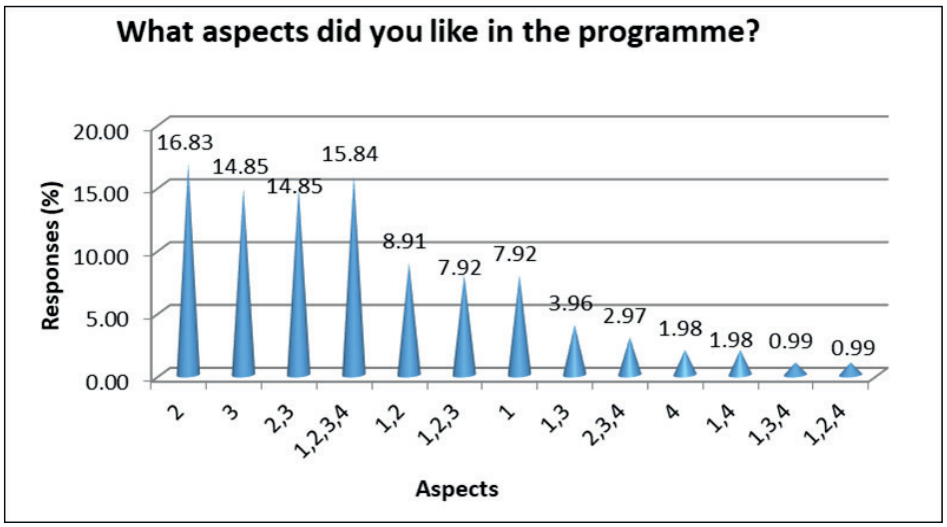
   This responses show that observe that out of 101 students, only 3 students liked the programme partially whereas, rest of the 98 students (97 per cent) liked the programme and none of them disliked the programme (Fig-2). This indicates that the video was interesting and engaging for the students.

Figure-2: Details of responses for Q. no.1



2. What aspects did you like in the programme? (i, ii, iii, iv- can have multiple selections)

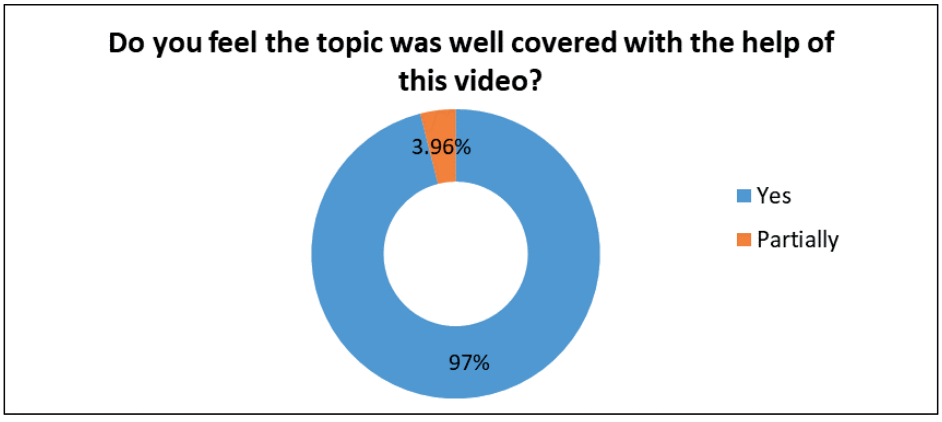
Figure-3: Details of responses for Q. no.2



As per the options given in the questionnaire, the responses show that the way of presentation and the visuals used in the video were in general, liked by the students. However, students wanted some improvement in the sound and coverage of the topic. Many of the students even gave mixed responses about coverage, presentation, usage of pictures and supporting sounds (Fig.-3). The details of options can be seen in the questionnaire given in the annexure.

3. Do you feel the topic was well covered with the help of this video? (Yes/No/Partially)

Figure-4: Details of responses for Q. no.3



For this question, only 4 students (3.96 per cent) said that they partially liked the programme with respect to the coverage of the topic whereas, about 97 per cent of students seemed liking the programme in terms of coverage of content (Fig.-4).

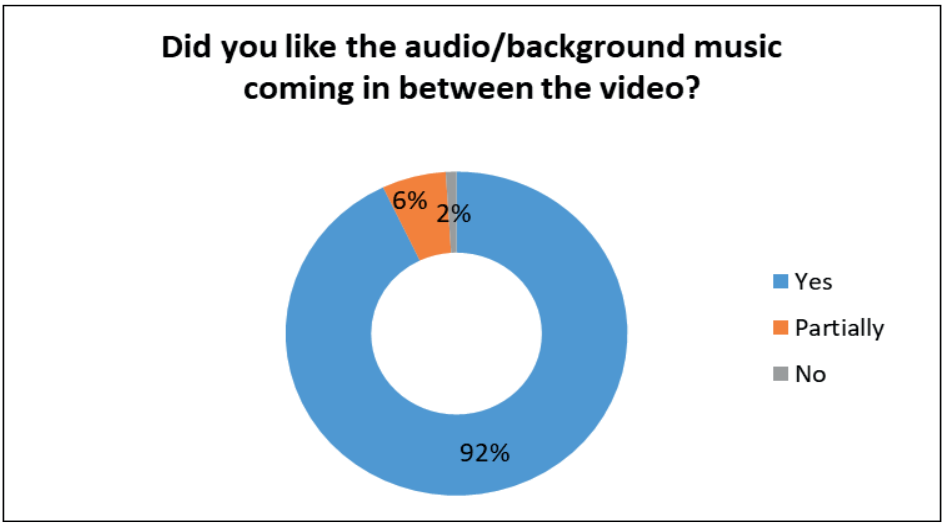
4. Was the duration of the programme adequate? (Yes/No/ Partially)

   Out of 101 students about 88 per cent of students responded in favour of the question asked. The rest of them felt that the duration of the programme could be changed or increased.

5. Did you like the audio/background music coming in between the video? (Yes/No/Partially)

   Here also, a similar response was received as 92 per cent of students liked the audio/ background music of the video, whereas the rest of them either did not like or partially liked them (Fig-5).

Figure-5: Details of responses for Q. no.5



6. Is the language easy to understand? (Yes/No/Partially)

   Regarding understanding the language used in the video programme, a majority of the respondents (96 per cent) responded in favour of the language used and reported that it was easy to understand.

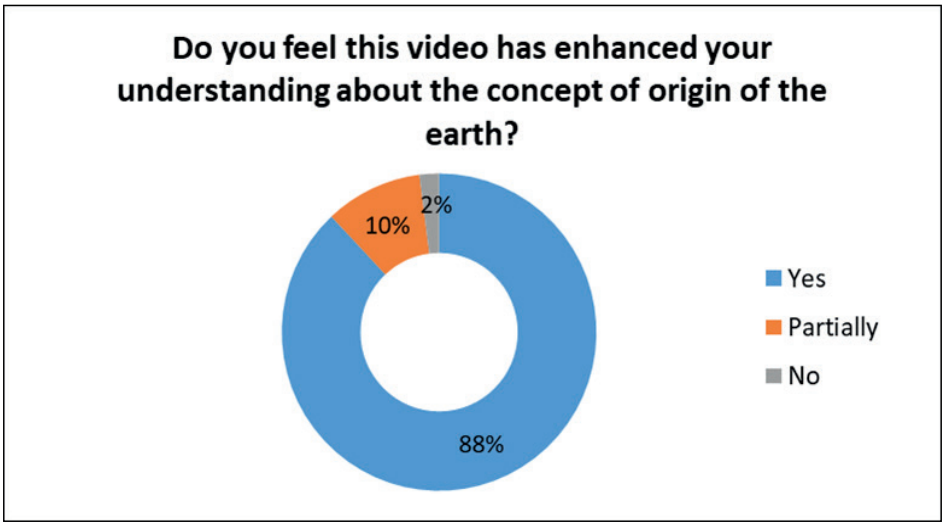
7. Have you ever seen such video programmes before? (Yes/No)

   Here, about 35 per cent of students reported that they had never seen such a programme earlier. The rest of the 65 per cent of students gave a mixed response. Regarding the source of the programme, if seen, the response was for educational TV channels such as Discovery Channel and National Geographic channel being telecast in India and various YouTube channels (names not specified).

8. Do you feel this video has enhanced your understanding of the concept of the origin of the earth? (Yes/No/Partially)

   Barring about 2 per cent of the students who said that this video doesn't enhance their understanding, the rest of the 98 per cent of students replied in favour of the enhancement of their understanding of the concept with the help of this video either partially or completely (Fig.6).

Figure-6: Details of responses for Q. no. 8



9. What more type of programme do you see/would you like to see? (Documentary/Drama/ Demonstration or experiment-based/Puppet-based/Fun-based)

10. Most of the students responded in favour of demonstration or experiment-based programmes. Documentary and fun-based programmes were other options suggested by them.

    Do you have any suggestions related to the programme?

    This was an open ended question where the students were asked to write whatever they felt. Majority of the students liked the programme. However, some wanted more animations, modifications with respect to visual effects in the video.

The second section of the questionnaire consisted of assessment questions (seven in number) specifically related to the content of the video. Out of this, the last question was a little open-ended and was not included in the scores. The details can be seen in the questionnaire (Annexure). The scores of students for all these questions were added, and it was found that about 60 per cent of the students scored 50 per cent or above out of the six questions asked of them. The rest of the 40 per cent of students scored less than 50 per cent. This indirectly signifies that they could grasp some of the information shown in the video program.

Scope of Video Content in Geography

Geography as a subject inherits several supporting disciplines, physical and human in nature, that open the scope for video content and further innovations in it with changing technological advancements. With a wide variety of themes such as geomorphology, climatology, oceanography, demography and related phenomena, human-environment relationship, meteorology, biogeography, ethnography, etc., included in the subject matter, there is a wider scope of developing video content in support of the topic. Many of the phenomena, such as soil formation, weathering, movement of glaciers and movement of lithospheric plates, either take a very long time or cannot be experienced on the surface of the earth. In such cases, the use of videos in explaining the topic can be useful and effective in the learning-teaching process. The use of emerging

technologies such as 3D animations or AR-VR can enhance the visual feel of the topics being covered and can enhance the interest in the topic among the learners.

The responses to the field survey also support that such videos generate interest among the learners about the topic being covered. This also makes the learning process enjoyable for them. The majority of the respondents liked the video, and the format encourages the use of technology in learning-teaching of Geography. However, the scores of students received in the second section of the questionnaire could not show a clear transcend of the overwhelming response received in the first section, though about 60 per cent of them received 50 per cent.

Conclusion and the way forward

The use of technology in Geography in multiple ways can be seen as a paradigm shift in studying the subject. The use of technology and ICT, in particular in teaching the subject, has emerged as an integral part of the education system in various countries, including India. Incorporating online courses, blended learning and also flipped learning is being done in the traditional and existing modes of practice. Though the use of videos was done in a few instances its enhanced use and proliferation of agencies developing educational videos has been a recent trend. Probably, such developments have been instrumental in the emergence of branches like videographic geography within Geography. Educational videos have been found to be helpful in the learning-teaching process. However, the integration of such resources should be made effective and in accordance with the explanation of the topic and other pedagogical ways. The utilization of eContent is also being considered as green consumerism (Mishra et al, n.d.)**.** Issues of over-exposure to digital modes, particularly with respect to screen timing and cyber safety, should be taken care of. Though the use of digital content can on hand enable better access to quality education for learners who are deprived of it, it further draws attention towards the existing digital divide and related issues in developing countries like India.

(Acknowledgment: We would like to acknowledge the students and school administration of Jawahar Navodaya Vidyalaya, Gurugram, Haryana and Bal Bharti Public School, Ghaziabad, Uttar Pradesh for helping in conducting this survey. We are also grateful to Prof. Amarendra P. Behera, Joint Director, CIET, NCERT, New Delhi for his visionary guidance in the development of video and conducting the field survey. Support provided by Dr. Abhay Kumar, Assistant Prof., CIET, NCERT, New Delhi at various stages is also acknowledged.)

References

Bazelais, P., Breuleux. A., & Doleck. T. (2022). Investigating a blended learning context that incorporates two-stage quizzes and peer formative feedback in STEM education. Knowledge Management & E-Learning, 14(4), 395–414. https://doi.org/10.34105/j.kmel.2022.14.021

Cresswell & Dixon. (2002). Engaging Film: Geographies of Mobility and Identity, Rowan and Littlefield: Lanham, MD. ISBN 9780742508842

F. Evangelou. (2023). Video as an Educational Tool for Teaching and Learning for Primary School Students: A Research Approach by Greek Teachers, European Journal of Education and Pedagogy, Published Online: February 16, 2023ISSN:2736-4534DOI:10.24018/ejedu.2023.4.1.575

Garrett, B. L. (2011). Videographic geographies: Using digital video for geographic research. In Progress in Human Geography (Vol. 35, Issue 4, pp. 521–541). SAGE Publications Ltd. https://doi.org/10.1177/0309132510388337

Ilesanmi Abayomi. (2022). Teaching and Learning with Instructional Videos: Issues and Concerns for Educational Practice, International Journal of Instructional Technology and Educational Studies (IJITES) ISSN (Print): 2682-3918 - ISSN (online): 2682-3926 Volume4 / Issue1, January 2023 DOI: 10.21608/ihites.2022.121271.1110

Joe Thorogood. (2020). Cartoon controversies and geopolitics: Archer, animators and audiences, Social and Cultural Geography, Vol. 21 Issue3, Routledge, DOI: 10.1080/14649365.2018.1497190

Kadhim, A. J. (2020). Effective Use of ICT for Learning and Teaching Geography. In Aalborg Academy Journal of Human and Social Sciences (Vol. 1, Issue 1). https://www.researchgate.net/publication/347849381

Kambar, S. B., & Bamagond, V. A. (2018). TEACHING GEOGRAPHY THROUGH E-CONTENT. www.lbp.world

Kevin Glynn & Julie Cupples (2015) Negotiating and queering US hegemony in TV drama: popular geopolitics and cultural studies, Gender, Place & Culture, 22:2, 271-287, DOI: 10.1080/0966369X.2013.855711

Li Sandy C. & Karen B. Petersen. (2022). Does ICT Matter? Unfolding the Complex Multilevel Structural Relationship between Technology Use and Academic Achievements in PISA 2015, Educational Technology & Society, International Forum of Educational Technology & Society, National Taiwan, Normal University, Taiwan, October 2022, Vol. 25, No. 4 (October 2022), pp. 43-55, https://www.jstor.org/stable/10.2307/48695980

Mishra, U., Patel, S., Doshi, K., & Doshi, M. K. (2017). E-CONTENT: AN EFFECTIVE TOOL FOR TEACHING AND LEARNING IN A CONTEMPORARY EDUCATION SYSTEM (Vol. 2 Issue 1). International Journal of Advance Research and Innovative Ideas in Education (IJARIIE), ISSN no. Online 2395-4396, www.ijariie.com p 79-83.

Philip Kirby. (2022). Musical orientation in virtual space: videogame score and the spatiality of musical style and topic, Social & Cultural Geography, 23:6, 855-872, DOI: 10.1080/14649365.2020.1821392, https://ijites.journals.ekb.eg/article_255260_ 1ade885135551173890dc9bb2dffe91d.pdf

Robert A. Saunders and Vlad Strukov (Ed) 2018 Popular Geopolitics Plotting an Evolving Interdiscipline, Routledge, ISBN 9780367591625

National Education Policy (NEP) 2020. (2020). Ministry of Human Resource Development (MHRD) now Ministry of Education (MoE), Government of India (GoI) https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

https://ciet.nic.in/pages.php?id=pmevidya

Annexure 1

Questionnaire for Field Trial

Name of the Programme: Origin of the earth Type of programme: Video (AR-VR series) Subject: Geography Duration: 09:30 min	Name of the organization/school: State/UT: Students/Teachers: Class:

Section-1

(Choose (√) the right option)

1. Did you like the programme? Yes/No/Partially
2. What aspects did you like in the programme? (You can choose multiple options)
   i. The topic/theme covered?
   ii. The way it was presented/narrated?
   iii. The pictures/visuals used?
   iv. The sound supporting the video?
3. Do you feel the topic was well covered with the help of this video? Yes/No/Partially
4. Was the duration of the programme adequate? Yes/No/Partially
5. Did you like the audio/background music coming in between the video? Yes/No/Partially
6. Is the language easy to understand? Yes/No/Partially
7. Have you ever seen such video programmes before? Yes/No (If yes, mention the source)
8. Do you feel this video has enhanced your understanding about the concept of origin of the earth? Yes/No/Partially
9. What more type of programme do you see/would you like to see? (Documentary/Drama/Demonstration or experiment-based/Puppet-based/Fun-based)
10. Do you have any suggestions related to the programme?

_____

_____

_____

_____

Section-2

11. When did the earth and other planets of our solar system originate?
    i. About 4 billion years ago
    ii. About 4.6 billion years ago
    III. About 5 billion years ago
    IV. Time of origin is not known
12. The Solar system is the system of the _____and other_____ which is bound together by _____ _____.
13. The graphical representation of time span showing the history of the earth on a scale is known as the _____.
14. The theory to explain origin of universe and then our planet earth is known as the _____ Theory.
15. What are the three most important factors that make the earth unique to have life?
    i. Suitable temperature, breathable air & availability of water
    II. Suitable temperature, various gases & atmosphere
    III. Cold temperature, plants & soil
16. Terrestrial planets are also known as _____planets and Jovian planets are also known as _____planets depending upon their position with respect to the sun.
17. Can you compare the life of living things with the life of a planet like earth? Yes/No/Maybe

    If yes, in what way? _____
    _____
    _____

    If no, then why not? _____
    _____
    _____