360 Virtual Reality (VR) Teaching and Learning

Organised by

Commonwealth Education Media Centre for Asia (CEMCA), New Delhi

and

Department of Education, Ravenshaw university, Cuttack

Workshop Report

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Introduction

The concept of virtual reality (VR) has been known since the 1960's, however, with new technology inventions, VR has expanded its variety and scope. Currently, VR can be classified into two kinds, 1) desktop VR, also known as non-immersive VR and 2) non-desktop VR, which is immersive VR. Compared to the desktop VR characterised by virtual 3-dimensional (3D) games and simulations such as Minecraft, immersive VR uses 360° images and a head-mounted display (HMD) such as Google Cardboard or Oculus Lift for viewing. Immersive VR thus has a lower barrier and more flexibility for teachers to design and implement VR-based instructional activities in their own classrooms. VR learning experiences are engaging and allow students to immerse themselves in content beyond what is possible in the real world. 360° VR is an immersive type of video content, allowing users to look around in all directions, and giving them the opportunity to control what they want to see. Presenting learning content through 360-degree spherical images or videos is not only more realistic than 3D animations, but also greatly reduces the cost and time of developing the VR content. More importantly, the production of 360° VR content does not require high-tech capabilities, implying that most school/university teachers might be able to develop the learning content on their own. With a proper learning design, VR can help students develop more complex and higher order thinking. 360° VR solves the problems of using conventional 3D graphic-based VR, which is highly technical and is expensive in terms of both time and money. The idea is to develop a platform for teachers or industrialists to create 360VR experiences which can then be consumed by the target learners. This platform needs to allow more than the freely available platform from Google (Google expeditions; 360 images with superimposed text, audio, videos and pictures).

Objective

- Effective use of flexible and portable VR education system that can be accessed through various devices.
- Teachers able to create 360 learning content easily and share it with their students.
- Implement various game elements to enhance the learning experience.
- Target learners able to download and engage through the learning content.

Participants

The Online Capacity Building Programme was attended by the 42 faculty members and Research Scholars of Department of Education, Ravenshaw University, Cuttack (See Annexure 1).

Resource Person

DR. Kaushal Kumar Bhagat and his team
Indian Institute of Technology Kharagpur (IIT KGP)
Kharagpur, India

Dates and Time

Training Programme Duration: **3 days, from 12 June 2021 to 14 June 2021** (See Annexure 2 for workshop schedule)

Day 1: About 42 faculty members and Research Scholars of Department of Education, Ravenshaw University attended. Prof. Sanjay Kumar Nayak, Vice Chancellor, Ravenshaw University and Prof. Madhu Parhar, Director, CEMCA along with Dr. Sudarshan Mishra, Head Dept. of Education, Ravenshaw University graced the occasion. Dr. Manas Ranjan Panigrahi from CEMCA facilitated and coordinated the programme. Dr. Kaushal Kumar Bhagat from IIT Kharagpur explained the concept of 360 virtual reality and advantages of using 360 VR in the teaching and learning process. Then his team demonstrated different features of **360 VR Educator** which is developed by Dr. Bhagat and his team in collaboration with CEMCA. Day 1 ended with Q&A session. The programme was conducted in synchronous mode through CEMCA ZOOM

Day 2: About 27 participants were trained to develop VR contents using **360 VR Educator.** Dr. Bhagat and his team provided all support during the hands-on activity to all participants. The participants were engaged to develop one content using 360-degree VR platform as output and outcome. This session was conducted asynchronous mode through a WhatsApp group.

Day 3: Participants demonstrated their 360 VR content developed by them on Day 2. Feedback were provided by the resource persons to the participants. Then Q&A sessions was conducted to understand users experience with **360 VR Educator.** The resource person and his team noted all the concerns and problems faced by the participants. The closing ceremony was graced with the presence of Prof. Madhu Parhar, Director, CEMCA. She emphasized the implementation of **360 VR Educator.**

Annexure 1: List of Registered Participants for 360 VR Teaching and Learning

SL. No	Name	Gender	Designation	Subject of Teaching	Area of Research
1	PRASANTA MALLIK	Male	Research Scholar	Education	Elementary education
2	ANWESHA MOHAPATRA	Female	Research Scholar	Education	Economics of education
3	PARTHIBI PRIYADARSHINI	Female	Guest Faculty	Educational technology	Educational technology
4	YASHIKA PODDAR	Female	Research Scholar	Education	Educational psychology
5	DADHI BAMAN TALI	Male	Assistant Professor	Statistics in education & educational psychology	Learning & Thinking styles
6	DR.GITANJALI MOHANTY	Female	Assistant Professor	Pedagogy of bio science	Science education
7	PRAVEEN BOBBY BINJHA	Female	Assistant Professor	Education	Educational Technology
8	JAYDEV DAS	Male	Guest Faculty	Guidance and counseling, Educational philosophy, Educational sociology, Educational psychology	Educational psychology, Teacher Education, Educational Technology
9	DINESH MAHARANA	Male	Research Scholar	ICT in education	ICT in education
10	SONALI JENA	Female	Research Scholar	Education	Information and Communication Technology
11	MANORANJAN DASH	Male	Guest Faculty	Pedagogy of Social Science, Assessment in Education	ICT IN EDUCATION
12	ANNAPURNA DASH	Female	Research Scholar	Education	Early Childhood Care and Education
13	NIHARABALA MAJHI	Female	Assistant Professor	EAE,ETP,RRE,AL	Education for social Inclusion
14	SUNANDA DAS	Female	Assistant Professor	Educational Psychology	Women education, women empowerment
15	SANDHYA RANI PAL	Female	Guest Faculty	Learning and Teaching, Assessment for Learning, Pedagogy of Language(English)	Early Childhood Education
16	NIMAIN CHARAN MALLIK	Male	Guest Faculty	Education	Elementary Education

17	SUNANDA DAS	Female	Research Scholar	Educational Psychology	Women education, women empowerment
18	MASAMAT SAMERUN KHATUN	Female	Research Scholar	Education	Educational Technology
19	BISHNUPRIYA JENA	Female	Research Scholar	Pedagogy of science and Mathematics	Science Education
20	SRABAN KUMAR BAG	Male	Research Scholar	Research Methodology	Elementary Education. Educational Policy and Governance. Tribal Education.
21	PRAMOD KUMAR DAS	Male	Guest Faculty	Educational Technology, Educational Research, Statistics in Education	Higher Education, Teacher Education, ICT in Education
22	NEERUPAMA SWAIN	Female	Research Scholar	Education	Social science
23	SRIPARNA GHOSE	Female	Research Scholar	Education	Teacher Education
24	PRAHALLAD MAJHI	Male	Research Scholar	Educational Management, Educational Sociology, Higher Education	Educational Management and Administration, Tribal Education, Higher Education
25	DR PRANITA GOPAL	Female	Visiting Faculty	Pedagogy of English	ICT
26	SARAT KUMAR ROUT	Male	Assistant Professor	Assessment and Pedagogy	APPLICATION OF ICT IN EDUCATION, HIGHER EDUCATION AND SCHOOL EDUCATION
27	KABITA SENAPATI	Female	Research Scholar	Growth and Development-Educational Psychology,	Implementation of CCE in Elementary Education in Odisha
28	MINATI DAS	Female	Research Scholar	Education	Higher Education
29	JATEENDRA DAS	Male	Guest Faculty	Educational Assessment and Evaluation, Educational Psychology	Educatinal Psychology, Educational Technology
30	PRAGYAN MISHRA	Female	Research Scholar	Implementation of RTE Act for the education of slum children	Education of Slum Children

31	ANITA BEHERA	Female	Research Scholar	Education	Teacher Education
32	PRANAYINI SAHOO	Female	Guest Faculty	Educational psychology, Evaluation and Assessment in Education	Educational psychology and Educational Technology
33	SMRUTIREKHA NAYAK	Female	Research Scholar	Education	Science Education
34	AJAYA KUMAR MOHANTY	Male	Assistant Professor	Perspectives in Education	Education and Covid19 Pandemic
35	ARPITA SINGH	Female	Research Scholar	Education	Teacher Education
36	PROF. G. C NANDA	Male	Professor	Educational philosophy and Curriculum Devpt	Educational philosophy Elementary Education Teacher Education
37	BIKALI CHARAN DAS	Male	Assistant Professor	Textbook Analysis, Higher Education, Advanced Methodology in Educational Research, Inclusive Education	Tribal Education, Higher Education and TPACK based Constructivist Pedagogy'
38	RAJU SHARMA	Male	Research Scholar	Education and Science	Educational Evaluation
39	SUDARSHAN MISHARA	Male	Associate Professor	Sociology of education	Elementary education
40	MEENA SAMAD	Female	Guest Faculty	Pedagogy of math and physical science	Online Simulation mode of school internship
41	DEBAJANI SAHOO	Female	Research Scholar	Creating an Inclusive School	Higher Education
42	BIDULATA SAHOO	Female	Research Scholar	Education	Elementary Education and Sustainable Development
43	ROSHNI SHARMA	Female	Research Scholar	Education, English	Pedagogy of english
44	CHINTAMANI MAJHI	Male	Research Scholar	Educational Sociology	Development Education
45	SUSANT KUMAR GIRI	Male	Research Scholar	Educational Measurement and Evaluation	Higher Education

Annexure 2: Workshop Schedule

S. No	Date/Session	Time	Activity	Outcome
Day 1 (12th June 2021) through CEMCA ZOOM				
1	Inauguration	02:00pm to 02:20pm	**Welcome address by**: Dr. Sudarshan Mishra, Head Dept. of Education, RU **Address by**: Prof. Prakash C. Sarangi, VC RU **Address by**: Prof. Madhu Parhar, Director, CEMCA **Introduction of Resource Person by:** Dr. Manas Ranjan Panigrahi, SPO, CEMCA **Vote of Thanks by** Dept. of Edu, RU	
2	Session 1	02:20pm to 02:40pm	Use of VR in teaching and learning Concept of 360-degree VR educator	Describe the importance of VR in the changing scenario. Explain the use of 360-degree VR.
3	Session 2	02:40pm to 03:30pm	Demonstration 360-degree VR content/Course creation and Structure	Design and develop a content/course using 360-degree VR platform
4	Session 3	03:30pm to 04:00pm	Q&A and Discussion Assignment to the participants	Discussion and reflections by the participants Content/course creation
Day 2 (13th June 2021) through Offline				
5	Session 4	Self Learning	Design and develop a content/course using 360-degree VR platform. Connecting with Resource Persons through WhatsApp.	Participants preparing at least one course/lessons.
Day 3 (14th June 2021) through CEMCA ZOOM				
8	Session 5	10:30am to 11:45am	Presentation by the Participants and reflection by the Resource Persons	Presentation of the content
9	Session 6	11:45am to 12:15pm	Q&A and Discussion	Discussion and reflections by the participants
10	Session 7	12:15pm to 12:30pm	Closing and Way Forward	Future Action Prepared