



# SAMVAAD Newsletter

Theme: Education and Technology

September 2019

## Re-architecting Education for 21<sup>st</sup> Century

### Relevance: The IIMBx Experience

by Prof. P. D. Jose, IIM Bangalore

on September 05, 2019

## Navigated Learning: Pedagogy for a connected world

by Prof. Srinath Srinivasa, and Chaitali Diwan, IIIT Bangalore

on September 09, 2019

<https://youtube.videoken.com/embed/pa2l34uRkQ4>

<https://www.youtube.com/watch?v=pa2l34uRkQ4>

## (i) Teaching the Millennial Generation (ii) The Future of Learning

by Prof. Chetan Parikh, IIIT Bangalore

On September 16, 2019

<https://youtube.videoken.com/embed/-CvPZCs-Pl8>

<https://www.youtube.com/watch?v=-CvPZCs-Pl8>

## The constructivist learning paradigm and technology choice in publicly-funded schools

by Prof. Amit Prakash and Srravya C. and Pradyumna Tadura, IIIT Bangalore, and Supriya Dey, Vision Empower

on September 23, 2019

<https://youtube.videoken.com/embed/plGh4euRtik>

<https://www.youtube.com/watch?v=plGh4euRtik>

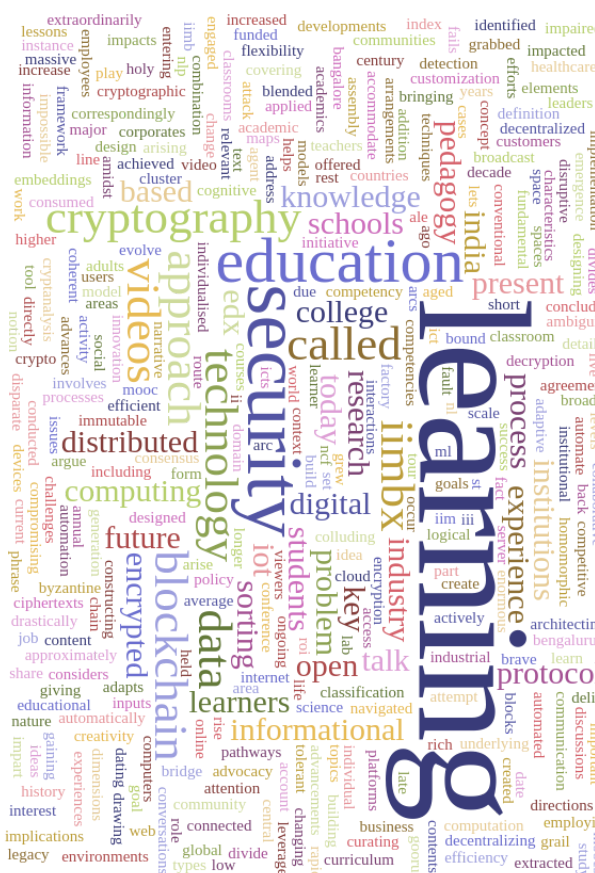
## Using AI to Transform Informational Videos and Our Watching Behavior

by Prof. Manish Gupta, IIIT Bangalore

on September 30, 2019

<https://youtube.videoken.com/embed/bjTHpeOu5wl>

<https://www.youtube.com/watch?v=bjTHpeOu5wl>



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The second thematic cluster of Samvaad talk series focused on Education and Technology, addressing how current day Information and Communication Technologies affect pedagogy and new paradigms of pedagogy that they may potentially enable.

This series comprised of five talks starting with an invited lecture by Prof. P D Jose from IIM Bangalore, on September 5th 2019, coinciding with Teachers' Day celebrations.

Prof. Jose addressed the changing nature of learning, by the connected generation and stressed on the need for evolution of pedagogic practices to leverage on current day computing and mobile devices connected to the Internet. He also introduced IIMBx, which is the flagship MOOC (Massive Open Online Course) program of IIM Bangalore. IIMBx has created over 40 unique courses, and has registered 1.3 million users from over 190 countries. IIMBx offers several courses on business management and technology to different stakeholders including college students, working professionals, academics, and researchers.



The second talk in this series was on September 9th 2019, by Prof. Srinath Srinivasa and Ms. Chaitali Diwan, from the Web Science Lab at IITB. They introduced a new paradigm of learning called Navigated Learning (NL) that is being developed in collaboration Gooru.org-- a Silicon Valley based non-profit, catering to learning needs by different stakeholders. Navigated Learning addresses three disparate challenges of modern day pedagogy: (a). The need for scale;

(b). Personalization of the learning experience to cater to background knowledge, competencies and dispositions; and (c). Addressing the social aspect of learning that is integral to effective pedagogy. Navigated Learning is a data driven learning platform that embeds learning resources, learner proficiencies, and any other relevant element of the pedagogy into a logical space to form what is called a Learning Map. A Learning Map would also contain "learning pathways" representing sequences of coherent learning experiences. Learners are guided by a Learning Navigator, which customizes the learning experiences for each learner. Learning Navigator design is based on a concept called "Narrative Arc" that builds a coherent narrative to the learner, based on their current proficiency levels.



The third talk in this series was on September 16th 2019, by Prof. Chetan Parikh. In his interactive session, Prof. Parikh



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raised several questions about the role of technology in learning, including whether technology can replace conventional classrooms and university environments. The interactive nature of this session brought about several perspectives from the audience-- while, there was an overall consensus that conventional classrooms and university campuses will remain relevant despite advances in learning technologies. The talk also addressed the cognitive science behind learning, addressing various aspects of how the human brain processes knowledge and develops competencies. The second half of the talk addressed approaches to learning in the millennial generation, that is exposed to a barrage of information sources and constant distractions. The talk introduced the cognitive impact of distractions and interruptions that we encounter on a typical session on a computer or mobile phone connected to the Internet, and stressed on the need for immersive environments for learning effectiveness.

The fourth talk in this series was delivered on 23 Sep 2019, by a team of researchers from the Center for IT and Public Policy (CITAPP), comprising of Prof. Amit Prakash, Ms. Supriya Dey, Ms. Shravya C, and Ms. Aishwarya. Prof. Prakash started the talk by introducing constructivist learning, where learning is seen as a process of knowledge construction by the learner, rather than just absorption, retention and reproducing of knowledge offered to them.



The constructivist paradigm was also introduced in the context of the National Curriculum Framework (NCF) of India, that in 2005, recognized the need for students to participate in the process of constructing their knowledge as part of engaged interactions both within and outside of conventional classrooms. The talk then addressed the use of Information and Communication Technologies (ICT) in aiding the constructivist paradigm of learning. Three different initiatives were introduced by the following speakers. The first example, presented by Ms. Dey, introduced the use of ICT by teachers to help them create customized interaction environments to meet the disparate needs of their students. The second example presented by Ms. Shravya addressed the use of ICTs to make content from “well qualified” teachers, widely available through a broadcast studio. The emphasis in this research was also on facilitating scalable interaction mechanisms with the experts, rather than just dissemination of content. The third example, presented by Ms. Aishwarya, addressed constructivist learning for visually impaired students. Being visually impaired herself, the speaker drew upon her own struggles and learnings during school, and proposed a paradigm centered on “play” in order to provide an engaging interaction. The mechanism presented was in the form of a collaborative card game that students play in a group, along with the teacher, and collectively draw upon learnings from one another to construct their own knowledge.



The last talk in this series was by Prof. Manish Gupta on 30th Sep 2019. The first part of the talk introduced the technology behind Videoken ([www.videoken.com](http://www.videoken.com)), which is a deep technology startup founded by Prof. Gupta.

Videoken uses AI techniques to analyze instructional videos and watcher behaviour, to provide support for increasing the effectiveness of watching instructional videos. Video lectures are increasingly becoming a major source of expert content that are widely available across the world, thanks to advances in ICT. However, unlike entertainment videos, instructional videos suffer from the challenge of maintaining learner engagement and attention for extended periods of time. Most instructional videos see a massive drop in user engagement after just 20% of its total length. In order to increase user engagement with instructional videos, researchers at Videoken started with the hypothesis that learning with videos-- as is the case with learning with books-- is an inherently non-linear and discontinuous process. Textbooks have long recognized this characteristic, and provide several mechanisms for readers, like Table of Contents, and Index, to jump to different parts of the book based on their learning needs. Videoken uses deep learning technologies to automatically create several indexing mechanisms for instructional videos, including a Table of Content, and a word cloud showing major concepts presented in the video.

Prof. Manish Gupta also recently took over as the head of Google India's R&D initiatives. In the second half of the talk, he introduced research at Google and the different challenges that they are currently addressing. He also introduced different ways in which Google research engages with academia and the society in order to foster research, and bring about social transformation.

This summary has been compiled by Dr. Srinath Srinivasa.

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#### Credits:

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