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'Fun with Pranali': Students' engagement with Edu-tech Learning Tools

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ABSTRACT

The pandemic of Covid 19 forced educational institutes to shift to online mode. Schools, teachers and students all were unprepared for this drastic shift in education pedagogies. The research was conducted on 50 students and 20 teachers to find out how teachers can effectively engage children in online classes. The research also attempted to explore different Edu-tech tools/ platforms used by teachers and challenges faced by them while using those tools in their classrooms. After an initial survey of tools used by teachers, researcher created a group 'Fun with Pranali' with students and tried various Edu-tech tools and analyzed their effectiveness in classes.

Keywords: Online Teaching and learning, Edu-tech tools, Student Engagement, Online quizzes, Online presentations

Introduction

The pandemic of Covid 19 shifted educational institutions to an online mode, which was unimaginable. Teachers were not prepared for this shift. In online classes teachers often raise questions like - "Are students really understanding, what I am trying to explain?", "Are they listening to me?", Are they mentally present in the class? Or Are they just staring at the screen?". Teachers seem to be worried that students may be doing something else behind their cameras as they can't see their students' body language, facial expressions. Worries like this are always pondering over the head of teachers. As a matter of fact, teachers' concerns are genuine as students are not able to concentrate for entire class. What could teachers do to avoid these doubts and engage students in online classroom? To answer this broad question, following specific **research questions** were framed:

How do teachers engage students in the classroom?

Why?

Is online teaching-learning different from the physical classroom one?

How can we engage the students in online classroom using software and application (IT)?

Which teaching-learning tool were efficacious?

What engagement changes or efforts are made for students with special needs?

Before going ahead let's understand few terms:

Teaching-learning tools are tools that help or aids in teaching and learning tasks involving integration of technology in education.

Student engagement can be defined as "the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning and being taught" (https://www.viewsonic.com/library/education/what-is-student-engagement/ by ViewSonic Library)

Methodology of Research

A group of 50 students from classes III to X and 20 teachers were selected as a sample for this research. All these respondents willingly participated in this research. A group named '**Fun with Pranali**' was created and group met for one hour, twice a week for continuously 12 weeks through the platform on Google meet. Researcher collected data by interviewing teachers about popular Edu-tech tools used in educational institutions. Those tools were tried, discussed and explored in the Google meet. The following freely available Edu-tech tools were used in the research:

HOTPOTATOES: – https://hotpot.uvic.ca/, The Masher (building linked units of material), QUIZZIZ - https://quizizz.com/, PLICKER - https://www.plickers.com/discover, JAMBOARD - https://jamboard.google.com/, CANVA - https://www.canva.com/en_in/, PADLET - https://padlet.com/, CLASSROOM SCREEN - https://classroomscreen.com/, Didax - https://www.didax.com/math/virtual-manipulatives.html, PRODIGY - https://www.prodigygame.com/, VIRTUAL MANIPULATIVE LIBRARY http://nlvm.usu.edu/en/nav/vlibrary.html, MATHIGON - https://mathigon.org/activities, SOCRATIVE - https://www.socrative.com/, GEOGEBRA -

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http://pubs.iscience.in/ijss

https://www.geogebra.org/?lang=en POWERPOINT, and KAHOOT - https://kahoot.com/.

Students' engagement on the above tools were observed. Along with this, teachers' and students' feedbacks were recorded using a feedback form.

Data Collection:

Teachers and students feedback form were created as jot form, which had questions like was the tool user friendly? How much time did you and your students take to understand the usage of the tool? Did tools promote students' engagement in classroom? They were asked to classify tools as attractive, boring, bright and hard on eyes. They also classified tools as very easy, easy, difficult to use. Students discussed and responded to the feedback form.

Data Analysis:

Students' Engagement in Classrooms

Students shared that in physical classrooms/before march 2020, teachers organized hands-on activities for science/EVS, hand-made materials- crafts, charts, storytelling and group activities, which was completely missing in online classes. Teachers also agreed to this fact. Everyone felt that online teaching requires different pedagogies as compared to physical classes. According to World Bank Blogs on Feb 18, 2021(https://blogs.worldbank.org/education/changing-role-teachers-and-technologies-amidst-covid-19-pandemic-key-findings-cross) reported an article titled "The changing role of teachers and technologies amidst the COVID 19 pandemic: key findings from a cross-country study". It says that in Brazil (Peninsula), 83% of teachers did not consider being prepared to teach remotely, 67% were anxious, 38% felt tired and less than 10% were happy and satisfied. It was reported that a few teachers followed their traditional methods like using chalk and blackboard, pen and paper to teach the students. One reason behind this was - because they didn't have the resource and knowledge to use the tech in their teaching. Whereas, some fight with their fears of trying new things, explored and learned the technology to engage their students in the online learning process.

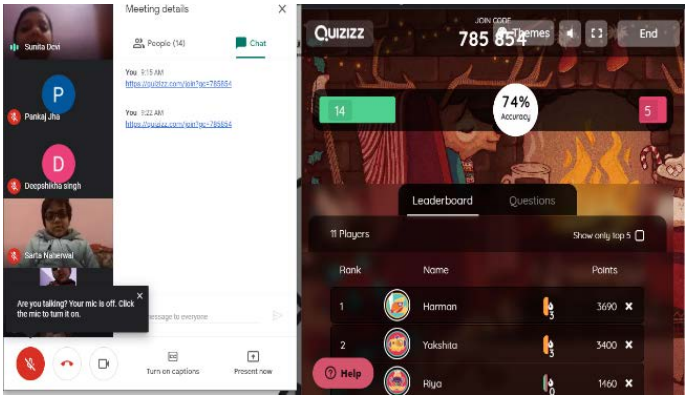
In our research all teachers believed that engagement process has changed. Now, technology, software, games, application, animation and videos are the things to which students look forward and teachers also use them hand in hand in classrooms to keep students focused in the classroom. Teachers try to implement something which is interactive for the students. Critics argue that online learning opportunities can make use of better teacher time, thus will increase rate of learning and educational productivity.

Challenges faced in Online Classes:

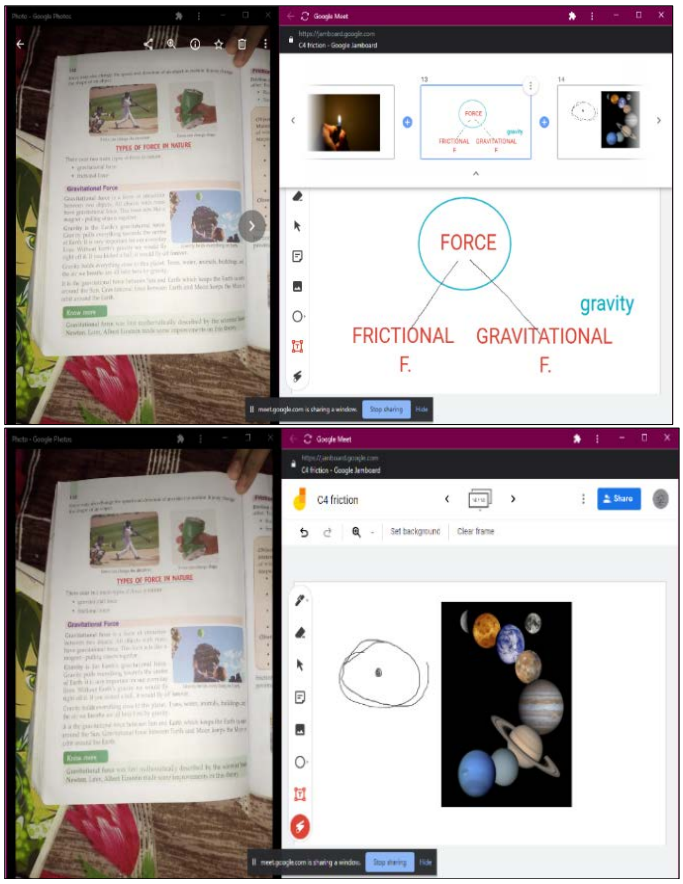
About fifty percent of teachers reported that students have become more carefree and disrespecting towards their teachers. The other concern was loss of peer learning opportunities, group learning and physical manipulation with materials in science laboratories. They also highlighted space constraints for students. A teacher reported that some students have their siblings attending online classes from the same room, which crate a lot of disturbance when they unmute themselves in online classes. And the major infrastructure challenge reported by both students and teachers was network connectivity.

Analysis of Edu-tech tools:

While taking classes with the children in the age group of 8 to 12 years, teachers reported that they need more time in understanding different Edu-tools. Quizizz, Canva and Prodigy were the most three popular among children. However, familiarization with tools take time, for instance following the given instructions and going step by step in **Quizizz**. It requires a demonstration class too. But once they were familiar to the tool they enjoyed working on it.



'**Canva**' provided platform to design and thus, students get an opportunity to express their creativity. Teachers used it in task of poster and card designing. 67% of the students finds it easy to use and 33% find very easy to use. Canva also has numerous templates with guidance of how and what to write for the topic.



Prodigy is a helping hand for teachers where they cannot just engage students but, they assign them tasks there to practice maths concept and check their improvement. For younger kids,

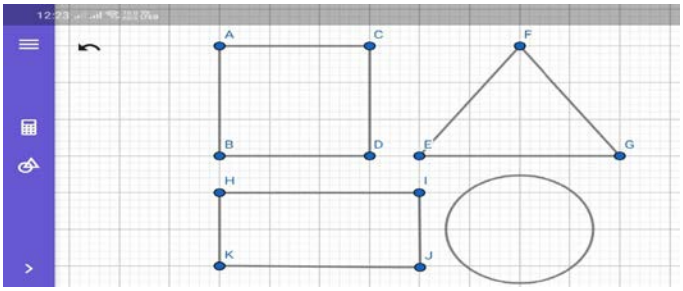
teachers can create their accounts. It helps in formative assessment by collecting their performance data. Teachers can send students' report cards to their parents and get response from them. Prodigy has a basic story game line where students can create their customized character and goes on adventure in search of treasure and meeting with various witches and gains power after fighting with them. To gain power they have to answer maths question (multiple choice question). In this, they had designed the questions' pattern in a way where it makes sure to repeat same kind of question but with different numerical values so that, students can master in that specific concept first and then, moves on to a different one.

Hotpotatoes was also found to be easy in use for children. It has limited features – moving image from one point to another, spellings of words etc. Its design is quite outdated and colours too harsh on eyes, with only limited option to change colours. Its interface is not able to hold students' attention for a long time. They ended up getting bore of it. For teachers too, there was no guidance or step-wise manual to use. in the software. About three quarter of students didn't find it helpful in any way to stay focused in the classroom.

Jamboard is the extension of Google meet. It is like a digital blackboard where teachers can type, write, include images and use laser pen too. It is good to explain the content and work done on the Jamboard automatically gets save to the drive. Teachers can easily change the background, without searching various sites. Every setting is right there, just a click away. One biggest drawback here is, android users have to download the separate application of Jamboard unlike the window users where it is already present in the Google meet and for this of course, they need more storage space in their devices.

In terms of engaging the students, everyone said that it doesn't helps them in staying focused in the class. Users want more features in it such as more colour variation in the pen. Along with this, there is one bug which sure irritate the users that is, if you create your work on Jamboard through windows or laptop and open your work in phone later on, it doesn't support it. Mostly, it shows '?' instead of the typed text.

GeoGebra, is mainly of Geometry and Algebra. It has simple graph background where user gets the features to select line segment, various shapes. It automatically marks the margin and coordinates. Teachers finds it an interactive tool which is easy to use. It has a pen through which teachers can point out the figure to attract the students' attention and help in understanding about what area and part of the shape teacher is explaining. By user interface wise it's pretty simple and can't hold students for too long but, overall good in explaining the content and it being an interactive tool compensate the visual drawbacks.



Virtual manipulative library is a E-Library full of mathematics concepts. From number & operations to Data handling, it has manipulative E-material for kids to construct their knowledge in a fun way. It helps to get the experience of hands-on activities and enhancement in material handling and manipulation skills in a digital way. It not only engages the children in a deeper level but, also allows to makes abstract concepts concrete.

Classroom screen is also like Jamboard but, with more features. In this the teacher can present the screen and use it as board. It supports multiple languages, and have various widgets and options which eases the instructions. Teachers doesn't have to divert the pace of the class for instructing and allowing them to do a particular thing (like, work together or to keep quite) there are widget for all these. Its feature like 'timer' and 'customise background' is liked by many teachers.

PowerPoint is the most supported tool till now. Its detailed customisable features are not just helpful in making presentations but, we can also change the format of the file in various extensions and we can even convert the ppt into video with the cam recording. This feature is very helpful specially when the students have connectivity issues, teachers can send the videos which students can watch as per their accordance. It's up to the teacher and students how creative, attractive and engaging they can make their work on PowerPoint. Unlike other tools it doesn't limit the user with its interface. User can customize it as per their choice and needs. It offers 100s of fonts, colours options which you can extend also. Along with this, just like .doc files .ppt are also small in storage size. Students of every age enjoys the effects, animation, graphics and varied transitions of slides. All (100%) teachers trusted PowerPoint for gathering students' attention in classrooms.

Mathigon is a site through which students can get the experience of material handling and manipulation, flashcards, learn the concepts with the games such as factorization with Tetris game. 67% of students found it medium to use,75 % said that its user interface is attractive.

Socrative is for k-12 where teachers can create quizzes of multiple-choice questions, true/false and short questions. It supports the functionality of rooms with 150 students in each. Along with this, it supports the teacher in formative assessment by collecting the students' performance. According to the teachers, "it wasn't that easy to find what they were looking for".

Padlet is also seen as a google classroom alternative to some. But it has more features than that such as in terms of user interface, posts customization etc. A student reported that, "it's like PINTEREST" {Pinterest is an application which provide users images in high quality of their preferable interests. Once you login in, you only have to set your favourites and your home page is filled with numeral images every time you open the application. It is one of the applications which is designed in a way which takes feedback from their users without even user knowing it. They are aware of the every second you spend on an image, which image or video or page you just scroll past. Their algorithm is optimized, that's why every user is so fond of such applications.} Padlet gives access to feature of post where it's up to the teacher where they want every student to respond to it or not. Like, in Google classroom teachers can assign a particular task to a particular group of students and that post will be only visible to those students and only they can reply to that.

Kahoot is game-based learning tool which promises engagement and fun learning. It has high user interface, vast categorized variety in games, language options and peer learning but, because of this so much variation at one place it requires a lot of time of the user to get familiar and remember what is where. It is almost impossible for kids of primary age to do self – learning on this because the they aren't able to find the desired topic. It is easy to learn on this tool when the teacher pre-from a game for kids and shares the PIN with them. By this method they don't have to wander around looking for a specific thing. It also helps teachers in Formative Assessment by keeping the track of students' performance, assessing their prior knowledge, quiz and run pulse-checks, visual reports of live games etc.

Didax is offers manipulatives material which are for sale and virtual manipulatives to play for free. It mainly has manipulatives for maths concepts. Students and teachers find it minimalist and easy to use. Unlike most of the tool it doesn't offers any guidance and tutorials of how to use. User have to figure it out on their own.

Challenge of making Online classes Inclusive:

In physical classes children with disabilities have special educators in schools. According to census reports, there are approximately 2.21% of India's population is of persons with disabilities. However, many global estimates, in fact, reveal that it is a gross underestimation, and the number could be as high as 18% of the total population. However, despite being a significant part of our population, their concerns are rarely brought to light (Jindal, 2020). According to All India Forum for Right to Education (AIFRTE), digital education is widening the gap between the affluent and marginalized. Most applications like google forms, google meet, Quizizz, jam board and zoom etc. have no specific feature which is helpful for children with disabilities A few governments of India initiatives like E-pathshala have read aloud function, for visually challenged learners. Hindi textbook - Barkhaa series is based on Unique Design of Learning and Inclusive Education principles and have audio in English and Hindi both. There are some video programmes with sign-languages for hearing impaired learners. These initiatives are just like a tip of an iceberg.

Tools like Classroom screen and Mathigon have features of Widgets, easy graphics which doesn't need special instructions can be helpful for students with special needs such as those with the Dyslexia, ADHD, Autism or hearing impairment. For visual impairment and dyslexia, Quizziz have feature of adding voice notes in the questions. If explored properly, it can be very helpful, for children facing issues in images processing. Here, the limitation will be that this feature is only for paid members. Those teachers or schools which can't afford the suite won't be able to use this wonderful feature. Also, in PowerPoint, it is up to the teacher how student-friendly they can make it as there is every option. From audio to images, from animation to customize colour change.

Conclusion

The pandemic of Covid 19 on one hand forced educational institutions to close physically and on the other hand it provided opportunities to teachers to explore new Edu-tech solutions and experiment in online classrooms. Teachers tried new methods, used various teaching-learning tools and created a new style in teaching in the classrooms. It is evident that online teaching learning methods require different pedagogies and Edu-tech tools should be used appropriately. Various teaching – learning tools like – Quizziz, Kahoot, Plicker, PowerPoint, Mathigon etc. are found to be best in terms of students' engagement. Students are more engaged with the animation, videos, images, tech, software, site and applications. They are more focussed with tools having bright colours, easy instructions and less categories of options. Along with all these, a teachers' enthusiasm, efforts, creativity, patience and diligence are the things which motivate students for learning. Some other important tips for meaningful engagement are – teacher needs to give clear and detailed instructions before asking students to work on any tool. The tool shouldn't be too fancy as that will side-track their mind from study to variations of the tool. Also, teachers should encourage use of free tools. It was also found that teachers prioritize those tools which require less time (less than 10 mins) in exploring and familiarizing with it. According to the report by the Australian Council for Educational Research (AECR), there has been exponential growth in the use of digital technologies this century. Developers use different methods like SEO (Search Engine Optimization), optimisation for targeted audience, ads, clickbait type interface, etc. Developers know what attracts the user. Overall, it is clearly visible that these teaching – learning tools turned out to be beneficial for students to learn in a new way and for teachers in engaging the students for learning. Thus, the use of Edu-tech tools in inevitable in education. However, teacher need not only depend on tools solely to engage the learners. They should use other means, which requires watching the screen for less duration of time such as craft work, model making etc.

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