Making Learning Engaging Through Interactive Games

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We'll look into how this game-based learning is being adopted or looked into as a concept by different countries worldwide. So, over the last few years, there's been an increasing adoption and interest in this area and a couple of country case studies would really help us. So, when it comes to the US, US being one of the most experimental and advanced economies, they have had a policy framework, the Department of Education has recognized the importance of gamification related to student engagement and learning outcomes. So, this is very critical. So, they have been kind of like one of the leading countries which have been in this space. So, through their national education technology plan, the government promotes the integration of game-based learning into the classrooms.

This is to promote thinking like critical thinking, creativity, collaboration. So, these are seen as not just the regular learning skills, but more like the 21st century skills. So, they have realized that gamification provides a foundation for building these skills. So, this is taken from the United States Department of Education, National Education Technology Plan.

I'm sure there is a lot more things that are happening in the US at different stages. There are a lot of companies, tech companies which are partnering both from a private perspective and also with the government in promoting these. Now let's go to Dubai. UAE has launched a pilot program in the schools of Dubai. They've tried incorporating the gamification elements.

Most people start with the points and online training platforms. Again, the idea is about student engagement and encouraging self-directed learning. See, the word engagement is something that we will get to see everywhere because only when a learner gets joyfully engaged will the effectiveness of teaching learning be fully realized. So, this is where Dubai is. Moving on, Finland, which is supposed to be one of the pioneers when it comes to education, teaching, learning.

In fact, not just gamification, but for several years, Finland has had an alternative and a very effective approach and a completely different approach that is seen compared to many other countries. They never believed in wrote learning. Their learning right from a young age is completely experiential in nature and they've always been student-centric in nature and given that they realized that the gamification actually aligns with their goals of personalizing learning and improving the engagement in the learning experience. So, they have been experimenting in different gamebased platforms to teach coding, problem solving and subject specific content. There's an example that's quoted which is about the graph learn game, which helps children with reading difficulties.

So I think they have been very innovative and early in the game. We'll get to see some more examples. In fact, educationfinland.fi is a government-backed initiative so it underscores the transformative potential of gamification in education. So, it's been looked at as a holistic pedagogical approach and trying to leverage game elements into the learning.

So, here I want to highlight, this is one key challenge in learning which is transforming mundane tasks into exciting challenges. One of the big challenges in the traditional learning, lecture-based learning which most students encounter and even teachers for that matter is that there is so much content to be learned. The two things that bother the learners are, there is so much to learn, not every child is inclined towards every subject. Sometimes, even if the subject is not, what do you say, difficult, it becomes boring. That boredom sets in.

Gamification offers a nice way to make an exciting challenge out of a mundane task. So, this, if gamification can trigger, it really helps in the learner getting interested, motivated, and actually it improves the productivity of students. So here again, the standard elements that get leveraged are points, badges, levels, leaderboards. So, see, these are the very common threads that are trying, which make, create the interest in the subject. Coming to Singapore, the Ministry of Education here actually actively promotes gamification.

Once again, the two standard objectives which is student engagement and personalized learning. Increasingly, there is a realization that learning is not a one size that fits all. There has to be a need for personalizing. Every learner is different. And the other aspect of unless the learner is engaged and involved, effective learning doesn't happen.

So through their Future Schools at Singapore initiative, they are trying out different options for game-based learnings. Now, here again, the research that they have done once again underscores that gamification helps in boosting motivation, specifically

among struggling students. Well, there is a lot of struggling students everywhere. I mean, it's not a single set of students struggle everywhere, that might be one category, but a student who is good in a subject or a set of subjects could struggle in a different subject. So, we are talking about learners who struggle across different subjects.

So if we can help transform the learning experience through this methodology and try and cultivate an interest, try and create that motivation dimension, then automatically students get curious, they become more focused on self-learning. So, I think that's the common thread that's tying many, many education departments, many educators feel that that's the bridge to be focused on. So how do we get the students engaged? Remove the things that cause demotivation. Again, it has to be very thoughtful. It's very important that it's not blind entertainment and it has to be focused on the learning objectives.

Here we'll get to see a snippet of what Ministry of Education representative spoke in the G20 Education Working Group meeting held at IIT Madras in the year 2023 in January. Let me play out a small snippet. It has a few features that really help to support self-directed learning very effectively. One is, of course, a full suite of resources, curriculum-aligned resources that are developed by the ministry. And these are accessible to all students, so students have access to all levels.

So if you are in, say, primary one, you can access material from secondary one all the way up until pre-university. And that really is to encourage students to explore, to find out what they're interested in, and if they are interested, to go deeper. And that also contains rich media resources, interactive simulations, etc. In addition to the resources, there are also a lot of tools. Now we also believe that self-directed learning is not something that happens spontaneously.

Some students need to be taught, guided, scaffolded along the way to become self-directed learners. And so the platform also includes some features that help teachers to create self-directed learning experiences for the students. For example, the student learning space has got a full suite of gamification features so that teachers can create very engaging interactive experiences for students that they can then catch this love for learning and they compete against one another. They want to be first on the leaderboard. They want to be first to get the badges.

And in so doing, they start to get very enthusiastic and they want to explore more. So, gamification is definitely one of those features. There are, of course, more business-like features in the platform, if you like. Singapore is a bilingual policy. So, moving on to Australia, here again, ICT, Information Communication Technology, that's the foundation that most countries start this overall initiative with, like technology and

communications are inevitable and it's going to be a part of mainstream education.

There have been many, many decades where it's been without I mean, although technology has been available in the schools, teachers and students have preferred staying away and stuck to the blackboard and chalk and notebooks. While they will still continue, there is always benefits of the traditional method. But increasingly, it is important to embrace ICT in our education. So that is yet another example of a country which first tries to integrate and transform the learning experiences. And the ICT policy again acknowledges the power of gamification to transform learning experience and outcomes.

So they are trying out in areas like math, science, language development. So the observations that they have had is definitely games help in students developing adaptability and resilience so this is another dimension that they have found out and of course student engagement and academic achievement also which is where the most countries focus on. That is also being seen. I mean these are not like final findings, these are multiple experiments and researches are going on across the board in all countries. But here are some sample papers and sample policy documents that help us understand that this is something that's going on in many parts of the world.

Once again, when it comes to Netherlands, Here, again, we'll get to see the clipping of a person who spoke in the G20 education meet held in the year 2023 at IIT Madras, the first working group meeting as a part of the G20 meet. Here, we'll get to hear from them how Netherlands has been exploring serious games and VR systems in their education. Let's listen to the speech. I'll probably give some examples. There has been a push in making use of virtual VR systems, AR and VR systems more and more for law students to make sure that real-time conditions are set up for them so that they know what could be the possible scenarios that they could be dealing with when they go into the courtrooms.

I think this is a great tool, the VR environment. It offers students the opportunity to know what they can expect when they go into the real-time courtrooms. They can practice with the audience as well in the VR setup. And what it has actually shown is that the VR environment actually brings or lowers down the stress level for the students and actually enables them to learn quickly. VR is also being used a lot, especially in teaching for students who would be possibly working in real-time crime scenes, so they know what to do, what not to do in a VR setup.

Also in the clinical settings, it has shown some real results, especially for paramedical staff and nursing staff to see how they can take better care of patients, especially in critical settings like ICU. This was mostly, I mean, apart from AR and VR, we are also

seeing a lot of implementation of serious gaming when it comes to imparting skills to students. I wish there were games available when I was studying. One such example, and it's a very interesting case, there is a serious game now available for psychology students and the game actually involves a family of four. Each of these individual family members are usually going through their own psychological problems.

And in the game itself, students actually can sit along with the psychologists, listen to their problems. They can receive questions, but also carry out some practical assignments under supervision and then form advice for the psychologists what could be the course of care for the family members. The game is a very good example of combining both theory as well as practice in a real-time setup. And similarly, serious games are also being used for many other areas, be it engineering, biomechanics or other fields. So that was Netherlands and now moving on, here in India, In the year 2020, the National Education Policy 2020 was brought about by the government of India.

Again, this was a broad, comprehensive policy being brought out after many years, in fact, a couple of decades, I would say. So, they completely are interested in revamping the way education systems have been over the last many years. So, in the introduction section, here is a small snippet that you see. Education must be inquiry driven, discovery oriented, learner centric, and discussion based.

And most importantly, enjoyable. So once again, I'm highlighting the word enjoyable, learner centric, discussion based. So, these are things that are achieved, one, By the ability of the teacher, teacher training needs to happen. But inherently, the moment even a teacher who is not trained learns and uses games in classes, that environment is built in. The discussion centricity, the learner centricity and enjoyable nature get set in. Once again, So, there is another example in the section 4.

21, teaching of languages, make use of gamification and apps. So, that's another mention there. Then in section 4.25, maths and computational thinking. Try to leverage puzzles and games that make it more enjoyable and engaging.

So once again, the focus is on how do you make education enjoyable and engaging for the learner. Now, Maths and computational thinking might be quoted as examples, but if you see across the spectrum, as we know that this is needed in every single field, it's not confined to Maths, probably Maths has been quoted as an example because most learners across the world find maths as a difficult subject but we can extrapolate to science and stem we can include steam which is arts humanities across the board anywhere where we need joy of learning and student engagement games puzzles and the likes are essential. Yet another place where the NEP highlights is it calls for a building of a repository

including creation of coursework. We have coursework repositories but we don't have as many game repositories that the students and teachers can leverage. So it talks about definitely simple games, it talks about simulations, AR, VR.

So at different stages and we need different forms for different categories of people across India so essentially once again using the words fun based learning and gamification so although they are indicated in specific context we need to look at them in a more broad based fashion going back again to the core objective of inquiry driven, learner-centric and enjoyable. So, there is policy intervention in a very significant form in the National Education Policy and there are other places also. I've just called out a few snippets. If we look at the overall policy, there is definitely a call for fun-filled learning.

Here, once again, we'll go to the G20 Meet. where AICT Chairperson Dr. Anil Sahasrabuddhe spoke about making learning enjoyable. He mentions about different forms of making it enjoyable like stories, animations etc. But again he mentions the importance of games too.

So let's listen to what he had to say. This means of storytelling, games, videos, making it very very interesting and that is where the child will start learning the next three years there will be certainly arithmetic the alphabets different languages social science a bit of science which he starts learning and the next three years it is very important that if the content has to be interesting that students are to be magnetically attracted like the TV opera shows, I think we need content which is very, very interesting through animation, through gaming, through a lot of variety of activities where faculty members require to be trained. And that is another area of digital empowerment of our faculty members. In turn, our students get empowered. I think these are very important issues which we'll have to deal with.

As far as education itself. So, as we could see, the different speakers in the educational summit, they again mention student-centricity, fun-filled learning, learner engagement as a part of their speeches. So, increasingly, it's becoming evident that many countries have started realizing the importance of technology-driven learning. Either the countries are including gamification in their educational policies directly or at least are willing to experiment and explore so that it becomes part of their policy framework at a future stage. So, these are some evidences that I could come across and I'm sure there are many more that I haven't touched upon but just to give you a sample that it is not just a country specific or a region specific phenomena but increasingly it's becoming common across the world.