Making Learning Engaging Through Interactive Games

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So here is one depiction specifically those 3-4 aspects are highlighted where it scores over the traditional learning, engaging aspect we have discussed, easy transfer of knowledge to the real world environment right rather than we can always design games with practical examples that will help highlight the point better. Immediate feedback is something that we saw that is very essential. As you play you quickly learn where you went wrong and it is possible to customize games. It is not possible to customize text books or articles, right. It is possible to curate articles, but it is a lot easier when you present it in the form of simple medium complex kind of games. You have all experienced bingo, taboo and a few other games, classroom activity games and I am sure you all actually experience the fun and the learning   element   also.

Now, extrapolating a little bit, some people may say ok I just had fun. Here is an opportunity to look into some scientific evidence. that have been published in journals. This is not the complete set necessarily, but I have tried curating examples from different kinds of sources, different kinds of disciplines that might help us get an idea and we will specifically focus on some aspects that you can actually correlate to which you already experienced   in   your   gameplay.

Here are some 2-3 use cases given but this is not the complete list. Taboo can be done for every single thing. Most popularly it has been always done for building English vocabulary. Saw an interesting use case where it has been used for nurse training which is not school learning but adult learning. Biology concepts, biology has a lot of terminologies, lots and lots   of   terminologies.

So, that is something where it actively gets used, but this is not the end of it. One can do it for any subject and any topic depending on where there is a need. Let us zoom into the two journals and use cases. I am going to just focus and highlight on specific aspects. I have   extracted   excerpts   from   it.

This is a journal on nursing education. It is a very recent one, 2022 published. They tried using taboo game to teach nursing concepts as an experiment. I am not highlighting the entire journal. The link has been provided, but the points that I found very interesting are: Initially the students found it difficult to learn, I mean it is a new thing being taught as a game right, but they quickly engaged into the game play and expressed disappointment when the game was over.

Is not that a lovely state for any learning? Typically what is the human state? When will this get over? When you are disappointed when something gets over. Is not that the best form of learning? So that is very interesting. And how much fun they had, how much they were surprised at how much they remembered and their desire to play the game again and again. Something that some of you experienced too. Not every game provides that but some of you have experienced that.

Can we have one more round of it? They wished more classes incorporated the game. This is also, one is the state should not end, maybe some activity or a game form should continue. The last important thing, it is not just blind fun, they received a thorough review of the adult health content and concepts which is an essential aspect. See the whole idea of playing a game is not blind entertainment, but they believed that they received the necessary learning. So, this was, they knew, it also gave them feedback that they needed to spend some additional time preparing for their exams in a helpful way rather than what we know, what we do not know, rather than the teacher asking questions, there is a subtlety involved in the game that it automatically tells the learner that they need to know more towards mastery which is the best way to educate.

This is a use case, this is in Indonesia and junior high school students, this is again another reference journal. Once again they see English as a first language is challenging in most countries, right, for high school learners. Even in India we might have experienced, depending on which part of India or for the for that matter which part of the world we are from, right, if you are in a city if you have a background, family background or if you have a societal background where English is a commonly spoken language we are at an advantage, but there are parts of India where, not just India, worldwide this is the case in Indonesia where English is not very common thing. So, they also wanted to attempt something that is fun to motivate the learner to learn new words and taboo again was experimented here. Once again students participated with great enthusiasm and if you see this metric almost about 80 percent and above liked it and they were they felt motivated towards this form of learning.

Again majority of the students found that it improved their language comprehension. Let us see the quickly to the two feedbacks mentioned. Great for presenters because they are

good at putting a clues. Not only helps us learn new words, but also tells us words related that we have to guess. It boosted vocabulary knowledge.

 It boosts students' confidence in expressing themselves in English, which is the end objective of the teacher. The end objective was that. So, it seems to have been achieved. This is again a journal paper published. And this aspect was about vocabulary mastery.

 The next aspect is about enhanced vocabulary recall. It takes a long time to read and makes me bored to read a lot of vocabulary when I have to do it again and again which is the challenge in reading alone that sometime back we discussed right. Whereas when I play the taboo game, it is a lot easier for me because multiple dimensions are involved. The social aspect is also getting involved and repetition, the game and fun, everything comes together. We play and learn new words.

 It has saved me a lot of time and pushed me to learn, which is exactly what we are all aspiring for. Rather than sitting down and memorizing, playing this game is a better form of learning. Now let us go to the bingo game. Bingo is a very very popular game. Some of you experienced it in the second class.

 I am sure in many other occasions purely for fun but now let us take a look at the learning aspects. I am going to present, there are three scenarios listed but this is not the end. As you know any bingo can be customized for any environment. STEM and English games are very common, but I am going to focus on something very interesting. How many of you from naval architecture? So, there is a oceanography classroom case study that I am going to highlight which can technically be done for any engineering, but let us see this particular one and it is a very recent paper 2023 paper.

  They are teaching this by making them do field work. Typically bingo is used for terminologies and clue guessing. To make the students do activities while on a field trip, this bingo has been customized. So, that is another beauty of the use case of this bingo which gives us more ideas. They reflected on what useful learning students may miss out if we do not encourage them explicitly.

 So, they have factored in those see we are not inclined towards doing every single thing even in an exploration we may get lost we may like to do things only that we like, right, we may not try to explore everything, but the process of learning will be lost if the students or the explorers do not try specific things, so that was modeled into the bingo activity. So, very creative and thoughtful of the teachers in designing the bingo game, not just a plain fun game, but also make them do some things and let us see the results that will be very interesting. So, I will just quote some 2-3 things maybe Learn or demonstrate a bowline

knot. Help with deck work. Operate radio and software while taking a hydrography profile.

Measure oxygen in a water sample, this is a common thing. And there are some general activities also. Care for yourself, that means take a break, relax kind of a thing. Care for your peers and some fun activities. So, they have modeled all of those and this is one sample   bingo   card.

Every learner will have a customized bingo card. Let us see the findings. Here something is interesting. This was a voluntary activity by the way and let us see the results. Despite the limited time and bingo being completely voluntary, some students finished up to 8 Number   1,   you   are   not   expected   to   necessarily   do   it.

At the max, you will do once for exploration. Some students finished up to 8 bingos. What does it mean? And each of them is an activity. Supposing those activities were manually read and people were told to do, do you think that this impact would have happened? Possibly not, some very motivated people might have done it, but there is something inherent in a game form of presentation that motivated some of them to do up to 8 bingos, ok.

And here are some feedbacks. It influenced the field experience, it challenged us to do different things which we would not necessarily try out. but without being forceful that is the most important thing. See nudging somebody to do something that they will not try normally can be done in two ways, hey you are expected to do it and you will be measured on it that is one way, but the most natural way is how do you encourage them to learn and explore on their own without forcing them. I thought that beauty aspect is coming out here so I thought I should highlight and that being done with the bingo design is even more awesome and this is an engineering context although this is ocean engineering technically can be done for any field activity in any of your branches of engineering. It helped me to become even more curious and active than I am usually since it added a game feature and a bit of healthy competition so this can really shift our motivation levels that is what it goes   to   show.

This is a generic feedback and now let us see three dimensions of human motivation. There is a very famous paper of Deci and Ryan which talks about three things that makes humans feel motivated towards something. One is some of us are motivated towards relatedness, see some of us maybe introverts, extroverts, but we derive a pleasure when we are able to relate to more people. That relatedness aspect, we will participate in any activity where there   are   people   around.   It   is   fun   to   do   with   people   kind   of   a   thing.

So, if it triggers any activity that triggers the relatedness, our output will be better because

we are more engaged. Second is competence. By doing this activity, if my skill is improving, I feel good about myself, I am able to improve, I feel I am more capable, my performance level is improving. That is the capability aspects or the competence aspect.

The third is autonomy. All of us want freedom. Correct? Freedom is something all of us want. You do this this way will not motivate most people. You have a few options to try out. That is more acceptable or likable, right.

You try in this own way, you give a choice. So, these three aspects they have tried measuring. First is it brought about the connection, the relatedness. It encouraged them to interact with each other. Many of you highlighted the teamwork, interactivity that is again coming out.

By helping each other, we got to spend more time outside of the class activities and it has helped our team working skills. Okay the second aspect here is competence, it has helped in learning new skills which become useful not just for this course but also outside because it is an exploratory activity field work the applicability is more, so for the for example tying a knot is a skill learnt which can be coming in handy for several places and this came in handy through the cruise bingo. If you remember right, you correlated with the previous feedback. The beauty is not only has this person learnt, but the environment was conducive enough for them to try out things that they would not naturally explore, through bingo. So, I am trying to connect all these aspects.

Last is freedom or choice. See the bingo does not mandate you to do everything. You just need to form a row or a column. You can pick and choose what you want to do. That gives you choice. If you are not comfortable with not tying, you can pick up something else of your liking.

Because there also there should not be a forced thing. Do it with a friend may be some people may be introverts. They may not really want to do things with others. But they will have corresponding other choices and vice versa also people who want to do with thing with others they also have got choices. Within their comfort zone, see the most important thing in any learning is see sometimes there are two aspects to it.

People usually say we should go out of our comfort zone correct to learn something and grow which is very true, but that also should be within a boundary and it should be voluntary. You cannot force an introvert to become an extrovert saying that you go out of your comfort zone overnight. So, within the comfort zone also can you stretch the comfort zone a little bit at the max an introvert can be made to pair with one more person not suddenly with a large group. Pairing with one other person is going a little out of the

comfort zone and still may be within the larger comfort within the overall comfort zone of the person. So, all these aspects are taken care and catered to.

I thought this is a very recent publication and a paper which directly correlates see some of you may have may or may not have consciously observed these although intuitively you might have experienced this during game play. The second that is one reason why I shared this, second is, this is a very recent paper 2023 in an application in an engineering context which is very relevant. And as we have seen, it is not only about engineering, we saw nursing, we are going to see more and more dimensions and facets where this game based learning with evidence. See when you publish in a journal, when you measure samples, it gives that extra credibility.