Making Learning Engaging Through Interactive Games

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Let us see some maths examples. Again, there are plenty of examples out there and what we are trying to do, I am again re-emphasizing is just show some variants across different topics so that you all get an idea. Here is the classic board game Monopoly that has been very, very popular across countries. It is called by different names monopoly, business, trade etc are some of the popular names wherein it's more about property acquisition. It could be property acquisition across the world, world cities or it could be within a city or it could be states across India or states across different parts of the world and it varies and it is available in different custom versions across the world pertinent to that country. Now, how do you use this popular mechanism in the context of teaching algebra or simple equations for probably, once again, depending on the syllabus, an upper primary or middle school, how do you make that process of solving problems fun? Let us view the board so that we get an idea.

Once again, you start with Go, then you have cells like 1, 2, 3, etc again of different colors. In every cell you land, you have an equation to be solved. Depending on that you acquire points and the points acquisition makes it interesting. You keep moving on and on.

The whole idea is who acquires more points. And let's see you end up solving a lot of small small equations and then you have just like your regular monopoly the adaptation of chance and community chest here you have fun chance cards like Here is one very fun thing. Add your opponent's score to yours. So, suddenly you just not only have your score, but it also kind of, it really, really goes up by adding your opponent's score. You have a significant advantage there.

You have another mechanism. Some of the chance actually pulls you back depending on whether you roll an odd number into a chance or an even number as in a regular game. Sometimes there may be a setback also. Sometimes again you can advance further. Otherwise you lose points.

So either on the board you progress or go back or you get points or you lose points. All kinds of mechanisms are there. Same is the case with community chest. Mean here again depending on the even roll of the die or the odd roll of the die with which you land into the community chest square you either advance for example like this or here is Pythagoras isn't happy he wants royalties for using his formula pay nine points so you end up losing nine points So, again, just makes the algebra learning revision so much fun. One is points acquisition for every right problem solved.

Now, imagine just this. We saw a bunch of games so far and many more such games we will get to see. In all of this, if the practice exercises were to be given in the form of a homework, There is no extra points being given usually for every, let us say there are about 15 practice exercises, all simple ones. Let us take this game. Let me go to the game board.

After teaching this algebra chapter, the teacher is likely to probably give some practice exercises at the back of the lesson, maybe give some 5 or 10 problems they are supposed to solve, come back and submit their notebooks or assignment work. It's either going to be a tick or a wrong and as I said it's more seen as a correction as in something is right something is wrong whereas the same exact thing is happening in a camouflaged way but it's happening you're getting points you're getting two points or three points or For solving every single thing right, in front of your friends, you are getting points. And you are trying to compete with them in a healthy fashion. Plus, additionally, you get points for the random and chance ones. You get extra points even without solving any problem.

So, these are small, small fun mechanisms. And in a peer learning group. So, instead of solving exercises stand-alone at home where there is no incentive anywhere. As in, of course the incentive, larger incentive seen is of course learning and practice and all that. I am not denying that.

But here, the incentive is playing with friends, scoring, getting some incentive for every answer solved right, getting to see your friends also play and also learn. You get to see that sometimes you score, sometimes your friend scores, sometimes both of you make mistakes. It's like, it makes it more human. I mean, it's fun. Your friends are more like you.

And you get incentives and points. So, that's what makes this entire thing. And it's metaphorically correlating to one of the games that you play as pastimes. So, all of these experiences make the learning and what do you say, it has a potential of increasing the love towards the subject, even for a learner who may or may not be inclined initially.

Now, let us come to chemistry and let us see a different mechanic.

This is available in several sources. I have highlighted TPT is one. Teach Beside Me is where I have taken this picture from. Here is another nice source. Battleship is one of the very popular fun games where you have tanks and submarines and you just call out the numbers and you sink each other's submarines by guesswork.

So, this is how the typical game board is set up. The only variant is, this is adapted in the context of periodic table learning. As we know periodic table is a very vital component of chemistry learning in middle school. But it could be challenging at times because there is whole bunch of rows, lot of facts, so many elements so many groups that they belong to. A lot of, unavoidably, there is a lot of memory involved.

Now, how do you make this an interesting process? One is mechanically going through, remembering, reading a textbook. Here is a game variant that is done brilliantly to make the student learning experience super fun. Let us see how to go about. What they have done is, You are supposed to create a printout of a periodic table and make it in the form of a folder. You have a folder where the top portion is also a periodic table, the bottom portion is also a periodic table and you have two such folders and you give it to two players.

Now why do we need two for each? Let's see that. Each player takes a marker. and a periodic table board and props it open so that the other player cannot see it. So, it is hidden from the view of the other player. They face each other back to back, but each one cannot see what is going on in the other sheet.

Now, using the marker, they mark the ships on the lower part of the board. So, here the recommended lengths of the ship are 2 ship, 3 ship, 4 ship. I mean, when they mean 2 ship, it is a ship spanning 2 elements. That is what they mean by 2 ship. Sometimes the example of a submarine is used, the length of the submarine.

So, here going back to the sheet, let us say this is an example of a 2 ship covering 2 elements. A 3 ship could be something like this. A four ship could be something like this. It can be in any orientation, vertical, horizontal and marked in any part of the periodic table. Now the game players of course decide who will go first.

Flip a coin or use any other mechanism for that matter. On your turn, you call out a period number and a group number. And Again, they have given for multiple levels too, but let us call out a period and a group number from the periodic table. Now, your opponent checks that space on their lower part of the periodic table, that is, which is on

the floor and reads the name of the element square and says miss. If there is no ship there, he or she says it is a miss.

But if they happen to spot a ship there, they say it is a hit. Now, whatever the user marks as shorts, just for the sake of memory, they mark on their upper periodic table. So, the player who gives a guess, they mark it on their upper periodic table and dots and misses, sorry, dots for misses and X for hits to keep track of your guesses. See, for example, One player guesses oxygen, the other player verifies if there is a ship there or not. Then the next time the turn comes for the same player, they should remember in their previous turns that they have not used oxygen.

So, that's the reason why they mark it on their upper board for their own memory purposes. And whatever they hit, they will mark it on their lower table and essentially, The moment there is a hit, they will try to read out the nearby element. Initially, the oxygen will be a random guess to try and spot where the ships are because nobody knows where the ships are marked here. So, you have to do random guesses. Whereas, the moment you spot any one of the parts of the ship, then most likely it is to the adjacent cell or it could be to a bottom or could be to the other side.

So, you can take guesses subsequently more meaningfully. So, when one of your ships is hit, you put an X on the ship. When one of your ships has every slot X'd that is hit, you must announce to your opponent that they have sunk your ship. The first player to sink all the opponent ships wins. So, This topic of remembering everything turns into the gameplay of I will ship the opponent ship, all the ships or the submarines.

So as a part of that I will do more focus on the game board which happens to be a periodic table and try to learn the elements. As a part of visually viewing and calling out, they get a spatial sense which element is near which element. Maybe to add more learning components they have to spell out the atomic number and some of the properties of the element. So many variants can be tried out but essentially here again is a classic case of a game board aligned with the topic being taught just like what we saw previously. Now, there are a few more games that we will get to see for different topics.

Here is reading comprehension topic for critical thinking. Usually, reading comprehension is used in the context of English subject, reading novels, passages, non-detail, etc. But actually, reading comprehension is something needed for every subject. So one can use this game for any of their subjects. It's a very simple dice game played between two players or it could be two sets of players.

You can have two players per group. and therefore, it could be 2 into 2, 4 players or it

could be 2 into 3. It is better not to go beyond 6 players, but an ideal variation can be somewhere between 2 to 4 players or at the max 6. Now, what are the game rules? It is you take a portion of a chapter or a textbook or any other learning material, you make them read, but with prompts or a guided way now how do you get that guided way See, typically if students are given time they are asked to read the portion of the textbook and each one has his or her own reading style now what we want is the students to learn in a fun-filled way and in a way that we want them to think. For example, let's say somebody rolls a die of two. You tell your partner and record the two most important events or facts from the last two pages, explaining why you chose them.

Now, this is critical thinking. The moment this prompt is given, the person doesn't just read like that. Automatically, they are triggered towards, okay, they will read, but they will also observe which ones are the most interesting events. And why do they think so? Because they need to justify. So, you induce a bit of thinking. The die is the random roller which creates this prompt and a trigger and a recommendation for how to read the pages.

So, not only does a casual reading happen, but a critical reading happens. And when they share the information, this team or this player also gets benefited. Together, the players end up learning that part of the portion much more better or much more critically than had they just been casually reading. Let us see another example. Here is an example of Tell your partner and record, I wonder statements about the text.

So, here the why is induced. There it is about facts or important events that happened. Here is some statements we may not understand, but we may just let it go in casual reading. But here, we just do not let it go. We just say, I wonder. So, you will have to mark places as to I wonder why the author has written this.

The textbook author has written with a certain intent. Have I understood that intent? And if I have, then I should be able to explain. Or if I don't, I must be able to question for improving my own understanding. So this is again a critical prompt. So like this, depending on the role of the die, there are six different prompts given.

And if the teams play it, This again as I said can be played across any subject to make the student more aware, more attentive and make them more critically think about the subject they read. And the recordings depending on the person who rolled the die, the number rolled for the activity and they can record the answers. This is less like a game, a little bit of a game, just a dice game, but a lot more important to notice, the games are a means for inducing interactivity. And also the game part is less here, but the interactivity part is a lot more.

Let us see another couple of examples. Again, this need not be just science vocabulary. Let us see how thinking is introduced and interactivity is introduced. This is card game called I have and who has. Every subject has concepts, terminologies which needs to be understood critically and there is also of course familiarity that needs to develop. Here is an example of a card game devised on basic science terminologies like You want the learners to be aware of things like hypothesis, variable, constants, conclusion, experiment, etc.

These are some very common science terms. Now one way is name and definition. Now what if we flip it and give all the participants one definition and another word. So let's say the first player has the term hypothesis. a small visual is given here as to what it is. Now, this student has to find out who has the card related to information gathered during an experiment.

Similarly, this student has a conclusion card, they need to find out who has the card pertaining to factor that can change. So, they need to go around, keep searching, they find their partner. Now, as a part of finding their partner, they will have to interact with multiple people. They also need to know the definition for the word so that they find the right partner. So, this curiosity and search and interactivity is introduced by this simple game.

Now, assuming that all students may not have the same level of knowledge and familiarity with all the terms, there could be cases where they may pair up wrongly or a set of people may pair up wrongly, which is perfectly fine. But the beauty is, rather than one-to-many interaction, here is an example where the students move around the class. Maybe if there are about 15-20 terminologies, students or student pairs, once again, this can be done as student pairs. They move around the class, try and find out the right partner.

Now, sometimes they may find the wrong partner or partners. They will come to the conclusion, okay, if something we have gone wrong, they will discuss amongst each other and they will auto pair up right. So, this whole thing makes this topic of introducing terms very, very fun filled. Here again, these are a great way to engage the whole class in a review game and maybe it can also be designed as a relay game. This can be ideally designed as a closing activity to see how it can be put to best use.

And as mentioned here, students of all ages enjoy. A lot of times, once again, some of these mechanisms may look interesting, some of these may look trivial. But believe me, it works across all ages. It's just that the right kind of questions need to be devised and

appropriate age-related elements might have to be tweaked here and there. But the basic concept works.

Anything is better than a lecture or only lecture. Lecture is essential. Teacher-student dialogue is essential. But needs to be supplemented with interactivities and games. Lastly, we come to a very, very interesting game mechanism. Again, has been used in the context of foreign language learning, but can be used for anything else too.

This is something called Slapjack. Very simple game, but very, very interesting and engaging. Get the students in groups of five or six. Each one needs to have a cup of vocabulary cards and you turn your desks to face each other. So here, this is a case of a French teacher, French to English teaching.

So keep the French side of the word up. I mean, this can again be adapted to other concepts too, not necessarily to language learning, but this is the use case here. The teacher is going to say a word in English and find the French equivalent of it. So, everybody's eyes are on the table. Ears are plugged in because the moment the teacher says, they have to quickly interpret and find out, visibly spot and actually hit it.

So, three senses are involved very actively. Listening, watching the table, ears, eyes and sense of touch too. Hitting the right card so when you hit right you slap it that's why it's called slap jack you just slap the card and say it's yours and claim the point and whoever earns the maximum points is the winner supposing there is a tie there are different mechanisms The teacher here has recommended rock, paper, scissors. You can use the toss of a coin or maybe even do a replay. Some games even recommend that when there is tie, the point is set aside. Of course, it's all purely up to the teacher's creativity, innovation and freedom.

But the main point to be noted is that three senses, once again, as I said, in a very, very simple game mechanic is involved. And it beautifully helps the students being very active in the class. Thank you.