



**Adaptation of learning content for students with SLDs**  
**What are Specific Learning Disorders (SLDs)?**

**Using games to make your  
students practise in an  
immersive context**

## **Introduction**

To keep players playing, the Industry uses usability and engagement (engage-ability). Both are important because a game can be usable, yet boring, or it can be great but with frustrating usability.

It is important to foster engagement in SLD students because their issues regarding accessibility draws more resources on them and can make them more susceptible to disengage with content due to frustration.

# What you should take into consideration

## Engagement

To engage the player, three pillars are required: motivation, emotion, and game flow (Hodent, 2016).

**Motivation** is the kick-start of any behaviour, without motivation, there is no action.

**Emotions** support motivation by helping us choose the right behaviour, for example, fight or flight when we are scared.

Finally, **game flow** is a state of deep focus that produces pleasure, which produces engagement.

## Motivation

**Extrinsic motivation** is when you do something in order to get something else. It can be money, experience points, or any “material” reward. Precise goals and clear rewards associated with these goals are very important to keep players engaged. However, they are not enough, because if only extrinsic motivations are used, as soon as they stop, the player will disengage.

**Intrinsic motivation** happens when we do things for the pleasure of doing them. We are more intrinsically motivated by activities when they satisfy our needs for **competence, autonomy, and relatedness**.

### Competence:

It is having a sense of progression, whether real (getting skilled at the game) or artificial (acquiring in-game abilities). When we don't feel like progressing during an activity we are more likely to abandon it.

Progression bars are both a promise of reward when filled and a live feedback on progression.

### Autonomy:

It is about self-expression and being able to make choices on how to overcome obstacles or customise your avatar.

### Relatedness:

Relatedness is about meaningful relationships with other people in the game, whether through competition or cooperation. It can be with fictional characters or actual players.

## Emotion

Emotion refers to game feel and offering new content.

Game feel represents how good it feels to interact with a game. The parameters of game feel are **camera, controls and characters**.

It also implies a meaningful story, music, and a coherent world.

Emotion is also about surprises and novelties. Every now and then, something unexpected appears, or a mechanic is twisted.

Cognitive reappraisal can modify how we feel about a situation. This can be useful in a learning game. If the outcome is the failure of the player, it can help motivate them to help reappraise the situation, by focusing on what they did good and how they progressed since the last time, even though they lost.

## Game flow

Game flow comes from the concept of “flow” coined by Mihaly Csikszentmihalyi (Csikszentmihalyi,1990). It is a state characterized by deep concentration in doing an activity that is both worthwhile and challenging.

The main component of game flow is the **challenge**, where the right level of difficulty is required. Too hard is frustrating, too easy is boring.

In detail, achieving game flow is about pacing the rhythm of stress and pleasure: intense moments and more relaxing ones. An example is waves of enemies followed by moments of preparation. For example, in Mindustry (Anuken, 2019), players must build an automated defence base by harvesting resources and building in between attack phases where a crowd of monsters attacks their base.

Another key element required for flow is **onboarding**. Players need to understand what the game is all about and how to succeed. It requires tutorials that feel part of the game. It's about helping the player understand how to get better even though they die a few times at first.

To keep the fun and flow running, you can follow these guidelines:

- The pattern is too easy and the player “solves” the game.
- The player recognizes there is a lot of depth but is not interested in them.
- The player might fail to see any patterns whatsoever, and nothing is more boring than noise.
- The pattern is nice but variety comes too slowly.
- The pattern is nice but the variety comes too fast.
- The player might master everything in the pattern. He has exhausted the fun, and consumed it all.

## Conclusion

We have seen that engagement is important to keep students with SLDs playing the game. The pillars of engagement are motivation, emotion, and game flow. Motivation is fostered by external rewards as well as competence, autonomy, and relatedness. Emotion requires surprise and a coherent narrative. Game flow is the fine-tuning of challenges to keep the player challenged but not frustrated.

## Resources and references

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