

Theories Behind Gamification of Learning and Instruction



Agenda

- Motivation Parts
- Motivation Models



Motivation

- When it comes to a game playing, **motivation** is a key concept.
- Motivation consists of two parts: **Internal** and **external**.



Intrinsic Motivation

- Mainly driven from **within** the learner/player.
- When player replay an activity from a game by himself, because of the enjoyment the game provides, the learning it permits, or when the player want to re-feel the great experience the game evokes when accomplishment.
- Intrinsic motivation is when the rewards come from carrying out an activity rather than from the result of the activity. (e.g. teaching, reading a book)



Extrinsic Motivation

- Comes from **external** factors.
- The motivation comes externally when players seek to earn something that is not directly related to the activity (***or avoid punishment***), it doesn't come from the person. (e.g. study, washing a car)
- External motivation can be a high grade, a certificate, badge, rewards, money prizes or appreciation from others.
- When the player only want to play the game to gain the rewards not for enjoyment, then the player is called ***extrinsically motivated***.



Motivation Models

- **ARCS Model**
- **Malone's Theory**
- **Leper's Instructional Design Principles**
- **The Taxonomy of Intrinsic Motivation**
- **Distributed Practice**
- **Flow**



ARCS Model

- The **ARCS** model examines the motivations of games through four factors: (**A**ttention, **R**elevance, **C**onfidence, and **S**atisfaction).
- **Attention**: aims to gain the attention of the players, so they are more interested in the contents. This can be achieved through:
 - **Perceptual** الإدراك الحسي **arousal** إثارة through the means of specific, **relatable examples**, the use of **strangeness** or **conflict**, or **element of surprise**.
 - **Inquiry arousal**: presenting a question or problem (the learner interested in solving).
 - **Variability**: varying the delivery method periodically.



ARCS Model

- **Relevance:** of the material to be learned.
 - **Goal orientation:** Tell the player that reaching the goal will help him/her in the future.
 - **Match** the player motivations with the teaching motivations.
 - **Familiarity:** Showing the player that his/her knowledge is familiar with (or base to) the new knowledge to be learned.



ARCS Model

- **Confidence:** The player's expectation that they will achieve success.
 - One way to help a learner be confident is to clearly state the learning requirements and expectations in the beginning (ILOs).
 - Learners like to be successful and success builds on success.
 - Provide feedback and personal support to help learner feel in control.
- **Satisfaction:** To give the players the feeling that the learning has value and is worth the continued efforts.
 - Try to tap into the **intrinsic motivation** of the learners.



Malone's Theory

- Investigated what make the game **fun** to play and motivating, and this model consists of three key elements: **Challenge, Fantasy, and Curiosity.**
- **Challenge:**
 - The game environment is challenging when the players are not certain to reach the goal.
 - Ways of making outcomes uncertain include **variable difficulty level, multiple level goals, hidden information, and randomness.**



Malone's Theory

- **Fantasy:** خيال, نزوة
 - A game environment is called fantasy when it **evokes** mental images that are not in the current game scene.
- **Curiosity:** فضول
 - Game environments evoke players curiosity by providing an optimal informational complexity.
 - **Sensory curiosity:** involves the attention-attracting value of changes in the light, sound, or other sensory stimuli of an environment.
 - **Cognitive curiosity:** make learner believe their knowledge are incomplete, or inconsistent.



Leper's Instructional Design Principles

- **Control:** give the learners the control over the learning activity.
 - Let them have some say into when to initiate and when to terminate an activity.
- **Challenge:** create environments that are **continually** challenge the learners.
- **Curiosity:** can be achieved by making the learners feel that there is incomplete in their knowledge.
- **Contextualization:** present the activities in a functional simulations or fantasy context.



The Taxonomy of Intrinsic Motivation

- Consists of two parts, the 1st focused on the **internal motivation** which includes:
 - **Challenge** in terms of goals, uncertain outcomes, performance feedback, and self-esteem.
 - **Curiosity** in terms of sensory and cognitive.
 - **Control** in terms of possibility, power and choice.
 - **Fantasy** in terms of emotional and cognitive aspects.



The Taxonomy of Intrinsic Motivation

- The 2nd focused on the **interpersonal** motivation which includes:
 - **Cooperation** in terms of players working together.
 - **Competition** in terms of competing against another players.
 - **Recognition** in terms of making achievements available to others.



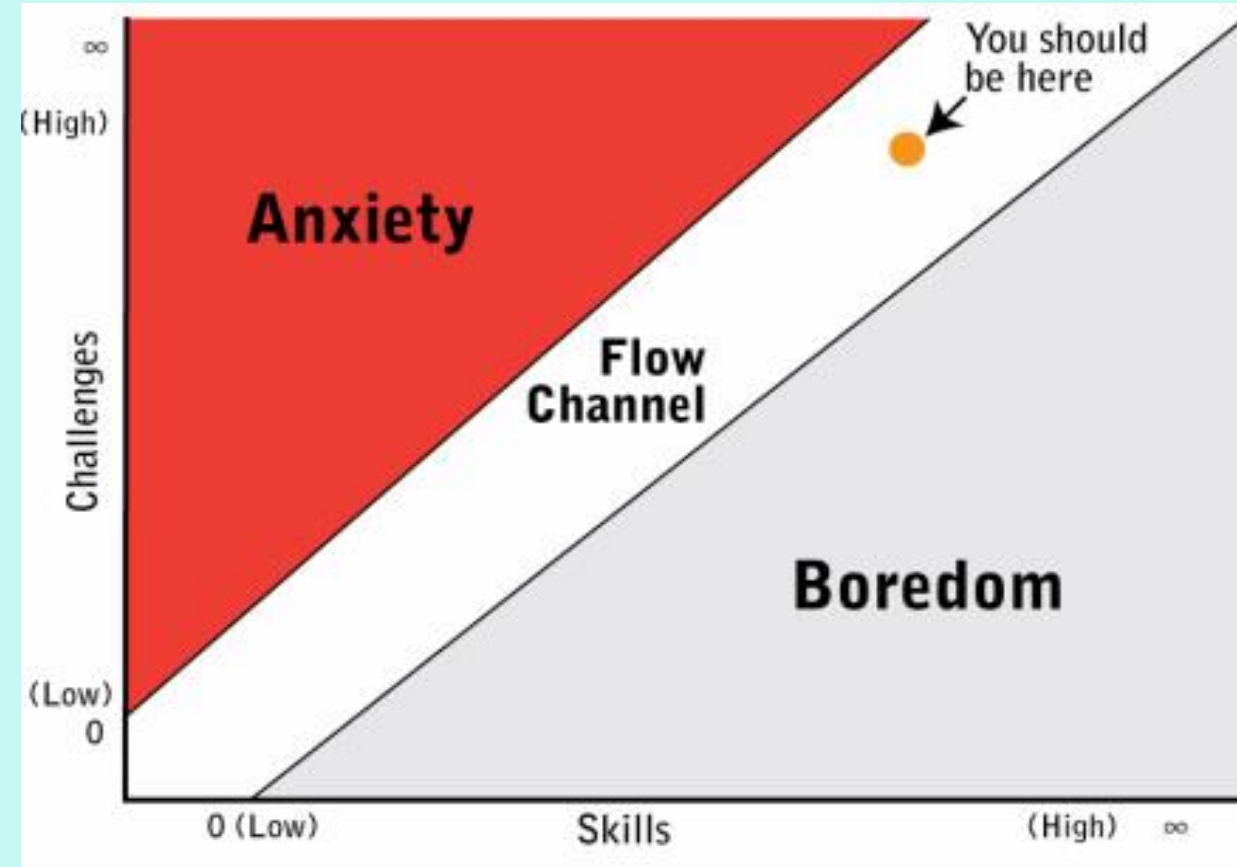
Distributed Practice

- Is the space between the times the game is played.
- This achieved in teaching by distributing study or learning efforts over multiple short sessions, with each session focused on the topic to be learned.
- This helps learners retain access to memorized information over long periods of time.
- The problem with the **mass practice** the learner can become tired and less efficient.
- Games are designed so that players play them again and again.
- Well-designed game means the player is not having the same experience twice.



Flow

- Flow is a mental state of operation in which a person is **fully immersed** and **focused** in what he/she is doing.
- Flow is experienced when the challenge facing a person is in almost perfect balance with the person's level of skills and abilities.



Flow

- Flow is **elusive** and cannot always or easily be designed into a game.
- Components that make flow possible:
 - **Achievable task:** the person must believe that he/she can accomplish the task with some degree of effort.
 - **Concentration:** the player must apply mental and physical energies with intense focus.
 - **Clear goals:** the person knows exactly what he needs to do.
 - **Feedback:** as the person is engaged in the activity, feedback is provided immediately.
 - **Control over action:** the person feels in complete control over what he/she is doing.
 - **Loss of sense of time:** when in flow state, time doesn't matter.

