

## INTRODUCTION

- Learning programming is considered to enhance skills like creativity, problem-solving, communication, and critical thinking
- Many students find programming hard or challenging to learn
- Enhancing curiosity and motivation through meaningful feedback in game-based environments can address this issue

## RESEARCH AIM

This research aims to develop a conceptual framework to enhance curiosity and motivation in a game-based environment through positive feedback by understanding the implications of individual differences such as personality, gender, learning style, and curiosity trait.

## RESEARCH QUESTIONS

**RQ 1:** What is the link between curiosity, engagement, and academic performance?

**RQ2:** What impact does positive feedback have on the curiosity level of a learner based on individual differences such as personality, gender, learning style, and curiosity trait?

## SELF-DETERMINISTIC THEORY OF MOTIVATION

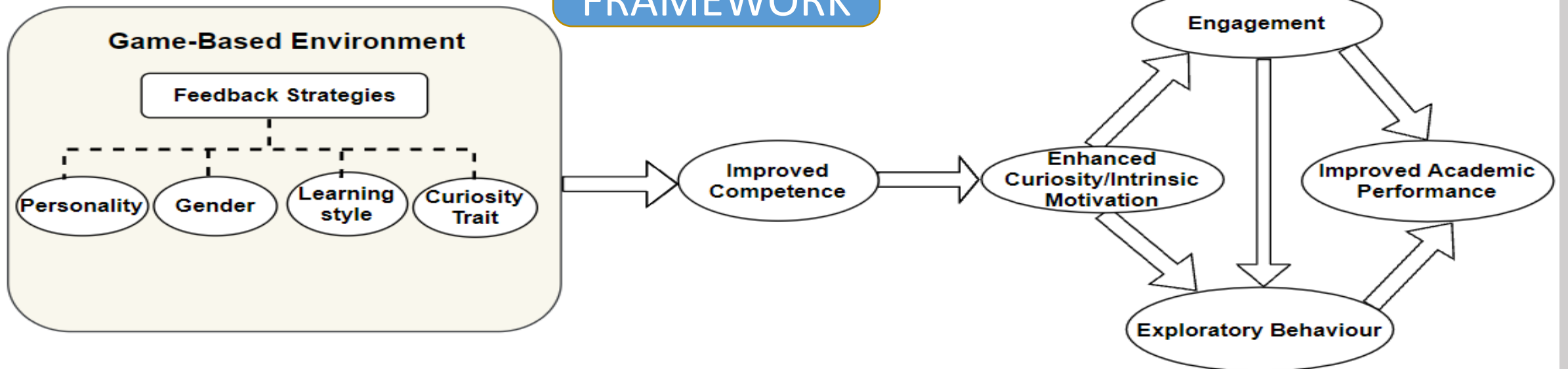
Self-Deterministic Theory (SDT) of motivation suggests that positive feedback facilitates intrinsic motivation through supporting competence, which in turn is associated with improved curiosity and academic engagement.

## BENEFITS OF POSITIVE FEEDBACK

Other benefits of positive feedback are to:

- Encourage relevance
- Help identify the knowledge gap
- Activate prior knowledge
- Provide optimal challenges and keep a learner in the optimal zone of development

## CONCEPTUAL FRAMEWORK



## GAME DESIGN

- The proposed game outlines a story around three United Nations Sustainable development Goals (UNSDG) related to poverty (SG1), health (SG3), and education (SG4) to teach Programming.
- To develop higher-order critical thinking abilities, the game consists of questions at three levels developed using Bloom's taxonomy.

## GAME DESIGN

**Level 1:** Understanding of variables, data types, control structures.

**Level 2:** Functions, Methods, Arrays, Array list.

**Level 3:** Classes and Objects.

## GAME PLAY

- Player will be asked to select one of the UN SDG goals and play all three levels.
- Different types of feedback will be provided for incorrect answers.
- Player will be asked to select subsequent UNSDG goals and to complete all levels

The knowledge gained through playing the game, and receiving feedback will be used by the players.

The interaction and findings from playing the game will help answer the research questions.

# GAME STORYBOARD AND PROTOTYPE

