Abstracts Analysis Notes

Eyad Hassan

September 22, 2024

1 Introduction

This document contains an analysis of abstracts on various topics related to gamification, game-based learning, generative AI, and personalized e-learning. The purpose is to review, summarize, and organize insights from these research areas.

2 Use of Gamification and Game-Based Learning in Educating Generation Alpha: A Systematic Literature Review

2.1 Authors

- **Authors:** Pumudu A. Fernando
- **Authors:** Salinda Premadasa

2.2 Publication

- **Publication:** Educational Technology & Society 27(2):114-132
- **Date:** April 2024

2.3 Relevant to the My Research

Yes

2.4 Aim

The study aims to explore the current state of gamification and game-based learning adoption for primary education students, using recent peer-reviewed research. Through a systematic mapping design, the reviewed papers are categorized and analyzed based on attributes like:

- Type of gamification and game mechanics.
- Evaluation context.
- Experimental outcomes.
- Academic subjects.
- Types of applications involved.

2.5 Key Focus Areas

- Type of gamification and game mechanics used.
- Focus on Generation Alpha students (primary education).
- Educational context and subjects involved.
- Experimental outcomes and effectiveness.

2.6 Gaps Addressed

- Limited to primary education students, excluding secondary and tertiary levels.
- Gen Alpha students get bored due to their changing interests.

2.7 Future Work

2.8 Notes

The paper defines "Gamification" as "the use of game design elements in non-game contexts." It also mentions that components of games, such as points, badges, and challenges, are employed in gamification, not to build a game, but to motivate and enhance the learner's experience and increase engagement. The paper cites and explains the two diffrent types of gamification:

- **Structural Gamification:** This type of gamification involves the use of game elements like points, badges, and leaderboards to motivate learners.
- **Content Gamification:** This type of gamification involves the use of game elements like stories, characters, and challenges to engage learners.

so in more simple words structural gamification is about the rewards and content gamification is about the story and characters. There also exists Game-Based Learning (GBL) which is the use of games to teach students, as the game is mapped to the learning objectives. Structural and content gamification both are means to motivate learners, however GBL is a means to teach students.

3 VoRtex Metaverse Platform for Gamified Collaborative Learning

3.1 Aim

The paper introduces a platform called VoRtex, designed to offer tools for creating educational experiences in virtual worlds, especially during pandemic situations.

3.2 Key Focus Areas

- Software architecture and tools for the VoRtex platform.
- Collaborative learning within a virtual environment.
- Educational experiences designed for pandemic situations.

4 Integrating Generative AI in Hackathons: Opportunities, Challenges, and Educational Implications

4.1 Aim

This study explores the impact of generative AI on students' technological choices, focusing on a case study from the University of Iowa's 2023 event.

4.2 Key Focus Areas

- Impact of generative AI on technological choices in hackathons.
- Educational implications of integrating AI in student-led events.
- Balancing innovation with ethical considerations in educational environments.

5 Development of Gamification Model for Personalized E-Learning

5.1 Aim

This study aims to design, implement, and evaluate a personality-based gamification model for e-learning systems, enhancing personalization in learning environments.

5.2 Key Focus Areas

- Personalization in e-learning through gamification based on MBTI.
- Engagement metrics such as appeal, emotion, user-centricity, and satisfaction.
- Educational usability criteria like clarity, error correction, and feedback.

6 Generative AI for Customizable Learning Experiences

6.1 Authors

- **Authors:** A. M. S. Barros

6.2 Aim

The paper proposes an affordable and sustainable approach to personalizing learning materials. The authors developed a tool integrated into an existing learning management system.

6.3 Key Focus Areas

- Generative AI and Personalized Learning: Accessible generative AI for implementing personalized learning in educational environments.
- Tool Development: A tool integrated into an LMS that generates learning materials based on learning outcomes.
- Multiple Learning Styles: Learning materials offered in three formats—traditional, pop-culture (inspired by Batman and Wednesday Addams).
- Assessment: Multiple-choice questions to help students assess their learning progress.
- Experiment: Preliminary experiment with 20 software engineering students, measuring engagement and perceptions through questionnaires.
- Study Findings: Students found the personalized learning materials engaging; quiz-style tests increased study time.

6.4 Gaps Addressed

- Scarcity of empirical studies integrating large language models (LLMs) into classroom settings.
- Limited research on using LLMs for lesson creation.
- Lack of studies bringing LLM-generated content into the classroom.
- Unclear reception and effectiveness of AI-generated virtual instructors.

7 Scribbles and brainstorming on the side

7.1 Questions to Explore and reflect on when reading

- learning is about trying new things and failing, so how can we gamify that?
- what we like about games is the sense of progression and achievement, how can we bring that to learning?
- games give the player room to explore and make choices which affect the outcome but also allow them to fail and try again, how can we bring that to learning?
- why is an app like duolingo so successful in teaching languages? what can we learn from that?
- no one one's to actually fail, so how can we make failing fun?
- also what if we had diffuculty levels where each level is a different learning curve and each diffuculty level gives out different rewards? (we are all winners)

7.2 Game Ideas

- A game where you go up against an AI chatbot that asks you questions and you have to answer them correctly to win points, in return you get to ask the chatbot questions and it will answer them for you. You can call out the chatbot if it gets a question wrong or right which will give you extra points. **Problem:** How can we make this generative for the Instructor? Can we make it so that the instructor can create "Personalties" for the chatbot to have? like in the paper above where they used Batman and Wednesday Addams as personalities for the learning materials.