Multimedia Capstone Proposals

Program: IT – Multimedia Graphic Design

Date: 08 / 25 / 2025

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Study 1: Interactive Storytelling for Children (Web Animation)

Introduction

Children in the 21st century are growing up immersed in digital environments where interactive media strongly influences learning habits. Traditional storybooks are effective, but research suggests that interactive, gamified digital storytelling can enhance both comprehension and attention span. This study explores the use of web-based animated stories with gamification elements as a pedagogical tool for early learners.

Background and Related Work (RRL)

• Dual Coding Theory (Mayer, 2009): Children retain information more effectively when words and visuals are combined [1].
• Animated Stories in Education: Rodríguez and da Silva (2018) found that animated storytelling fosters imagination and helps simplify complex ideas [2].
• Web-Based Interactivity: Sung and Hwang (2009) emphasized that usability features such as clickable hotspots, navigation, and multimedia elements significantly increase engagement [3].
• Gamification in Learning: Reeves and Nass (1996) proved that reward systems, feedback, and progress badges motivate learners to re-engage and achieve higher comprehension levels [4].

Objectives

General Objective: To evaluate the impact of web-based interactive animated stories on learning engagement and comprehension among early learners (ages 5–8).

Specific Objectives:

1. To develop a set of animated web stories that incorporate sound, narration, and interactivity.
2. To integrate comprehension quizzes, clickable choices, and gamification features (badges, points, progress bar).
3. To measure children's attention span and comprehension through structured pre- and post-tests.

4. To gather parental and teacher feedback on usability and engagement.
5. To analyze the long-term effect of gamified storytelling on memory retention.

Scope and Methodology

Scope: 2–3 story modules targeting reading comprehension, morals, and imagination. Focus group: 15–20 children.
Methodology:
- Development using HTML5, CSS3, JavaScript, and Adobe Animate.
- Usability testing via structured observation, comprehension quizzes, and Likert-scale surveys for parents/teachers.
- Statistical analysis of pre- and post-test results to determine learning gains.

Limitations

- Limited to ages 5–8, results may not generalize to older learners.
- Only a few modules will be developed due to time/resource constraints.
- Requires internet access (offline not included).
- Socio-economic factors (digital literacy, gadget availability) may affect results.

Study 2: Animated Infographics for Road Safety Awareness

Introduction

Road accidents remain one of the leading causes of injury and mortality in the Philippines, particularly among young people. Current road safety campaigns (static posters, text-based lectures) often fail to capture the attention of students. This study introduces animated infographics as an alternative, aiming to deliver safety education in short, visually dynamic, and memorable formats.

Background and Related Work (RRL)

• Visual Communication in Safety: Williams (2014) showed that visual messaging is more effective than plain text in influencing safety behaviors [6].
• Health Campaigns: Ibrahim & Thomas (2015) demonstrated that animated infographics increase knowledge retention in health-related campaigns [5].
• Youth Engagement: Lee (2013) found that young audiences respond more positively to animated and gamified media [7].
• Global Recommendations: WHO's Road Safety Manual (2010) advocates integrating multimedia in public awareness campaigns [8].
• Social Media Dissemination: Chang & Zhu (2017) highlighted that motion-based campaigns spread faster and are more memorable when distributed via TikTok, YouTube, or Facebook [9].

Objectives

General Objective: To assess the effectiveness of animated infographics in enhancing road safety awareness among students.

Specific Objectives:

1. To design and produce 3 short animated infographics covering helmet use, pedestrian rules, and distracted driving.
2. To measure awareness and comprehension through pre- and post-viewing tests.
3. To gather feedback on clarity, animation design, and message delivery.
4. To evaluate how online platforms (TikTok, YouTube Shorts, FB Reels) amplify awareness campaigns.

Scope and Methodology

Scope: 3 animated infographics (30–60s each). Focus group: 20–30 students.

Methodology:

- Development using Adobe After Effects, Canva Animator.
- Pilot dissemination on YouTube Shorts or FB Reels.
- Pre-/post-test assessments measuring knowledge gain.
- Analytics tracking (views, shares, comments) to measure social media reach.

Limitations

- Only general safety practices covered; advanced traffic rules excluded.
- Limited to one school as test population.
- Reliance on self-reported survey data (possible bias).
- Does not measure long-term behavioral change (e.g., actual helmet-wearing).

Study 3: Digital Flipbook Magazine with Interactive Features

Introduction

The transition to digital education has rendered static print publications less attractive to modern readers. A digital flipbook magazine offers interactivity, multimedia integration, and analytics tracking while maintaining the familiar magazine-like interface. This study investigates the educational and experiential benefits of converting school publications into multimedia-enhanced flipbooks.

Background and Related Work (RRL)

• Digital Magazines vs PDFs: Schreurs (2016) highlighted that interactive magazines achieve higher reader engagement than static digital PDFs [10].
• Flipbook Interfaces: Gupta (2019) emphasized that flipbooks simulate real page-turning while allowing multimedia embedding [11].
• Sustainability: Santos (2019) noted digital publishing as a sustainable alternative reducing environmental costs [13].
• Analytics for Education: Digital flipbooks allow tracking of click-through rates, time spent per page, and article popularity, providing actionable data for editors [14].

Objectives

General Objective: To design and evaluate a multimedia-enhanced digital flipbook magazine to improve accessibility, interactivity, and reader satisfaction.

Specific Objectives:

1. To digitize a school magazine and embed multimedia elements (videos, audio, interactive graphics).
2. To implement navigation features such as page-turn animations, search, and bookmarking.
3. To evaluate usability and satisfaction among students using surveys and focus groups.
4. To explore the utility of built-in analytics in tracking content engagement.

Scope and Methodology

Scope: One school magazine edition digitized. Sample size: 20–30 students.

Methodology:

- Developed using FlipHTML5, JavaScript libraries.
- Focus group discussion and surveys to measure usability and satisfaction.
- Data analysis using user interaction heatmaps and analytics dashboards.

Limitations

- Focuses only on one edition (limited scope).
- Augmented Reality (AR) or Virtual Reality (VR) features not integrated due to technical barriers.
- Sample size too small for generalization.
- Analytics dependent on the capabilities of the chosen flipbook tool.

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