

EFEKTIVITAS ANIMASI CUTSCENE GAME RECEH HUNTER SEBAGAI MEDIA INFORMASI DENGAN ANALISIS MENGGUNAKAN EPIC MODEL

Muhammad Kalbar M. Rambe
Prodi Animasi
Politeknik Negeri Batam
Batam, Indonesia
rambemuhhammad63@gmail.com

Amirul Mu'minin
Animasi
Politeknik Negeri Batam
Batam, Indonesia
amirul@polibatam.ac.id

Abstract—This research aims to assess the effectiveness of the *Receh Hunter* cutscene animation as an educational medium for improving financial literacy awareness. A descriptive quantitative method was implemented using a 1–5 Likert scale questionnaire. This game media was developed following the Multimedia Development Life Cycle (MDLC) framework, including concept, design, material collecting, assembly, and testing phases. Integrated into the game, the cutscene was evaluated by 30 respondents through an EPIC Model-based questionnaire (Empathy, Persuasion, Impact, and Communication). The findings reveal an EPIC rate of 4.07, which falls into the "strongly agree" category. Consequently, the cutscene animation in *Receh Hunter* is proven to be effective in conveying messages and fostering narrative engagement toward financial literacy.

Keywords— cutscene animation, EPIC model, financial literacy, financial media effectiveness, game-based learning

I. INTRODUCTION

The gaming industry in Indonesia is experiencing growth in both production and consumption. According to a 2022 report by Newzoo, Indonesia ranked 16th in the global gaming market with revenue exceeding USD 1 billion. Given its significant economic value, gaming is viewed not only as a form of entertainment but also as a means of conveying information and education through visual and interactive approaches [1].

One of the essential elements in modern games is the presence of engaging and relevant visuals. In-game animation, including cutscenes and interface elements, plays a crucial role in building the atmosphere, reinforcing the narrative arc, and conveying specific values or information to the player [2]. Effective visuals in a game can reinforce message delivery and enhance players' understanding of educational content. However, issues persist regarding the utilization of information media through games, particularly within educational contexts. A significant portion of games fail to deliver educational values optimally due to unengaging visuals, misalignment with the target audience, or a lack of a structured design approach. Consequently, this leads to low game effectiveness as a means of information and education. [3].

While game development often remains focused on gameplay mechanics and technical visualization, the dissemination of informative and educational values through elements like cutscene animation is often overlooked. However, cutscenes—which are cinematic sequences embedded within gameplay to advance the storyline, introduce characters, and highlight key events—hold a strategic position as a communication tool that bridges complex messages through narrative and emotion. They

enable developers to integrate context, moral lessons, and educational insights more explicitly and structurally than pure gameplay can achieve. Backed by compelling storytelling, cutscenes strengthen the players' emotional bond with the content and improve their long-term retention of the information conveyed [4]. Consequently, cutscenes become a vital component of educational gaming, especially for communicating financial literacy, which demands the cognitive processing of concepts, values, and decision-making. For a student audience, information presented via narrative visuals and storytelling aids in comprehending, remembering, and relating educational insights to daily life. This research leverages cutscenes due to their potential as an instructional medium that not only captures visual interest but also fosters cognitive engagement, curiosity, and a deeper understanding of how to value and manage money prudently.

Educational games are designed to entertain while simultaneously conveying specific messages to the audience, such as social values, culture, or behavioral education, including financial literacy. In this study, the primary target audience is Generation Z, specifically students aged 18–25 who exhibit a high affinity for digital media and interactive games. The characteristics of Generation Z, who tend to be more drawn to dynamic visuals, storytelling, and interactive experiences, make games a highly potential medium for delivering education in a more engaging and easily comprehensible manner [5].

Fulfilling the visual and gameplay experience needs tailored to Generation Z characteristics demands a structured and systematic engineering process. This approach is utilized to generate visual assets, including characters, environments, user interfaces, and cutscene animations, that are both communicative and highly compatible with the intended educational goals [6]. A sound design process facilitates clear and compelling information delivery, which in turn boosts player engagement. Consequently, this research adopts the Multimedia Development Life Cycle (MDLC) framework for the cutscene animation development to ensure that every production phase is well-guided and conforms to the financial literacy education goals

Beyond the structured design process, testing the effectiveness of the in-game cutscene animation is equally essential. A highly relevant evaluation framework for this purpose is the EPIC Model (Empathy, Persuasion, Impact, and Communication), developed to assess the overall quality of visual and narrative communication delivered to the audience [7]. This model was chosen due to its comprehensive capability to evaluate both emotional and cognitive dimensions of user interaction with visual media like animations. The Empathy component assesses how well

players emotionally connect with the narrative, whereas Persuasion measures the message's strength in shifting players' comprehension and attitudes. Impact gauges the deep impression left on the players, and Communication evaluates how clearly the message is conveyed. Together, these four indicators are exceptionally relevant for evaluating cutscene-driven educational tools, as they fully address the vital aspects of information transmission and reception

Implementing this educational game demands an objective evaluation through a quantitative research-scaled questionnaire. This instrument measures diverse aspects, including attractiveness, perspicuity, efficiency, and stimulation of the overall player experience, specifically extending to its cutscene elements [8]. The findings from this evaluation are anticipated to yield an objective representation of how effectively cutscene animations convey information and educational insights to the players.

This research centers on the critical need for youth financial education, an issue that is gaining significant national attention. In response, Bank Indonesia introduced the 'Cinta Bangsa Paham (CBP) Rupiah' initiative, aiming to raise public awareness about the necessity of understanding, preserving, and utilizing the Rupiah prudently [9]. The research respondents targeting this educational game consist of students aged 18–25. As a productive age group for financial literacy education, they require a visual approach that aligns with their distinct interests and generational characteristics [9]. This age range was selected because it reflects the average mobile gamers who play regularly. They are categorized as midcore to hardcore players—meaning they play games routinely but not as a profession. Players within this age cohort generally possess a sufficient level of comprehension to solve in-game challenges, such as puzzles or quizzes, and are already accustomed to various game genres.

Consequently, this study on the effectiveness of cutscene animation in the game *Receh Hunter* as a financial education medium aims to evaluate the extent to which storytelling and visual communication within cutscenes can effectively convey financial literacy information to students in Batam City. This research is expected to contribute to enhancing the financial awareness and management skills of the younger generation, while supporting Bank Indonesia's Cinta Bangsa Paham (CBP) Rupiah program and maximizing contributions toward the achievement of SDG 1 and SDG 8.

II. STUDI LITERATUR

A. In-Game Cutscene Animation

In-game cutscene animation refers to a non-interactive narrative segment used to convey a story or information to players outside of direct gameplay. These cutscenes serve as a solution for delivering moral messages, introducing characters, and establishing the context of the game world [21]. Within an educational context, cutscenes play a vital role in contextualizing the material presented to the audience, particularly students. In this study, the production phase of the *Receh Hunter* cutscene animation began with an animatic storyboard process to organize the plot, scene transitions, camera angles, and the duration of each scene for a more directed narrative. This was followed by the illustration stage to design characters, backgrounds, and supporting objects in accordance with the story concept. Subsequently, brush inking and inking processes were conducted to clarify and refine the

lines, ensuring a neat and consistent visual appearance. Once the line art was completed, the coloring stage was executed by applying colors to the characters and environments to strengthen the atmosphere of the narrative. The next phase was footage integration, which combined all animations, visual effects, audio, and transitions into a unified, complete cutscene video. The final stage involved adding subtitles to assist the audience in comprehending the dialogue and the messages conveyed within the animation more easily

B. Animation principles in cutscene

In developing the cutscene animation for the *Receh Hunter* game, animation principles were utilized as a foundation to produce movements that are appealing, clear, and easily understood by the audience. The application of these principles aims to ensure that the storyline is effectively communicated while enhancing the visual quality [17]. For this cutscene, this study implemented 7 out of the 12 animation principles tailored to the requirements of the cutscene animation

1) Staging

In this study, staging was utilized to showcase objects or characters with a clear intent and purpose, as well as to arrange the composition within the cutscene animation. The implementation in the *Receh Hunter* cutscene animation is evident when the main character is displayed in the center of the frame as Rupi discovers the portal, thereby directing the audience's attention toward the primary event. This principle is applied in scenes 4, 5, 8, and 7

2) Timing

Timing is also determined by the number of in-between frames placed between objects or characters. In the *Receh Hunter* cutscene animation, this application is demonstrated through the walking movement in the first scene and Rupi's shocked expression upon seeing his body transform into a beetle, both of which are adjusted to the rhythm of the story to make the animation feel alive.

3) Appeal

The animation principle of appeal relates to the visuals and characteristics—such as Rupi's transformation into a beetle—that make an object or character attractive to the audience. The objective is to capture attention, establish a distinct charisma, and remain visually engaging. In this cutscene, appeal is reflected in Rupi's unique character design, humorous expressions, and distinct traits that successfully captivate the audience

4) Anticipation

Anticipation involves a movement executed in the opposite direction of the main action to create a preparatory motion, preventing the animation within the *Receh Hunter* cutscene from appearing rigid. In this study, the anticipation principle was applied to the visual animation of *Receh Hunter* to ensure that the actions are clearly understood by the audience and appear natural.

5) Exaggeration

The principle of exaggeration allows animators to accentuate a character's motions and facial expressions, making the animation visually appealing and communicative. This technique is implemented in the *Receh Hunter* cutscene during scene 4, where the character Rupi exhibits an astonished expression characterized by dramatically widening eyes.

6) Second Action

The principle of secondary action involves adding supplementary movements to a character, such as facial gestures, hand movements, or other minor elemental motions.

In this cutscene animation, secondary actions were implemented through subtle details, such as Rupi's eyes moving to track the coin and slight body sways, to make the scene appear more detailed and natural.

7) Solid drawing

Solid drawing is an animation principle that emphasizes the importance of understanding the dimensions and forms of an object. The animator must be capable of drawing and designing 2D objects or characters to create a sense of depth. In the *Receh Hunter* cutscene animation, this principle is implemented by maintaining consistent body proportions for the character Rupi across all scenes, thereby ensuring a clean and professional appearance.

C. Game as a Medium Information

Games as an information medium refer to the function of games not only as a means of entertainment but also as a communication tool capable of conveying knowledge and specific values. In the development of digital media, games have been utilized to deliver social, educational, and cultural messages to young audiences. Today, games as an information medium have transformed into a dynamic platform for game-based learning. According to recent research by [23], games do not merely transfer information but actively facilitate cognitive processing through controlled interactivity. The development of educational aspects through this medium has proven effective in increasing the intrinsic motivation of contemporary digital learners.

D. Financial

For students aged 18–25 years, adolescence and early adulthood represent a critical period for establishing financial habits. At this age, students begin to be exposed to basic economic activities, such as saving, online shopping, or earning their first income. Consequently, financial education for this demographic must be delivered in an engaging and easily comprehensible manner. [24].

In this study, financial education is delivered through cutscene animations in the game *Receh Hunter*. The message is conveyed through a narrative arc centered on a main character who disregards small change and subsequently faces the consequences of their actions. Through the narrative, visuals, and in-game challenges, players are encouraged to understand the importance of respecting monetary value, establish wiser financial habits, and enhance their awareness of basic financial management in daily life.

The need for financial education has currently shifted toward digital financial literacy, given the rapid proliferation of application-based financial ecosystems. Research by [20] indicates that conventional approaches are less effective for young demographics; hence, interactive creative media interventions (gamification) are required to stimulate long-term information retention regarding financial management decisions.

E. Visual design in interactive media

Visual design in interactive media is the process of structuring communicative and aesthetic visual elements to support specific communication goals. Within the context of games, visual design encompasses characters, backgrounds, icons, and animations, all of which must work cohesively to support the narrative and objectives of the game [25].

The design of cinematic visual elements, such as cutscene animations, plays a pivotal role as a bridge for operational narratives within games [11], emphasizing that the visualization of characters and interactive environments in the

modern landscape must prioritize asset readability to maintain Generation Z's engagement without reducing multimedia visual aesthetics.

F. Visual of visual media with the EPIC model

The EPIC Model (Empathy, Persuasion, Impact, Communication) was developed by A.C. Nielsen, a globally renowned marketing research company [22], as a method to measure the effectiveness of a medium's visual communication. In this study, the EPIC Model is utilized as an indicator to test the effectiveness of the cutscene animation in the game *Receh Hunter* in conveying financial literacy educational messages to players.

The Empathy indicator is used to measure the cutscene's ability to capture attention and establish an emotional connection between the player, the story, and the characters. The Persuasion indicator assesses the extent to which the conveyed message influences the player's attitude and awareness regarding the importance of respecting money. Furthermore, the Impact indicator is utilized to examine the degree of impression and retention generated after players watch the cutscene. Meanwhile, the Communication indicator measures the clarity of message delivery achieved through the visuals, narrative, and audio employed in the animation.

Through these four indicators, the EPIC Model is considered highly relevant for evaluating the effectiveness of storytelling-based visual media, as it assesses not only the visual aspects but also the emotional engagement and message comprehension received by the audience.

III. RESEARCH METHODOLOGY

The research method employs a descriptive quantitative approach, utilizing the EPIC (Empathy, Persuasion, Impact, Communication) framework with a 1–5 Likert scale questionnaire [10]. This effectiveness test was conducted with 30 respondents who are students of the Animation and Informatics Engineering study programs at Politeknik Negeri Batam. The determination of this 30-respondent sample size is based on the theoretical threshold of the small sample gold standard [26] in experimental research and usability testing of interactive media. Based on inferential statistical theory, a minimum sample size of 30 subjects represents the critical lower bound that satisfies the Central Limit Theorem. Under this theorem, the sampling data distribution tends to approximate a normal distribution, thereby validating the application of parametric statistical formulas, such as the mean and standard deviation calculations used in this EPIC Model. The objective is to evaluate how the cutscene animation influences user perception narratively and emotionally. The development method deployed in this study is the Multimedia Development Life Cycle (MDLC) [27], which is focused on developing the supporting elements of the cutscene animation, encompassing illustration assets (characters and environments), text (narrative), audio (background music and sound effects), as well as their integration into the core gameplay systems, including quizzes and gameplay mechanics [11]. This development method consists of six primary phases: (1) Concept, (2) Design, (3) Material Collecting, (4) Assembly, (5) Testing, and (6) Distribution, as illustrated in Figure 1.

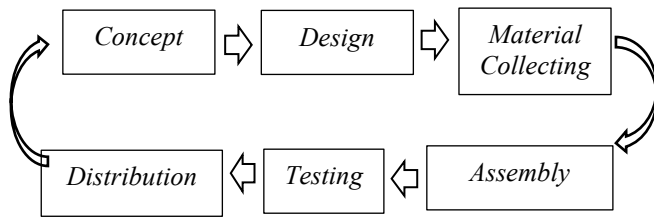


Figure 1. The stages of the MDLC development framework [11]

1). Concept

In the Concept phase, the foundational idea for the development of the game *Receh Hunter* was established as a first-person platformer encompassing adventure, fantasy, horror, and puzzle genres. The game narrates the story of a child cursed into a dung beetle due to a habit of wasting money, who must then collect coins and solve puzzles within a sewer world to revert to human form. The visual concept adapts a 3D mid-poly semi-realistic style. The target audience comprises students aged 18–25, both male and female, categorized as midcore to hardcore players. The deployment platform is mobile (Android), with core mechanics consisting of coin collection, combat and stealth, exploration, and an ability-purchasing system.

1) Phase design

The Design phase in the development process of the *Receh Hunter* cutscene animation focuses on scriptwriting, visual structuring, and arranging the narrative flow in the form of a storyboard. The objective is to convert ideas and concepts into a systematic visual blueprint, thereby facilitating the production process in the subsequent stage.

a. Story script

The narrative of *Receh Hunter* centers on Rupi Parangestu, a spoiled teenager from a wealthy family who lacks appreciation for low-denomination coins. One day, Rupi discards a Rp 500 jasmine-engraved coin into a sewer. This action inadvertently destroys a dung ball belonging to a dung beetle, who consequently curses Rupi into the same type of insect. To revert to human form, Rupi must gather all the scattered coins throughout the sewer and answer quizzes regarding currency valuation.

Throughout the journey, Rupi encounters various challenges involving environmental exploration, puzzle-solving, and experiences that foster an awareness of the importance of valuing money in any denomination. Upon successfully collecting all the coins and correctly answering every quiz, Rupi ultimately reverts to human form. The transformation in attitude drives Rupi to participate in the “Peduli Uang Koin” (Coin Awareness) campaign organized by Bank Indonesia.

b. Storyboard

The storyboard is utilized to depict the visual flow of the drafted script. Each scene includes a situational description, shot size, camera angles, and scene transitions employed within the cutscene animation. In the game *Receh Hunter*, the storyboard serves as a visual guide to assist the animation production process, ensuring that scene composition, character expressions, and narrative continuity are structured

in a directed and consistent manner. Furthermore, the storyboard is implemented as a 'total board,' which represents the comprehensive blueprint of the scene sequence from the beginning to the end of the narrative. Through the total board, the production team can overview the entire storyline, determine the visual pacing, and ensure that each scene effectively supports the delivery of the financial literacy message to the players.

Scenes 1–3 depict Rupi shopping at an Indoapril store, discovering a Rp 500 jasmine-engraved coin, and subsequently discarding it into a sewer. The camera moves from a medium full shot (MFS) to a close-up (CU) to emphasize Rupi's expression and actions, as illustrated in Figure 3.

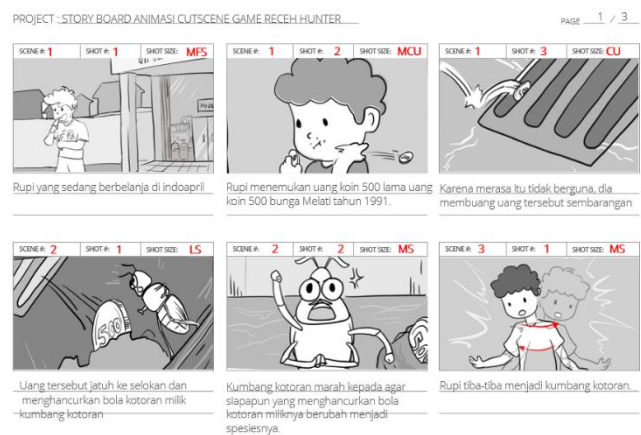


Figure 3. Panels 1–3. Storyboard for Receh Hunter scenes 1 to 3.

Scenes 4–6 depict the destruction of the dung beetle's dung ball and Rupi being cursed into a beetle. The atmosphere shifts to a darker tone, utilizing long shot (LS) and medium shot (MS) angles to highlight the environmental transformation and the character's expression. Rupi then ventures through the sewer, solving quizzes and collecting coins to unlock the gate to freedom, as illustrated in Figure 4.



Panels 4–7. Storyboard of the Receh Hunter game from scenes 4 to 6.

Scenes 7–10 depict Rupi reverting to human form after collecting all the coins. A medium shot (MS) is utilized to emphasize the character's emotional transformation. The sequence shows Rupi saving money at Bank Indonesia and actively participating in the “Peduli Uang Koin” (Coin Awareness) campaign. The conclusion portrays a wiser Rupi

who values the Rupiah in any denomination, featuring close-ups (CU) of the coin and a meaningful facial expression, as illustrated in Figure 5.



Panel 7-10. Storyboard game Receh Hunter scene 7 sampai 10

2) Material Collecting

The Material Collecting phase focuses on gathering and creating the primary visual elements for the *Receh Hunter* game cutscene animation. This process encompasses character design and storyline illustration, entirely executed using Clip Studio Paint (CSP) due to its support for high-precision digital drawing, coloring, and animation layout features. The main character, Rupi Parangestu, is depicted as an urban teenager with consumerist tendencies, serving as a symbol of the younger generation that lacks appreciation for the value of money. Meanwhile, the Dung Beetle character is designed with anthropomorphic features, carrying a dung ball filled with coins to symbolize hard work and economic values that are often overlooked, as illustrated in Figure 5.

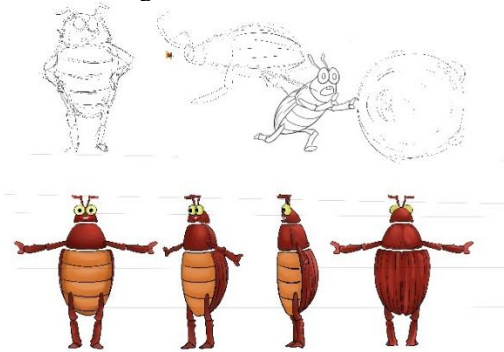


Figure 2. Depiction of the cursed character Kumbang, named Rupi, as the main protagonist.

The design process is executed through initial sketching, adjustments to body proportions, facial expressions, and line detailing utilizing vector layers to produce clean and dynamic lines. Upon character completion, the next stage involves illustrating the storyline into digital artwork. One pivotal scene showcases the interaction between Rupi and the Dung Beetle, visualized using a symmetrical composition to emphasize the conflict of values between the two, as illustrated in Figure 7. A black-and-white line art technique was chosen to accentuate expressions and gestures without diverting focus toward coloring.

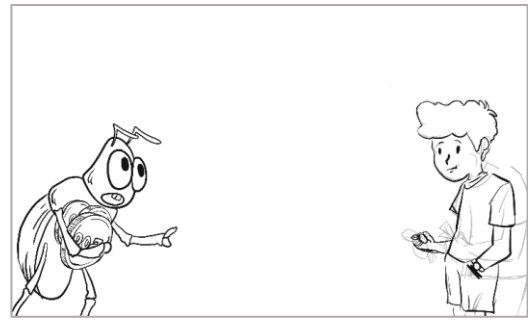


Figure 1. Illustration of the Interaction between Rupi and Beetles

a) Animatik storyboard

This initial stage of animation production involves assembling the storyboard images into a simple video. This phase is utilized to evaluate the narrative flow, determine camera angles, and establish the duration of each scene before the final animation is generated.

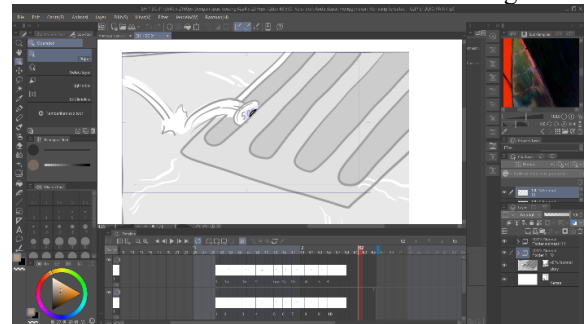


Figure 4. Storyboard animatic during the story scene composition stage story.

Its application within the *Receh Hunter* animation is demonstrated during the sequence where Rupi throws a coin into the sewer, the emergence of the Dung Beetle, and Rupi's transformation into a dung beetle. Each image is arranged chronologically according to the storyline to ensure the narrative is comprehensive before progressing to the subsequent stage.

b) Brush inking

The brush inking phase involves thickening the sketch lines to ensure the illustrations appear clear and well-defined. This stage also assists in emphasizing the forms of characters and objects within the animation. In the *Receh Hunter* animation, this process is employed to clarify character facial features, the anatomical shape of the beetle, and environmental details, thereby rendering the visual output cleaner and more legible.



Figure 5. Brush inking stage to define sketch lines using MediBang.

In the *Receh Hunter* animation, this phase is employed to clarify character facial features, the anatomical shape of the beetle, and environmental details, thereby rendering the visual output cleaner and more legible.

c) Coloring

The coloring phase involves applying color to the characters and backgrounds to establish the atmospheric tone and evoke emotional resonance within the *Receh Hunter* game cutscene animation.

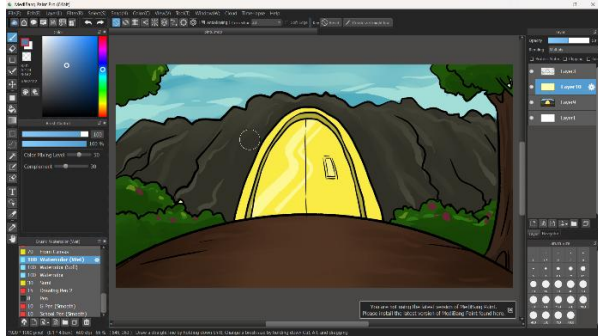


Figure 6. Coloring process of the background and characters using MediBang.

In the coloring phase, vibrant colors are applied to depict Rupi's initial life, while darker tones are utilized for the curse scene and the sewer environment to make the narrative feel more alive and immersive.

d) animatic

The animatic was subsequently developed by incorporating basic motion elements; for instance, the movement of a rolling coin symbolizes Rupi's consumptive behavior, as illustrated in Figure 6.

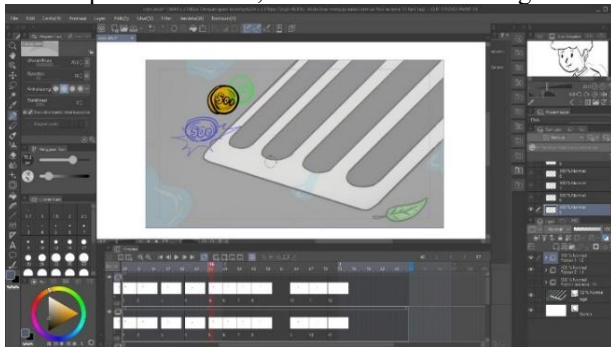


Figure 6. Rolling coin animatic in scene 1 shot 3 using Clip Studio Paint.

e) footage

In the footage stage, all animation assets, visual effects, audio, music, and transitions are combined into a complete cutscene video.



Figure 7. Footage compositing of animation assets using Adobe Premiere.

Within the *Receh Hunter* cutscene animation, this phase is implemented by integrating character movements, backgrounds, curse effects, and audio components to ensure the narrative is delivered in a more engaging and comprehensive manner.

3) Assembly

In the Assembly phase, all developed visual assets are assembled into a storyboard animatic and a final animatic to serve as a production reference for the cutscene. This compilation is executed using Clip Studio Paint (CSP) and video editing software to ensure narrative continuity, scene pacing, and character movement timing align with the scenario. The storyboard animatic is structured by displaying key scenes, such as the shocked expression of the dung beetle upon witnessing Rupi discarding the coin, as illustrated in Figure 8. Emphasis on this expression is achieved through keyframes of the body leaning forward and eyes widening to reinforce the visual message.

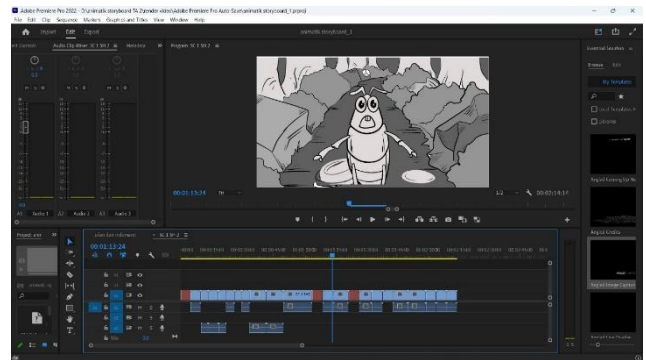


Figure 8. Animatic storyboard of Beetle's expression in shot 5 using Adobe Premiere.

Subtitling is the process of adding dialogue or narrative text to a video to assist the audience in understanding the storyline more clearly. In the *Receh Hunter* cutscene animation, subtitles are applied to crucial dialogues and narrations to ensure that the moral message regarding the importance of valuing low-denomination coins is easily received by the audience.

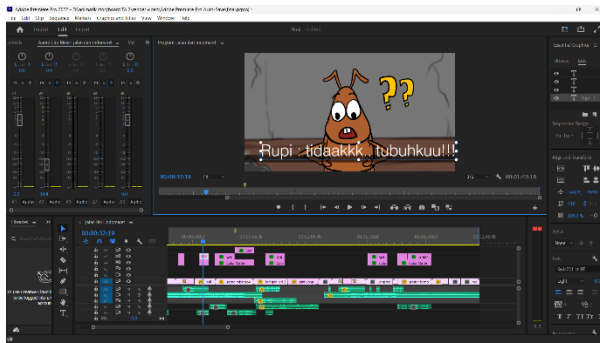


Figure 9. Subtitle addition for the animated dialogue text in the *Receh Hunter* game.

In the final animatic, all scenes are fully integrated with coloring, narrative text, sound effects, and voice overs that are synchronized with the visual timing to render the storytelling clearer and more communicative, as illustrated in Figure 9. The Assembly phase serves as a vital foundation prior to the full animation process and its integration into the *Receh Hunter* game, ensuring that the cutscene functions effectively as a medium for delivering financial literacy education.



Figure 10. Final *Animatic* of the *Receh Hunter* Game in Adobe Premiere

4) Testing

The validation instrument provided to the animation media expert encompasses five assessment aspects, namely the visual quality of the 2D animation in the *Receh Hunter* cutscene, the quality of animation movement based on the application of 12 animation principles—specifically utilizing seven principles: staging, timing, appeal, anticipation, exaggeration, secondary action, and solid drawing—and the quality of the narrative delivered through the 2D animated cutscene. In addition to the quantitative evaluation aspects, the animation media expert was requested to identify the limitations of the *Receh Hunter* 2D animated cutscene in terms of animation, visuals, and storytelling, as well as to provide constructive feedback to serve as a consideration for the future development of the *Receh Hunter* 2D animated cutscene.

Based on the validation results obtained from the animation media expert, the 2D animation in the *Receh Hunter* cutscene generally received positive evaluations across various aspects. Visually, the color palette and character designs were deemed well-executed, and the transitions between scenes were considered highly informative. Regarding animation movement based on the

principles of animation, the camera angles, ratios, and character bodily responses were evaluated as adequate, including the bouncing scenes and the animation of falling or thrown coins. In terms of narrative, the storyline was judged to be informative with a clear structure—progressing from character introduction and problem exposition to the conclusion—complemented by a well-integrated background audio.

On the other hand, the animation media expert identified several limitations that require attention in future development. The consistency of character proportions between scenes was considered insufficiently maintained, creating the impression of varying proportions. Inconsistent animation movement resulting from an inadequate number of frames per second (FPS) was also a major critique that needs to be addressed. Regarding the narrative, the protagonist Rupi's background as a character from a wealthy family has not been visually depicted, leaving this aspect of character identity poorly communicated to the audience. Furthermore, the volume of sound effects, such as the coin sounds, was deemed too low and needs adjustment to better align with the interactive ambiance of a game, along with the neatness of the character line art, which still requires refinement.

Initial testing was conducted internally to ensure the cutscene ran smoothly without technical constraints. Following this, a user trial was carried out with 20 respondents, providing them the opportunity to play the game while concurrently watching the cutscene. The respondents were subsequently requested to complete a 1–5 Likert scale questionnaire based on the EPIC Model [12].

1. The Empathy indicator consists of five questions focusing on the audience's emotional engagement and interest in the cutscene's storyline. The questions within this indicator encompass assessments of whether the story packaging is engaging to follow, the characters' expressions and gestures in conveying emotion, the scene transitions that support the narrative atmosphere, the audience's interest in the continuation of the story, and the relevance of the conflict and core message to a youth audience.
2. The Persuasion dimension consists of an indicator comprising five questions used to measure the cutscene's capacity to influence players' awareness and attitudes toward financial literacy. The assessed aspects encompass the ability of visuals and dialogue to build awareness regarding the importance of financial literacy, the natural integration of educational messages, the use of cinematic techniques—such as angles, timing, and pacing—to reinforce the message, the cutscene's potential to influence players' financial habits, and the depiction of narrative consequences that support the persuasive effect.
3. The Impact dimension consists of an indicator comprising five questions that assess the visual impact and experiential outcomes perceived by the audience

after watching the cutscene. The evaluation encompasses the strength of visual composition, such as layout, color, and lighting; the support of sound design, including background music, sound effects, and voice-overs; the precision of keyframes and animation timing in building emotion; the use of frame cutting and camera direction to guide the audience's focus; and the distinctiveness of the cutscene's visual identity to ensure it is easily remembered by the audience.

4. The Communication dimension consists of five questions used to measure the clarity of information delivery and the quality of visual communication within the cutscene. The assessed aspects include the ease of understanding financial information without additional explanation, the use of symbols and iconicity to support the educational message, the synchronization between visuals and narrative dialogue, the effectiveness of delivering financial education through a cutscene compared to standard text, and the overall alignment of the cutscene with proper animation and game production technical standards.
5. Distribution represents the final phase of the process, wherein the fully tested game, including its animated cutscenes, is distributed to the general public through digital platforms such as the Play Store. This distribution is executed by providing an executable game application compatible with the respondents' computers or mobile phones, enabling them to gain firsthand experience by playing the *Receh Hunter* game.



Figure 11. Receh Hunter game mockup.
<https://youtu.be/V4ddfwsK6Y?si=I6WXWNBdHeQEPXuF>

Prior to administering the questionnaire, validity and reliability tests were conducted to ensure that the research instrument was feasible and credible. The validity test was performed by comparing the calculated α -value ($\alpha_{\text{calculated}}$) against the critical α -table value; with a sample size of 30 respondents and a 5% significance level, the α -table value was determined to be 0.361. All 20 items across the four EPIC dimensions were declared valid since each generated an α -value above 0.361, indicating that every question measured what it was intended to measure. Meanwhile, the reliability test was carried out using the Cronbach's Alpha method, where an

instrument is deemed reliable if the alpha coefficient is ≥ 0.60 . The testing results yielded Cronbach's Alpha values of 0.7 and above, thereby classifying this questionnaire instrument as reliable and capable of producing consistent data when re-administered across different time frames or respondents. With both requirements fulfilled, the questionnaire data collected from the 30 respondents can be legitimately utilized as a valid foundation to measure the effectiveness of the *Receh Hunter* game cutscene animation using the EPIC Model.

IV. RESULT AND DISCUSSION

The effectiveness testing of the cutscene animation in the *Receh Hunter* game was conducted with 30 respondents, who were undergraduate students from the Animation and Informatics Engineering study programs. The respondents were requested to play the game and watch the cutscene, subsequently providing their assessments via a questionnaire with a 1–5 scale. The evaluation results were processed using statistical analysis, specifically calculating the mean and standard deviation, to measure the level of effectiveness [13]. The effectiveness measured pertains to the cutscene's performance as a medium for delivering educational information regarding financial literacy. Prior to presenting the accumulative calculation results, the baseline for determining the effectiveness categories (Mean and EPIC Rate) was calculated using the Likert scale interval formula. With a minimum score range of 1 and a maximum of 5 divided into 4 categorical ranges, a scale interval distance of 1.00 was obtained.

The score classification reference used to test the effectiveness hypothesis in this study is structured as follows:

- Scores from 1.00 to 2.00 reflect the Ineffective predicate.
- Scores from 2.01 to 3.00 reflect the Moderately Effective predicate.
- A score range of 3.01–4.00 denotes an Effective rating.
- A score range of 4.01–5.00 denotes a Highly Effective rating.

The relationship between individual total scores and the EPIC Rate value is established by first determining the mean value for each dimension, which is then averaged cumulatively to minimize the standard deviation bias arising from the respondents' answers. The complete empirical results of the data processing are presented in Table 1.

No	Respondent Code	Score
1	R1	157
2	R2	140
3	R3	143
4	R4	122
5	R5	175
6	R6	163
7	R7	149
8	R8	140
9	R9	165
10	R10	160
11	R11	175

12	R12	140
13	R13	175
14	R14	133
15	R15	51
16	R16	153
17	R17	140
18	R18	141
19	R19	175
20	R20	91
21	R21	74
22	R22	115
23	R23	89
24	R24	92
25	R25	91
26	R26	104
27	R27	54
28	R28	106
29	R29	79
30	R30	95
	Mean	126,23
	Standard Deviation	37,09

Table 1. Effectiveness test results of the Recch Hunter game

Based on the visualization of the EPIC Model diagram, it is evident that all dimensions fall into the highly agreeable or effective category. However, an interesting dynamic emerges when analyzing the relationship between each indicator and the pre-designed technical elements of the cutscene animation. Visual and animation elements act as attention grabbers (Impact), while the storyline and principles of movement establish a sense of connection (Empathy). Furthermore, textual and audio clarity serves to channel information (Communication), all of which cumulatively culminate in a shift in the audience's perspective regarding the value of money (Persuasion).

A mean score of 136.23 indicates that the effectiveness of the cutscene animation falls into the Good to Very Good category [14]. This implies that the majority of respondents evaluated the Recch Hunter cutscene as successful in delivering visual appeal, a communicative storyline, and an educational message regarding the importance of valuing low-denomination coins as a part of financial literacy.

A standard deviation value of 37.09 indicates a relatively high variation in respondent perceptions [15]. This variation can be attributed to several factors, such as the differing academic backgrounds of the respondents (Animation and Informatics Engineering), discrepancies in visual aesthetic preferences, and non-uniform levels of gaming experience. Although there was a single low-scoring evaluation (28), the majority of respondents provided scores above 80, which reinforces that the cutscene is considered effective in strengthening player comprehension of the information packaged through narrative and visuals. The effectiveness testing of the cutscene animation was conducted with 30 respondents, who were undergraduate students from the Animation and Informatics Engineering study programs at Politeknik Negeri Batam. This evaluation was based on the four EPIC indicators (Empathy, Persuasion, Impact, and Communication), each comprising five questionnaire items

using a 1–5 Likert scale [16]. The questionnaire evaluation results are presented in Table 2.

Once the data were obtained, the mean evaluation formula was utilized to compute the average value for each parameter, and the EPIC Rate formula was applied to determine the mean value for each dimension [16].

a) Empathy

Based on the analysis of the empathy indicator, a final score of 4.09 was obtained, as presented in Table 2. This result falls into the 'strongly agree' category according to the EPIC model's decision-making scale [16].

Questions	Likert Scale	Score	Scale Range	Total
E1	119	79,3	4,0	4,09
E2	119	79,3	4,0	
E3	126	84,0	4,2	
E4	130	86,7	4,3	
E5	119	79,3	4,0	

Table 2. Empathy indicator analysis across five items.

The Empathy dimension received a score of 4.09. The highest value was achieved by the indicator measuring the audience's interest in the continuation of the story (E4 = 4.3), implying that players felt intrigued and wished to continue following Rupi's journey. Scene transitions were also evaluated favorably (E3 = 4.2), as the movement between scenes felt smooth and supported the narrative atmosphere. Meanwhile, the indicators for character expression, plot packaging, and conflict relevance each scored 4.0—demonstrating that Rupi's unique character design when transforming into a beetle successfully established an emotional connection between the players and the story.

b) Persuasion

Based on the analysis of the persuasion indicator, a final score of 4.00 was obtained, which falls into the 'strongly agree' category, as presented in Table 3.

Questions	Likert Scale	Score	skala	Total
P1	117	78,0	3,9	4,00
P2	120	80,0	4,0	
P3	121	80,7	4,0	
P4	120	80,0	4,0	
P5	124	82,7	4,1	

Table 3. Persuasion indicator analysis across five items.

The Persuasion dimension received a score of 4.00, which was the lowest among all dimensions. The indicator depicting the story's consequences achieved the highest score (P5 = 4.1), signifying that Rupi's punishment of transforming into a beetle was quite successful as a moral message. However, the indicator assessing the visual capability to build financial literacy awareness received the lowest score (P1 = 3.9). This occurred because Rupi's background as a wealthy child was insufficiently depicted visually at the beginning of the story, causing some players to be slower in perceiving the connection between the narrative and their own financial lives

c) Impact

Based on the analysis of the impact indicator, a final score of 4.15 was obtained, which falls into the 'strongly agree' category, as presented in Table 4.

Questions	Likert Scale	Score	Scale Range	Total
I1	126	84.0	4,2	4,15
I2	120	80.0	4,0	
I3	122	81.3	4,1	
I4	126	84.0	4,2	
I5	126	84.0	4,2	

Analysis of Impact indicators across five questions.

The Impact dimension achieved the highest score at 4.15. Three indicators concurrently received a score of 4.2: visual composition (color and lighting), the utilization of camera angles, and the strength of a memorable visual identity. The deployment of bright colors at the beginning of the story, which shifted to a dark palette when Rupi was cursed, proved effective in establishing a dramatic atmosphere. Rupi's startled expression with widened eyes also left a strong impression on the players. The only indicator with a slightly lower score was sound design (I2 = 4.0), which aligns with the expert's note indicating that the coin sound effect volume still requires enhancement.

d) Communication

Based on the analysis of the communication indicator, a final score of 4.05 was obtained, which falls into the 'strongly agree' category, as presented in Table 5.

Questions	Likert Scale	Score	Scale Range	Total
C1	118	78.7	3,9	4,05
C2	121	80.7	4,0	
C3	121	80.7	4,0	
C4	125	83.3	4,2	
C5	120	80.7	4,0	

Table 5. Analysis of Communication indicators across five questions.

The Communication dimension received a score of 4.05. The highest value was achieved by the indicator assessing the effectiveness of delivering financial education compared to plain text (C4 = 4.2), which proves that conveying financial literacy messages through an animated cutscene is far easier for players to comprehend than mere text. However, the indicator regarding the ease of understanding financial information without additional explanation received the lowest score (C1 = 3.9), implying that some players still required supporting context, such as subtitles, to fully comprehend the message. Other indicators, including the use of symbols, visual-dialogue synchronization, and technical production standards, each scored 4.0 and were deemed adequate.

After calculating the EPIC Rate value for each indicator, the next stage involves computing the overall EPIC Rate using the following formula:

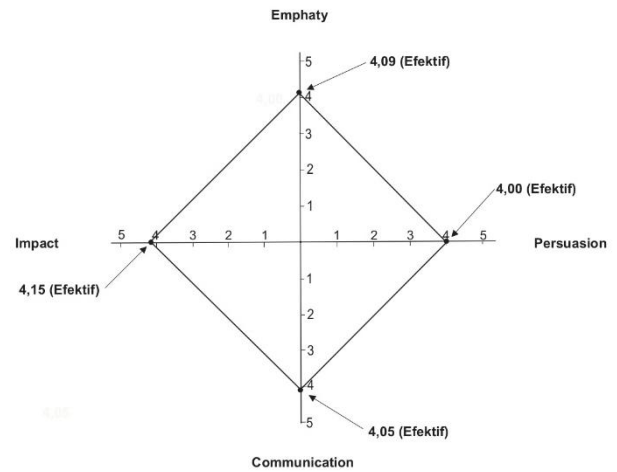


Figure 4. EPIC Diamond Chart resulting from the model analysis.

$$EPIC\ rate = \frac{4,09 + 4,00 + 4,15 + 4,05}{4} = 4,07$$

The final assessment of the overall EPIC Rate yielded a score of 4.07, which falls into the 'strongly agree' category. In other words, it can be concluded that the respondents collectively agree that the *Receh Hunter* game cutscene animation is effective as a medium for delivering financial literacy information to the younger generation.

V. CONCLUSION AND LIMITATIONS

A. Kesimpulan

This research successfully developed a 2D cutscene animation for the game *Receh Hunter* as an informational medium for financial literacy by applying the Multimedia Development Life Cycle (MDLC) method. Based on the EPIC Model test results from 30 respondents, the cutscene animation demonstrated a high level of effectiveness across the dimensions of empathy, persuasion, impact, and communication. This proves that integrating visual storytelling in the form of a cutscene can support the delivery of educational messages, making them more engaging and easier for players to comprehend. Consequently, the cutscene animation can be deemed effective as a supporting educational medium in digital games.

B. Limitations of the Study

This research has several limitations that should be noted. The number of respondents involved in the testing was limited to 30 individuals, with the majority coming from academic backgrounds in Animation and Informatics Engineering; thus, the findings may not fully represent the perceptions of general players with more diverse characteristics. Furthermore, the evaluation of the cutscene's effectiveness was confined to user perceptions via the EPIC Model, which does not depict the extent to which the players' financial literacy actual knowledge improved after playing the game. For future research, it is suggested to expand both the sample size and diversity of respondents, and to supplement the effectiveness testing with additional assessment methods, such as pre-tests and post-tests, to

measure the educational impact more objectively. With further development, animated cutscenes are expected to make a more significant contribution to enhancing financial literacy through digital gaming mediums.

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