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Digital Storytelling Technique as a Catalyst for Students' Memory Retention and Performance in the Topic of Marketing Mix

Sengpoh Lim^{1,*}

¹ Department of Business Administration, Penang Matriculation College Malaysia

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ABSTRACT

The marketing mix comprises four key components: product, pricing, promotion, and distribution. This topic is essential as a foundational element for strengthening students' understanding of marketing concepts. Observations of student behaviour revealed that they struggled to focus and retain marketing concepts, and the results of the pretest clearly showed that their performance was below the expected standard. Therefore, the objective of this study is to enhance memory retention and target performance through the use of digital storytelling techniques. Lecturer reflections indicated that repetitive teaching and facilitation practices led to student boredom. By integrating Schmidt's seven-step model within a problem-based learning framework, two cycles of intervention were implemented. This purposive sampling focus on the fifteen pre-university students majoring in accounting at a northern institute were selected as the study's target group. The first cycle showed improved performance of the students nevertheless the targeted students have not obtained the expected grade. Refinement of the instruments by incorporating digital notes in the second cycle led to improved student outcomes. Interview data from five students were analyzed thematically, revealing four dimensions: cognitive, teamwork, interest, and experience. This technique can be extended as an active learning instrument to further develop students' potential in creating their own artifacts, such as digital promotional video advertisements.

1. Introduction

Marketing is the scientific foundation of business management in shaping competitive and sustainable organizations. According to Kotler [9], the marketing mix consists of four components: Product; Price; Place (Distribution) and Promotion. The concepts in this topic form the basis of business strategies that need to be mastered. However, preliminary observations revealed that the learning process tends to focus on memorization rather than understanding, with limited student participation in discussions. Teaching is mainly delivered through lectures and tutorials as routine practices, with priority given to completing the syllabus. The situation becomes even more

* Corresponding author.

E-mail address: limspoh@gmail.com

challenging because marketing is a dynamic field, while the majority of students have only limited basic knowledge of the subject. Students often confuse facts with opinions, and some even create their own definitions and facts due to forgetfulness. As a result, the answers produced are inconsistent with the requirements of the marking scheme. According to Ebbinghaus' forgetting curve [14], an individual's memory retention after one reading decreases to only about 26% after a single day. Therefore, the digital storytelling technique is employed to help enhance students' memory retention and understanding of marketing topics. This technique simplifies complex facts and theories into visual, audio, and narrative elements that are short, clear, and engaging, thereby inspiring students. It is believed it can improve students' memory retention, as facts and concepts are transformed into interesting digital stories that are easier to recall compared to conventional information delivery. This method also represents an active, student-centered learning approach that accelerates comprehension and strengthens memory.

2. Reflection on Past Teaching and Learning Practices

2.1 Researcher's Self-Reflection

Traditionally, the teaching and learning practices for the marketing topic have been predominantly one-way. Observations also revealed that the mnemonic method—used by the target group to memorize keywords for a topic—did not effectively help them integrate marketing facts into their answers. This was due to their inability to interpret the requirements of the questions, which in turn led to a decline in motivation. As a result, students became passive, showed little interest, and performed poorly.

Several recurring issues were identified in the teaching and learning process for this topic. For instance, students struggled to construct questions that required analysis and evaluation in case studies resembling real business scenarios. They found it difficult to connect marketing strategies practiced by companies with the marketing theories presented in textbooks, resulting in weak arguments and justifications. The broad scope of marketing and the students' lack of foundational knowledge also made it challenging to integrate learning disciplines and apply them effectively in their answers.

The results of the pre-test raised concerns, as eight students not only failed to meet the answer scheme but also deviated from the objectives. Some students even left certain questions unanswered. The outcome of the pre-test review signaled that guiding students to understand the content required a paradigm shift. Therefore, the researcher decided to adopt a different approach—summarizing facts within an engaging narrative structure. This technique is deemed suitable, as answering questions after experiencing digital storytelling makes the content easier to understand.

3. Focus of the Study / Area of Concern

3.1 Determination / Selection of Concept

Based on the issues identified in previous reflections on teaching and learning (T&L), this action research is carried out using the digital storytelling technique to enhance memory retention and performance of the target group. This action is aligned with Rohit *et al.* (2025), who argued that one of the gaps in Ebbinghaus' Forgetting Curve [14] lies in the learning environment and pedagogy applied in the process. The researcher aims to change students' perspectives that marketing facts are difficult to apply.

This action research focuses on two main questions. First, how can digital storytelling learning aids improve the memory retention of the target group? Second, can the performance of the target group in the topic of the marketing mix be improved through the use of these learning aids?

Digital storytelling is an active and student-centered learning approach that is believed to stimulate the memory and performance of the target group in relation to facts and concepts of the marketing mix. This technique integrates visual, audio, and text elements to create a more immersive learning experience, enabling students to connect better with the issues in the case. It is consistent with cognitive constructivism theory proposed by Jean Piaget [6], which emphasizes that the human mind can develop, change, and adapt to problems through interaction with the environment. The students use the power of story to translate a deep knowledge of marketing mix, this technique is particularly important because digital storytelling is more effective in capturing the interest of the next generation compared to conventional methods of information delivery.

4. Research Objectives

There are two objectives in this study as outlined below:

Objectives:

1. To enhance the memory retention of the study participants regarding the topic of the marketing mix through the use of digital storytelling techniques.
2. To improve the performance of the study participants on the topic of the marketing mix through the use of digital storytelling techniques.

5. Target Group

This study involves eight participants from the accounting stream who are enrolled in a pre-university program at an institution in Malaysia. The sampling selection was based on the results of a pre-test, where these students scored the lowest and failed to meet the required standards. All participants are students from the researcher's own class, making this selection more logical and effective in terms of management, as the researcher has a deeper understanding of the participants' behaviour.

6. Action Planning and Implementation

The action plan for this study spans four informal sessions designed to address two key questions:

- i. Can digital storytelling techniques improve the memory retention of the participants regarding the marketing mix topic?
- ii. Can digital storytelling techniques enhance the students' performance on the marketing mix topic?

6.1 Preliminary Data Collection (Methods & Issues)

Initial Survey

The research procedure began with a preliminary survey. The researcher started by observing student behaviour during lectures and tutorials, and conducted a pre-test to establish a benchmark for assessing actual student performance. The findings from this initial survey prompted the

researcher to reflect and recognize the need for a paradigm shift in teaching and learning practices. The preliminary data was collected, analyzed, and subsequently reported as shown in Table 1 below.

Table 1
Preliminary survey data analysis

Week	Assessment method	Research findings	Reflection
1	Lecture Observation	Some students were not focused during the lecturer's delivery. Students acted merely as passive recipients of information and did not ask questions, even though a Q&A slot was provided.	The researcher believes that lecturing-based delivery is not suitable for all students. Some students require more innovative teaching aids
	Tutorial Observation	Students lacked confidence in answering questions especially cases that resemble real business scenarios. Some students created their own definitions.	
	Pre test	The performance of the students were below par	

Implementation

The teaching and learning process using the digital storytelling technique was conducted over four student-centered sessions held outside the formal classroom setting. Many researchers have applied this technique in educational practices and have demonstrated its significant impact [1,5]. In the context of marketing, how stories shape consumer beliefs and behaviours—perfect for showing how each “P” influences perception of the students are essential.

Table 2
Implementation process

Step	Action
1. Explain facts and concepts	The first step involved the researcher helping students to understand the concepts and facts of the marketing mix. Identify a brand's mission, values and target audience. The researcher uses marketing storytelling crafting
2. Identify facts/Assign Story Roles to the 4Ps	Identify the brand's, the uniqueness of the product; the price; how the product can reach the customers and how it speaks to the world.
3. Visualize the Story	At this stage, Students use tools like Canva, PowerPoint, or Adobe Express to storyboard their brand's narrative.
4. Hypothesis	Students explore how brands use storytelling in introducing product life cycle. Furthermore, the students show how storytelling builds emotional connection and brand memorability across platforms and integrate with the marketing mix concept.
5. Integrate story telling concept marketing as the Story's Voice	Participants set learning objectives to solve the case problem. For instance, to resolve the issue, they needed to master the 4Ps of marketing: product, price, promotion, and distribution
6. Self-directed learning - Reflect on Impact and Strategy	Digital storytelling materials helped participants explore similar cases. Have students analyze how their story communicates the marketing mix and influences consumer behaviour.
7. Peer Review	I. Students present their digital stories and receive feedback using rubrics focused on: II. Clarity of marketing mix integration https://www.canva.com/design/DAGmpM40lt0/zXfx2sh1JE5_NbZdUkaGEg/edit
8. Post-Test 1	All participants took Post-Test 1. It showed improvement, but participants still fell short of the standard.
9. Cycle 2	Digital storytelling materials were enhanced with digital notes.
10. Post Test 2	All three previously underperforming participants met the required standard.

This study's process was adapted from the Maastricht Problem-Based Learning Seven-Jump Model by Schmidt [12]. The rationale for selecting this model during the implementation phase lies in its systematic steps. Collaborative learning was practiced, with the fifteen study participants divided into five groups. Each participant was given the freedom to choose their own group. The lecturer acted as a facilitator, analyst, consultant, and peer [15]. Table 2 presents the Implementation process.

7. Quantitative Data Collection Method

The data collection method used by the researcher is based on the analysis of post-test results following the implementation of the digital storytelling technique. This was done to observe the impact of applying digital storytelling within the action plan that was carried out.

7.1 Data Analysis

a) Preliminary Survey – Pre-Test, Post Test 1 & Post Test 2

The pre-test was conducted during a tutorial class before the digital storytelling technique was introduced to 15 students. The test was a case study consisting of 5 subjective questions, which had to be completed within 30 minutes. Based on the results of this test, the score means only 48%. All students were selected as the target group for the study. These students were then introduced to digital storytelling. The performance of the target group in the pre-test, Post Test 1& Post Test 2 is presented in Table 3.

Table 3

Score means for pre test, post test 1 & post test 2 among Individuals

Cycle One	Pre-Test	Post-Test 1	Difference
	48%	74%	26%
Cycle two	Post-Test 1	Post-Test 2	Difference
	74%	86%	12%

Summary of Comparison Between Pre-Test, Post-Test 1, and Post-Test 2

Table 3 presents the comparative score data between the pre-test and Post-Test 1, showing positive results and an improvement in the target group's performance after applying the "Digital Storytelling" technique. The findings indicate that this technique can enhance the performance. In Cycle One, all 15 students (100%) in the study showed an increase in scores in Post-Test 1. However, the score means (74%) the set standard required the score means should achieve above 85%. Therefore, a second cycle was implemented, and in this cycle, a significant improvement was observed among the target students.

b) Qualitative Data Collection Methods

Qualitative data collection methods are based on interview and observation instruments. According to Sharan [13], three main techniques commonly used in qualitative research are interviews, observations, and documents. Fundamentally, these techniques depend on the research objectives set. Eikeland (2001) states that employing multiple data collection methods can enhance the reliability and validity of the research.

The researcher employed thematic and coding approaches to analyze the qualitative data. According to Boyatzis [2], the thematic approach is used to identify, analyze, and report themes involved in the phenomenon.

The target data for the study was analyzed through interviews with five students, selected using systematic sampling with an interval of three based on their matriculation numbers. The interview data was analyzed using thematic analysis. In accordance with research ethics, all samples were labeled as m1, m2, m3...m5 to protect the identity of the study participants. The researcher also conducted observations of each participant involved in the study by completing an observation form for each teaching and learning session carried out.

7.2 Thematic Analysis

Thematic analysis is a method used to detect patterns and identify themes from data collected by the researcher [2]. The data is analyzed by identifying similar statements and labelling them with codes, as suggested by Braun and Clarke [2]. Findings from the interviews reveal a relationship between the storytelling technique and students' memory retention and performance, based on four themes as listed in Table 4.

Table 4

Codes for the effectiveness of digital storytelling technique

Code	Theme
I enjoy listening to stories	Cognitive
I find it hard to remember complicated facts	
I can easily remember facts via stories telling	
Group discussions help generate better ideas	
We contributed ideas to other group members	Teamwork
I felt happy when my explanation was accepted	
The storytelling method truly sparked my curiosity	
This is something I want to explore further	Interest
I'm interested to learn more	
The new explanation made me realize the product cycle is like human life	Experience
Experience helped me understand the concept effectively	
I was able to identify facts accurately	

8. Reflection and Conclusion

The shift in participants' attitudes from passive to positive represents a significant transformation. The participants began to critique characters and storylines in the digital storytelling materials, which the researcher interprets as the emergence of critical thinking. This finding aligns with Mayer's [11] Cognitive Theory of Multimedia Learning, which posits that individuals learn more effectively through multimedia that integrates text, images, sound, and animation.

In terms of process, the findings indicate that this technique can enhance the performance. In Cycle One, all 15 students (100%) in the study showed an increase in scores in Post-Test 1. However, the score means (74%) the researcher felt that the score means should achieve above 85%. Therefore, a second cycle was implemented, and in this cycle, target results was obtained. This outcome addresses Research Question 1 and Research Question 2, confirming that the digital storytelling technique helps participants recall facts and concepts related to the marketing mix. The

technique is suitable for stimulating memory and integrating knowledge to solve case study problems, thereby improving academic performance.

Positive responses from participants during interviews prompted the researcher to reflect on the potential of developing more comprehensive digital storytelling materials covering broader topics in business management for future reference.

8.1 Strengths and Weaknesses

a) Strengths and Weaknesses

The strength of the digital storytelling technique lies in its ability to help participants remember facts and concepts in a more creative way, encouraging inquiry and motivating students to engage in self-directed learning. Today's students tend to spend hours browsing the web without a clear objective, a phenomenon that raises concerns among psychologists. This behavior may lead to Attention Deficit Hyperactivity Disorder (ADHD), characterized by difficulty focusing. David M. Levy [4], a computer science expert from the University of Washington, also noted that excessive web browsing can lead to symptoms of "popcorn brain," where cognitive sharpness is diminished.

Digital storytelling promotes active learning and employs a student-centered inquiry approach. It encourages exploration, investigation, questioning, reflective thinking, and the discovery of new knowledge [17]. Through this technique, students not only gain a better understanding of marketing mix concepts and facts, but also enhance their thinking, communication, creativity, and decision-making skills in solving case-related issues. However, this technique requires time and may be constrained by a packed teaching schedule.

9. Conclusion

Digital storytelling has the potential to improve students' memory retention of marketing mix concepts and help them better understand related issues. This finding is consistent with Yanbiao [14], who stated that memory is the foundation for acquiring large amounts of new knowledge. Initially, digital storytelling was introduced to students who had not achieved Grade A in this study. However, the positive impact observed through research findings and changes in student attitudes was significant. Students became more active in providing comments, support, and justifications in completing their tasks. These findings confirm that learning is not linear; knowledge is constructed through new experiences. Therefore, the researcher intends to expand the use of digital storytelling to all students enrolled in the Business Management subject and encourage students to create their own digital artifacts.

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