The Effectiveness of Edutainment Short Film as an Educational Tool for Film Study Program at Malaysia Polytechnic

Siti Salwa Bahari

***Abstract* –Malaysia's Technical Vocational Education and Training (TVET) system is a crucial component of the country's education and economic development. It aims to produce highly skilled individuals who are equipped to meet the demands of the industry. Polytechnic, as one of the TVET institutions in Malaysia, plays a vital role in preparing graduates that are proficient in three main domains of learning: cognitive, psychomotor, and affective. Even though most polytechnic students excel in their hands-on learning, a few may face challenges in memorizing and understanding specific theoretical concepts. Due to this issue, instructors faced a significant challenge when students were unable to apply the theory to their practical assessments. Preliminary research shows that film study students have trouble recalling and understanding technical and artistically sophisticated film theory. This is due to their initial exposure to the field. Consequently, this will have an impact on the academic performance of students in Course Learning Outcomes (CLO) that pertain to the cognitive domain. To overcome these issues, polytechnics have implemented a more effective learning environment and approach by including edutainment short film into their teaching and learning practices. This study aims to investigate the effectiveness of using edutainment short films titled "Mise-en-Scene" as a teaching tool to improve memory recall, understanding and attention among film study students in polytechnic Malaysia. This study has used quantitative methods involving a descriptive questionnaire as an instrument. Questionnaires are distributed to students from two polytechnics in Malaysia that offer film study programs. The results show that short films can boost students' memory, theory understanding, and attention while learning. The finding would improve TVET teaching and learning experiences for educators and students in order to improve student achievement.**

***Keywords* – Edutainment, Short film, Malaysia Polytechnic, Course learning Outcomes (CLO), Film study, Technical and Vocational Education and Training (TVET)**

I. INTRODUCTION

The Technical Vocational Education and Training (TVET) system plays a crucial role in both the education system and the economic development of the country (Yeap et al., 2021). The implementation of Outcome-Based Education (OBE) in polytechnics is a notable methodology that centres on clearly defining the targeted learning outcomes and ensuring that the entire educational process is aligned to successfully attain these outcomes. The OBE approach focuses on individuals as the focal point of their own learning and emphasises the achievement of specific goals. (Malini et al., 2017; Zhe et al., 2022). The initial phase of Outcome-Based Education (OBE) involves attaining the Course Learning Outcomes (CLO). At this phase, the learning objectives assessed prioritise the three primary domains: cognitive, psychomotor, and affective. The cognitive domain refers to the acquisition of knowledge and understanding, the psychomotor domain involves the development of physical skills, and the affective domain focuses on the development of attitudes and values. It is essential for polytechnic institutions to ensure that their graduates excel in all three domains to meet industry demands and contribute to the country's development.

As one of the most well-known TVET institutions in Malaysia, polytechnic also adopts this education framework. While most polytechnic students excel in their hands-on learning, a few may face challenges in memorising specific theoretical concepts. In addition, educators faced a significant challenge when students were unable to understand certain theories, which affected their practical assessment. The result of this phenomenon will influence the students' performance and have a negative impact on CLO achievement. Some educators may face an imbalance in performance between the cognitive, psychomotor, and affective domains. To overcome this issue, a new approach to teaching and learning should be implemented in the polytechnic education system. Considering the Malaysian setting, TVET is undergoing changes to include recent instructional approaches, such as e-learning, as well as the creation of mobile application frameworks that align with competency-based education (Taylor et al., 2022; Rahman et al., 2021). The purpose of these improvements is to guarantee that TVET remains relevant and aligns with the requirements of the contemporary workforce in the 21st century.

Poor student performance in exams has become an issue for educators. Polytechnic students tend to achieve better results in technical assignments than in theoretical assignments. Achievement in learning outcomes is also lower in the cognitive domain compared to other domains. This will affect the overall achievement of a course. If students are unable to understand the theory taught, this will cause them to be unable to complete their practical assignments. Students also pay less attention to class sessions if they are conducted as lectures. This causes them to not be able to learn well the content of lectures and theories taught by lecturers. Students' focus in class can have an impact on their achievement (Kun, 2023). Thus, from the issues raised, it shows that students in higher education need an approach to improve their retention, understanding and

Siti Salwa Bahari, University Utara Malaysia, Malaysia (siti_salwa_bahari@ahsgs.uum.edu.my)

focus while learning in order to overcome their performance issues. By aiming to improve students' memory recall, understanding and ability to focus, it is found tha the approach of edutainment tools is the best methodology that can stimulate enjoyment while studying for the students.

Edutainment is a concept that combines educational and entertainment components to produce an interesting and enjoyable learning experience. The approach highlights the combination of education and entertainment, enhancing the experience of gaining knowledge by making it enjoyable and exciting (Othman et al., 2022). A study by Dzinamarira et al., (2022) found edutainment in various forms such as music, roadshows, television dramas, community dramas, comics, animations, radio, and film, all of which can be infused with informational messaging. Previous studies stated that films can be utilized as a pedagogical method in various fields (Hitt & Lennerfors, 2022; Alexopoulos et al., 2021). As supported by the study of Bozeman et al. (2022), short films, even those focused on conservation, can be engaging and persuasive, serving as powerful tools for generating support and conveying messages to audiences. For instance, research by Moreno and Mayer (2002) demonstrated that well-designed multimedia presentations, including short films, can facilitate deeper learning and improve students' retention of information. The visual and auditory elements in multimedia materials can help students construct mental models of the content, leading to better understanding and recall. From these findings, this study suggests that short film could be one of the best innovations that can be integrated into the educational process.

The use of short film could bring a lot of advantages by leveraging the immersive power of storytelling. A study by Tour et al. (2022) and Endriani et al. (2020) stated that short films can be categorised as edutainment due to their utilization as stimuli in psychological and educational research. Furthermore, short films can be considered as edutainment, as they are used for educational purposes and can effectively convey a theme in a short amount of time (Lale, 2012). However, some critics may argue that edutainment tools may distract students from the actual learning content and focus too much on entertainment value. While this concern is valid, it can be addressed by ensuring that the educational content is effectively integrated into the entertainment component. By carefully selecting and designing edutainment tools that strike a balance between engagement and educational value, students can have an enjoyable learning experience while still acquiring the necessary knowledge and skills.

Polytechnic Tuanku Syed Sirajuddin has produced the bar for educational filmmaking with their remarkable 10-minute short film, titled "Mise-en-Scene,". Produced by a group of experts from Polytechnic Tuanku Syed Sirajuddin, this cinematic short film serves as an invaluable educational tool for teaching the intricacies of Mise-en-Scene theory. The short film opens with the CLO explanation before it starts. By implementing the storytelling concept, this short film is about a couple having a date, but suddenly something happens to them. While the actors are acting, the elements of Mise-en-Scene are explained through the use of script, dialogue, production design and visual editing. One of the film's standout features is its ability to vividly bring Mise-en-Scene elements to life. From lighting and set design to costumes and blocking, each element is thoughtfully demonstrated within the narrative. This visual representation goes beyond theoretical understanding, providing students with a practical and immersive learning experience. The aim of this short film is to give students a deep understanding about Mise-en-Scene theory, including definition, example, elements, usage and function for film production.

This study will assess the efficacy of the Mise-en-Scene short film that has been screened as teaching material for film study students. The objectives of this study are:

1. To analyze students' ability to memorise theory through Mise-en-Scene short film.
2. To analyze students' ability to understand theory through Mise-en-Scene short film.
3. To analyze students' ability to focus while learning through Mise-en-Scene short film.

This study contributes to the students, educators, institutions of polytechnic and educational system as well. For students, the use of short film is beneficial to their theory recall and understanding, attention and excitement while studying. By delivering lessons through narration in the short film, educators can also save time in giving lectures and explain a lot about the theory since the short film is flexible and can be watched anytime and anywhere. It could also be watched again and again without any time constraints. The use of short film proves that students can increase their memorizing and understanding, and it will help them perform in their examinations, thereby improving the cognitive learning outcome of the course.

In order to produce excellent-quality Malaysia polytechnic graduates to meet the country's human capital needs, this study could introduce a new teaching approach to the polytechnic education system that can also be utilized across various educational domains making them versatile and effective tools for conveying educational messages.

II. PROBLEM STATEMENT

According to Che et al. (2019), the achievement of graduates at Polytechnic Malaysia is less satisfactory. Siti et al., (2019) also agreed that TVET polytechnic students face challenges in improving their learning achievement. These challenges may raise from various factors, such as inadequate resources, outdated curriculum, and limited industry exposure. Additionally, Che et al. (2019) suggested that the lack of integration between theoretical knowledge and practical skills may contribute to the less satisfactory achievement of polytechnic graduates in Malaysia. From the studies, it is find that polytechnic Malaysia is facing challenges in providing the best education environment for the students. Therefore, it is crucial for TVET institutions especially polytechnics in Malaysia to address these challenges and improve the learning experience for their students. This can be done by investing in updated resources and revising the curriculum to align with industry needs. By bridging the gap between theory and practice, polytechnics can better prepare their graduates for the demands of the workforce and enhance their overall learning achievement.

Based on the findings for the Continuous Quality Improvement (CQI) of polytechnics, it is reported that the achievement percentage in the Film Study Program is slightly low for the cognitive domain. Most of the students only performed well in the psychomotor and affective domains. In the report for quality improvement, majority of the lectures summarize that the reason is that students score very low in their quizzes and test assessments due to their low ability to memorise what they have learned. Moreover, in the course related to the final examination, film study students usually get a lower mark compared to their practical mark. Hence, this affected the percentage of CLO that measured the cognitive domain of the students. By addressing this issue, the polytechnic education system must improve their learning style to make sure that polytechnic students are not only equipped with skills but also need to be good in cognitive.

A recent study reported that the reason for students' failure to attain excellent academic performance is their lack of comprehension of the learning process and their own learning style (Che et al., 2019). This lack of understanding affected their ability to retain information, apply critical thinking skills, and achieve high grades in their academic pursuits. Furthermore, the study found that students who were able to identify their learning style and develop effective study strategies were more likely to excel academically. These findings highlight the importance of providing students with guidance and resources to enhance their understanding of the learning process and support their individual learning needs.

Traditional lectures are often criticised for being one-sided and passive, with students being passive recipients of information rather than active participants in their own learning. In today's fast-paced and technology-driven society, students are accustomed to interactive and engaging forms of learning. As a result, traditional lectures are seen as outdated (Hortsch, 2015) and ineffective in capturing and maintaining students' attention, promoting critical thinking, and fostering deep understanding of the subject matter. In the context of higher education, a mixed method (student-centred and teacher-centred) has been suggested as the best teaching approach (Bidabadi et al., 2016). Students need something that can engage them actively while learning. The effectiveness of the teaching and learning process in the classroom is closely linked to students' full attention and their ability to respond to ongoing activities (Matthew & Nasri, 2022). Kun (2023) found that students' focus in class can have an impact on their achievement. Thus, it shows students in higher education need a new approach to improve their focus while learning. Additionally, improved focus allows students to effectively manage their time and allocate their cognitive resources to the task at hand, reducing distractions and increasing productivity in their learning process.

In order to solve these problems, it is crucial for educators and institutions to provide comprehensive guidance and support to students in understanding their learning process and identifying their unique learning style. It is to help students gain the necessary knowledge and skills to effectively utilise study techniques that align with their individual needs, leading to improved academic performance. Additionally, introducing a new approach to teaching and learning into the curriculum can further enhance students' understanding and retention of information, enabling them to apply critical thinking skills more effectively in their academic pursuits. Therefore, this study will explore the efficiency of short films by providing visual and auditory stimulation to the learning process. Furthermore, the integration of education and information in this short film will help them for better understand complex concepts and theories.

III. LITERATURE REVIEW

Edutainment Concept and Applications

Edutainment is a concept that merges educational and entertainment components to produce an interesting and enjoyable learning experience. The approach highlights the combination of education and entertainment, enhancing the experience of gaining knowledge by making it enjoyable and exciting (Othman et al., 2022; Pratalaharja & Dirgantoro, 2021; Aju et al., 2022; Feiyue, 2022). It offers opportunities to improve learner involvement and the development of knowledge. The use of edutainment has been studied in a variety of educational domains, such as music education, language learning, and mathematics, highlighting its potential as a tool for teaching and learning various subjects (Loo et al., 2021). Qian & Clark (2016) used quiz games to teach academic concepts and skills through games. They used quiz games to teach math facts and processes. On the other hand, Wang et al. (2022) used games to teach (science, technology, engineering, and math) STEM education. Although edutainment applications are mostly intended for education, there is a significant lack of research that examines the integration of edutainment in higher education in the context of TVET institutions.

Higher education is primarily concerned with the transmission and development of knowledge at advanced levels of learning and research. In this context, the education method could be an innovation for the education system. Cheong (2023) stated that education has been investigated as a strategy to stimulate advanced cognitive abilities and increase student involvement in several academic fields, such as mathematics, language acquisition, and social studies. Feiyue (2022) also supported the idea that education has been recognized for its potential to improve student learning outcomes, increase student engagement, and foster a positive learning environment. Furthermore, Cheong (2023) highlighted that the incorporation of innovative teaching methods and technologies in education can enhance critical thinking skills and promote problem-solving abilities among students. Additionally, Feiyue (2022) emphasised that education can also play a crucial role in developing students' creativity and fostering their ability to adapt to an ever-changing world.

Edutainment in higher education is a dynamic teaching and learning technique that utilizes entertainment components to generate engaging and successful learning experiences for students. The application of this technology is applicable in a wide range of educational settings, providing chances to improve student involvement, drive,

and acquisition of knowledge. For higher education, it has been found that edutainment has been studied in the fields of medical education (Ghanbarzadeh et al., 2021), engineering (Cavinato, 2021), business education (Beck, 2021), psychology (Barr, 2021), and tourism and hospitality (Tussyadiah, 2021). For example, in the field of medical education, Ghanbarzadeh et al. (2021) used edutainment techniques to teach complex medical concepts through interactive simulations and virtual reality experiences. In the field of engineering, Cavinato (2021) incorporated edutainment elements into hands-on laboratory activities to make the learning process more engaging and enjoyable. Similarly, Beck (2021) utilised edutainment methods in business education by creating interactive business simulations and gamified learning experiences. These examples demonstrate the diverse ways in which edutainment can be applied in higher education to enhance student engagement and learning outcomes. The studies have shown that using edutainment in higher education can significantly increase student motivation by making the learning process more enjoyable and interactive. Furthermore, incorporating edutainment into education can also enhance critical thinking skills and problem-solving abilities among students. By presenting educational content in a fun and entertaining manner, students are more likely to actively participate in class discussions and retain information for longer periods of time.

Although there are several studies on the use of edutainment conducted in several fields of higher education, there is still less research conducted on the use of short films in the field of film. This study will analyse the suitability of short films as the medium of education for film study program in polytechnics. The efficiency of the short film will give a new perspective regarding implementing edutainment in the TVET education system. This innovative approach to teaching can ultimately contribute to the overall success and academic achievement of students in TVET institution.

Short Film in Teaching and Learning

Short films are a unique form of visual storytelling that encapsulate a narrative, theme, or idea within a limited duration. The elements of a short film encompass various technical and aesthetic aspects. According to Bobker (1969), a good short film harmonizes technical elements such as camera work, lighting, sound, and editing with aesthetic elements from the actors, directors, and film crew. A short film is a concise cinematic work that has a restricted duration, usually under 20 minutes. It aims to convey information about a certain subject or theme, generally employing methods such as handheld camera work and continuity editing (Sari et al., 2020). It can be defined by its capacity to capture unique characters and memorable narratives within a limited duration. Short films created a notable impact on the development of the film industry, especially during the modernization period of cinema. As this type of film is short in duration, short films, as compared to feature films, may be seen numerous times in a row more effortlessly. Serialised short films on the same subject provide viewers with the chance for prolonged engagement without straining their attention spans (Bozeman et al., 2022).

Besides entertaining, short films can also be used to deliver education. Thus, this kind of media is also part of edutainment. The revolution in the film industry has changed the role of short films. Hence, short films are also used in many fields, such as advertising, social media, and education. Short films have become a powerful tool for advertisers to convey their messages in a concise and impactful manner. They are able to capture the attention of audiences with their creative storytelling and visually stunning techniques. Additionally, short films have also found their place in the field of education, where they are used as effective teaching aids to engage students and enhance their understanding of complex concepts.

A study by Tang et al. (2021) found that the use of films enhances students' memorisation, comprehension, and creativity in the learning process. Additionally, previous research has shown that the use of animated films has a positive impact on listening and learning, which further supports the idea that visual media can be beneficial in educational settings (Bujangga, 2022). Furthermore, the effectiveness of film in teaching and learning has been recognized in various contexts, such as improving students' reading comprehension in narrative texts and enhancing vocabulary among vocational school students (Wela et al., 2023, Romadhon et al., 2022). Moreover, the use of film has been found to increase students' learning motivation, as evidenced by the development of a math textbook using a realistic mathematics education approach (Alim et al., 2021). Additionally, the study by Moundy et al. (2022) revealed that the identification of students' needs led to the conclusion that they are interested in learning through active teaching and learning methods, through the integration of ICT tools, and using a textbook (Moundy et al., 2022). This study suggested that incorporating film into educational materials aligns with students' preferences for active learning methods.

Therefore, several research have shown evidence in supporting adopting films into educational environments, especially when it comes to conveying scientific principles. Research has demonstrated that films can improve students understanding, memory, and motivation, making them an excellent tool for educators.

Edutainment Short Film "Mise-en-Scene"

A group of skilled film expert from Polytechnic Tuanku Syed Sirajuddin, including talented directors, cinematographers, and production designers, developed the Mise-en-Scene short film in 2022. The team employed various techniques, such as precise lighting setups, meticulous set design, and thoughtful costume choices, to accurately illustrate the different elements of Mise-en-Scene. By involving professional experts in the development of the film, it can ensure that the Mise-en-Scene short film provides an authentic and comprehensive learning experience for film study students.

The short film opens with a learning outcome explanation before the it starts. By implementing the storytelling concept, the short film combines some elements of the instructional video structure with the drama plot structure. While the actors are in their acting phase, the elements of Mise-en-

Scene are explained through the use of script, dialogue, production design, and visual editing. One of the specialties of this short film is the delivery of Mise-en-Scene theory in the form of acting. From lighting and set design to costumes and blocking, each element is thoughtfully demonstrated within the narrative and script. This visual representation goes beyond theoretical understanding, providing students with a practical and immersive learning experience. The aim of this short film is to give students a deep understanding of Mise-en-Scene theory, including definition, example, elements, usage, and function for film production. Through this short film, students learn how manipulation of Mise-en-Scene elements can achieve particular emotional in film production. They gain visual literacy—understanding how creative choices impart significance.

Synopsis: A short film in the drama genre tells the story of a couple of lovers enjoying dinner at an exclusive restaurant. The man in this scene wants to propose to his girlfriend during the dinner. While he was handing out a ring to his girlfriend, suddenly something unexpected happened. Along the drama, the elements of Mise en Scene is explained by a character in the short film.

Achievement: This short film has won third place in the innovation learning competition for the CIDOS Inspiring Learning Awards (eDOLA), 2023. It was organized by the Center for eLearning and Teaching (CeLT), under the purview of the Instructional and Digital Learning Division, Department of Polytechnic and Community College Education, Ministry of Higher Education Malaysia. This competition is aimed at promoting e-learning among polytechnics and community colleges.

Figure 1. The Introduction of Mise-en-Scene Short Film

Figure 2. The Acting Part in The Short Film

Figure 3. The Instruction after the Short Film

Short Film in Education

According to Dae et al. (2020) research, the utilization of short films in educational settings has been shown to enhance students' emotional and cognitive stimulation, as well as their active participation and reflective thinking, ultimately leading to improved learning results. In previous research, Hitt & Lennerfors (2022) and Alexopoulos et al. (2021) found that films have the potential to be utilized as a form of instruction in a variety of professional domains. In accordance with the findings of Bozeman et al. (2022), it has been demonstrated that short films, especially those that are centered on conservation, have the potential to be captivating and convincing, making them effective instruments for gathering support and communicating messages to audiences. Based on these findings, the research reveals that short films are among the most effective innovations that may be incorporated into the process of teaching and learning.

The use of short films could bring a lot of advantages by leveraging the immersive power of storytelling. A study by Tour et al. (2022) and Endriani et al. (2020) stated that short films can be categorised as edutainment due to their utilization as stimuli in psychological and educational research. Furthermore, short films can be considered edutainment, as they are used for educational purposes and can effectively convey a theme in a short amount of time (Lale, 2012). In her study, Lale highlighted that short films contribute to effective teaching, such as creating a brief and focused story, exemplifying the way the subject is used, and establishing connections with previous teachings.

Additionally, short films have the ability to engage viewers through their visual and narrative elements, making the learning experience more enjoyable and memorable. This is particularly important in educational settings where attention spans may be limited, and traditional teaching methods may not effectively capture students' interest. By incorporating short films into the curriculum, educators can provide a dynamic and interactive learning experience that enhances students' understanding and retention of the material. Moreover, the use of short films allows for flexibility in teaching, as they can be easily integrated into lesson plans and adapted to different learning styles and abilities. Overall, the incorporation of short films as educational tools can revolutionize the way students engage with and comprehend academic content.

For instance, short films have been found to encourage

exchanges and provoke emotional reactions in learners, which in turn promotes memorisation and learning (Milcent et al., 2021). Additionally, research found that even short conservation films can be engaging and persuasive, serving as powerful tools for generating support and promoting memorisation among audiences (Bozeman et al., 2022). The majority of scholars have proposed and proved that short films can improve memory. Samson et al. (2020) explained that integrating visual appealing and emotionally relevant information in short films can engage cognitive abilities, leading to impactful messages that shape people's actions and their general well-being. Bozeman et al. (2022) found that, compared to feature films, short films may provide viewers with opportunities for extended engagement without taxing attention spans. From this perspective, it clearly shows that film benefits in enhancing emotional and cognitive abilities and can grab viewers' attention because the duration is only between 10 to 30 minutes. Thus, short films could be integrated into the teaching and learning processes as one of the modern teaching materials.

The production and application of short films for educational purposes have become increasingly popular in recent years. Short films offer a unique and engaging way to convey information and concepts to students of all ages. Additionally, they allow educators to present complex topics in a concise and visually stimulating manner, making it easier for students to grasp and retain the information being taught. For instance, short films have been utilized as an instructional technique to enhance foot care awareness among individuals with diabetes, showcasing their capacity to proficiently convey health-related information (Menezes et al., 2022). Furthermore, short films have been employed as a means to combat bullying and advocate for teenage reproductive health, demonstrating their adaptability in tackling societal concerns and encouraging constructive conduct (Ratni et al., 2023; Susanto et al., 2020).

In conclusion, the use of short films in education has been found to enhance critical thinking skills and foster creativity among students. By presenting real-life scenarios and thought-provoking narratives, these films engage students on a deeper level, encouraging them to analyse, reflect, and problem-solve. Overall, the versatility of short films as an instructional tool makes them an invaluable resource in various fields, facilitating both learning and positive behavioural change.

TVET and Polytechnic Education System in Malaysia

TVET in Malaysia defines a specialised educational system that provides practical training in accordance with industry norms, aiming to develop a skilled workforce in line with established job criteria (Muhammad et al., 2022). TVET is offered by various institutions in Malaysia, including vocational colleges, public universities, polytechnic, community colleges, and privately owned institutions. (Mohd et al., 2023). The Malaysia Education Blueprint (2013–2025) has established a comprehensive framework for the transformation of Technical and Vocational Education and Training (TVET) in the country. The TVET systems in Malaysia have undergone substantial adjustments to meet the demand for highly trained workers and enhance the educational standards. As one of the TVET institution, polytechnic also must prepare their graduates with necessary skill and the best education. In polytechnic, Student-Centered learning approaches have been used to improve the quality of TVET instruction, and the outcomes have been encouraging and improved student participation (Azlihan et al., 2022). To overcome these problems and successfully implement solutions, Malaysia's TVET and polytechnic education systems can play a significant role in narrowing the skills gap and meeting the labour market's requirements. In polytechnic, they are implementing Outcome Base Education (OBE) since 2010. Outcome-Based Education (OBE) has been emphasized in higher education in Malaysia, particularly through the Malaysian Qualification Framework (MQF) (Leong, 2022). In the OBE system, the learning outcomes of each course emphasize the cognitive (20-30%), psychomotor (45-60%) and affective (15-25%) domains. This value will determine the achievement of Course Learning Outcome for every semester. In an effort to achieve a good CLO, the lecturer needs to ensure that the students perform well in each domain.

Film Study Program in Polytechic Malaysia

Film study program in polytechnics is offered at Polytechnic Tuanku Syed Sirajuddin, Perlis and Polytechnic METRO Tasek Gelugor, Penang, under the Department of Design and Visual Communication. The program name is Diploma in Digital Creative Technology Video Production was previously known as Diploma in Video and Film Study. This program offers educational and training opportunities in the field of video and film studies, with a particular focus on digital technology. The available courses include Fundamentals of Art and Design, Fundamentals of Drawing, Art History, Audio Video Technology, Editing and Compositing, Film Studies, Introduction to Video Production, Acting Directing, Broadcast Studies, Digital Photography, Visual Studies, Digital Imaging, Typography, Event Management, Video Production in Advertising and Drama, Script Writing, and Cinematography. The Video Media Project is a culminating course offered in the last semester, aimed at equipping students with comprehensive expertise to enhance their talents in development. The program aims to provide students with the necessary knowledge and abilities to excel in video and film production within areas such as entertainment, multimedia, infotainment, and edutainment. This curriculum emphasizes the practical use of audio and video technology while also highlighting the underlying ideas and principles of cinematic language. The emphasis is placed on studying and researching local epics, tales, and cultural history in order to cultivate students' understanding and appreciation of these components in their work.

The core courses give a fundamental understanding of creative and analytical thinking as well as design theories, which establish a solid basis in video and cinema studies. The fundamental courses in this subject enable students to investigate, use technical skills, and employ digital media for the production of audio and video. The optional courses from other design fields offer additional benefits in terms of knowledge, creativity, and understanding of the distinctive

qualities and principles of art and design. Students are provided with the opportunity to improve their abilities in many forms of video production, such as creating short stories, documentaries, music videos, and audiovisual editing and compositing. They can also explore creative approaches to video creation by combining different types of content and multimedia. This will provide students with extra value and guarantee that the information and skills obtained via this program are aligned with the requirements of the film industry. Due to the program's focus on self-directed study and practical skills, graduates of this program will be well-prepared to face the demands of the film and television industry.

Conceptual Framework

A conceptual framework is a fundamental structure that provides a detailed outline of the key concepts, assumptions, expectations, beliefs, and theories that underpin and inform research (Mnguni, 2021). In this study, the short film is introduced as a learning approach. The effectiveness of the learning approach is measured by three factors: the ability to memorise, understand, and focus.

Ability to Memorise: The ability to memorise is defined as the ability to remember past experiences, previously learned facts, skills, and habits and retrieve them when needed for current activities. (Tandon et al., 2022). The student's capacity to recall all of the theory in the short film serves as the benchmark for memorising ability in this framework. For example, in a research study on the effectiveness of using short films as a learning approach, students are shown a short film that explains a complex theory. The researchers then assess the students' ability to memorise the information presented in the film by testing their recall of the theory. This assessment serves as a measure of the ability to memorise in this particular framework.

Ability to Understand: The ability to understand is the will and readiness of a person to understand the ideas, symbols, or sounds of language in a reading text tailored to their intent and purpose to obtain the desired message or information. (Budiyono et al., 2020). Pertiwi et al. (2022) described ability to understand as mastery of material in which students recognize, know, and re-express concepts in an easier-to-understand form. This factor is of the utmost importance in education because if students have the ability to understand, it will help them apply it in any situation. In this study, the ability to understand is measured by the ability of students to understand the function of the theory that will help them apply it in their practical assessment. The ability to understand also refers to the comprehension and interpretation of information, concepts, and ideas. It involves making connections, analysing relationships, and deriving meaning from the material presented. In the context of this study, the effectiveness of the learning approach is assessed by the extent to which students can demonstrate a clear understanding of the concepts presented in the short film.

Ability to Focus: Focus refers to the concentration and attention given to the learning material or task at hand. It involves the ability to block out distractions and maintain a sustained level of engagement. The ability to focus is the neurologically based capacity to screen out distracting stimulation, focus on important information, and sustain concentration for an optimal amount of time**.** (Moss et al., 2021). It is a fundamental part of intelligent behaviour, allowing faster acquisition of new tasks and generalizations to novel stimuli (Fleischer et al., 2020). It has been found that, in some cases, students interruption level while learning is due to their learning style and environment. In this study, students' ability to focus is defined as their ability to give full attention to the short film from the beginning to the end. The researchers gauge the students' level of concentration while watching the short film, as well as their capacity to remain focused and attentive throughout the learning process, to assess the effectiveness of the learning strategy.

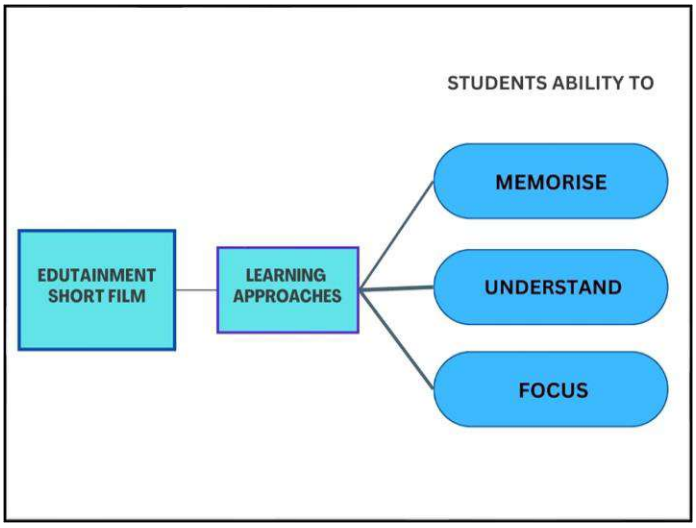

Figure 2. Conceptual framework

IV. METHOD

In this study, a quantitative research approach is employed to investigate the effectiveness of the Mise-en-Scene short film in delivering film theory. The data is collected by using a questionnaire that is distributed through an online Google Form. The target audience of this study were students of the Film Study Program at Polytechnic Tuanku Syed Sirajuddin (PTSS) and Polytechnic METRO Tasek Gelugor (PMTG). The questionnaire consists of questions that assess the participants' understanding of film theory concepts after watching the Mise-en-Scene short film. The collected data will be analyzed using statistical methods to determine the effectiveness of the film in delivering film theory to the target audience. The Mise-en-Scene short film was screened before the survey was conducted. The questionnaire encompassed four sections. Section A is respondent demographic; Section B is designed to obtain data on the respondents' ability to memories; Section C is designed to obtain data on the ability to understand; and Section D is designed to evaluate respondents' ability to focus on the implementation of this short film. The use of a 5-point Likert scale in Sections B, C, and D allowed respondents to express their level of agreement or disagreement. This scale provides a range of options for respondents to choose from, providing more nuanced data. The SPSS software was utilized to analyze the 66 responses

collected during the data collection process. The verbal interpretation is adapted from Ocampo & Normalina (2015) is used to interpret the findings.

TABLE I: ANALYTIC SCORING RUBRICS BASED ON 5 LIKERT POINT

Scale	Limits of Description	Interpretation
5	4.20-5.00	Like Very much/ Very much accepted
4	3.40- 4.19	Like Much/ much accepted
3	2.60- 3.39	Like/ accepted
2	1.80- 2.59	Moderately like/ moderately accepted
1	1.00-1.79	Not like/ not accepted

Adapted from Ocampo & Normalina (2015)

V. FINDINGS

Data collection was conducted via a survey with a questionnaire using a five-point Likert scale (strongly disagree to strongly agree). It is distributed to the students after the short film is screened in the class. The survey aims to gather feedback and opinions from the students regarding their perception of the short film. The Likert scale allows for a comprehensive assessment of their agreement or disagreement with various aspects of the film, providing valuable insights for further analysis and improvement.

Reliability Analysis: The reliability and consistency of the instruments used in this research are analyzed using SPSS software. The reliability analysis using SPSS indicates that the questions used in this study are reliable or stable, with a high correlation of R1 = 1.00 (Nurjana et al., 2022). One of the most commonly used to analyze reliability is Cronbach's alpha. Cronbach's alpha is a measure of reliability that quantifies the proportion of variance in a given measurement that can be attributed to the real score of the underlying concept. The term "construct" refers to the imaginary variable that is being assessed (Hatcher, 1994). Table 2 demonstrates the consistency and reliability of the instrument employed in this study.

TABLE 2: CRONBACH'S ALPHA VALUE

No	Construct	No of Items	Cronbach's alpha
1	Memorise	10	0.775
2	Understand	10	0.796
3	Focus	10	0.818

A higher score indicates a greater level of reliability on the scale. Nunnaly (1978) has suggested that a reliability value of 0.7 is considered appropriate, while lower standards are occasionally employed in the literature. Based on this reference, it may be inferred that the instrument items exhibit a rather high level of internal consistency.

Data Analysis: The demographic part of Section A shows that overall, the 66 respondents involved in this study consist of 41 male and 25 female students. Of the 66 respondents, 46 are from Polytechnic Tuanku Syed Sirajuddin, and 20 are from Polytechnic METRO Tasek Gelugor involving students from semesters 1, 2 and 3. These students are selected based on their enrollment in a course that covers Mise-en-Scene in the course material. The result is shown in the frequency table.

TABLE 3: DEMOGRAPHIC FREQUENCY TABLE

Demographic		Frequency	Percent (%)
Institution	**PTSS**	**46**	**69.6**
	PMTG	**20**	**30.3**
Gender	**Male**	**41**	**62.1**
	Female	**25**	**37.9**
Semester	**Semester 1**	**30**	**45.5**
	Semester 2	**31**	**47.0**
	Semester 3	**5**	**7.5**

Table 4 provides a summary of the findings for Sections B, C, and D.

TABLE 4: DESCRIPTIVE STATISTIC SUMMARY

CONSTRUCT	MEMORISE		UNDERSTAND		FOCUS	
QUESTION	Mean	SD	Mean	SD	Mean	SD
1	4.15	0.808	4.15	0.808	4.44	0.53
2	4.17	0.815	4.17	0.815	4.42	0.583
3	4.11	0.767	4.12	0.775	4.45	0.502
4	4.17	0.776	4.17	0.776	4.91	0.29
5	4.17	0.815	4.17	0.815	4.17	0.815
6	4.17	0.692	4.45	0.502	4.17	0.815
7	4.33	0.687	4.45	0.502	4.11	0.767
8	4.08	0.664	4.53	0.503	4.17	0.776
9	4.42	0.703	4.53	0.503	4.18	0.821
10	4.12	0.734	4.45	0.502	4.91	0.29
Summary	**4.19**	**0.746**	**4.32**	**0.650**	**4.39**	**0.619**

Table 4 represents descriptive statistics for every construct in the questionnaire. In the memorize construct, the mean is 4.19 and the standard deviation is 0.746. According to the statistics, the average indicates that the respondents agree and strongly believe that the short video facilitates their memorization process. To understand the construct, the mean is 4.32 and the standard deviation is 0.65. Respondents mostly agree that this short film gives them an understanding of the theory. For the focus construct, the mean is 4.39 and the standard deviation is 0.619. Based on the value, it shows that the respondents agree that the use of short film helps them to be more concentrated in class while learning. In conclusion, this finding reveals that most of the students agree that Mise-en-Scene short films can enhance students' memorization, understanding, and focus. In summary, the short film serves as a valuable tool for enhancing students' learning experience by promoting effective memorization techniques, facilitating a deeper understanding of complex concepts, and fostering improved concentration skills. Overall result shows that the use of Mise-en-Scene short films has the potential to significantly enhance students' overall academic performance and educational outcomes.

VI. DISCUSSION

The results of this study provide compelling evidence that Mise-en-Scene short films can positively impact students' learning experiences. Specifically, the high mean scores and low standard deviations for the memorize, understand, and focus constructs indicate that students strongly agree that these short films enhance memorization, understanding, and concentration. The memorization findings align with existing research showing that multimedia tools like short films can improve memory encoding and retrieval compared to traditional lectures (Mayer, 2021). When concepts are presented visually alongside verbal narration, students can form richer mental representations. This dual coding facilitates greater retention and recall. Thus, incorporating short films into lessons allows students to memorize key takeaways more effectively.

Likewise, the results related to understanding confirm past studies highlighting how multimedia improves comprehension of complex, abstract ideas (Sorden, 2005). Short films provide contextual visualization that concretizes challenging theoretical principles. The juxtaposition of narrative examples with underlying rules and patterns fosters greater perceptual insight. Students can integrate new information with prior knowledge more successfully. The concentration results, in conclusion, are consistent with research showing that engaging, varied multimedia improves students' attention spans and mindfulness (Wilson & Korn, 2007). The dynamic visual and auditory components of short films are inherently more engaging than static mediums like textbooks. This focused interest enables students to sustain attention on learning tasks for longer periods of time. Overall, this research presents a strong argument in support of implementing short films in instructional settings. The obvious benefits in terms of memorization, understanding, and focus all indicate that short films are a great instructional tool for boosting the learning process. Teachers from all fields should contemplate the deliberate integration of short films due to their proven effectiveness in enhancing student achievement.

VII. CONCLUSION

This study significantly undertakes the identification of the effectiveness of edutainment short film as an educational tool for teaching and learning purposes in polytechnics. To summarize, this study presents compelling evidence that the inclusion of Mise-en-Scene short films in courses may greatly improve students' learning and cognitive abilities. According to the survey results, students perceive that this short film enhances the process of memorizing important information, promotes a deeper understanding of intricate ideas, and enhances levels of focus during educational tasks.

The quantitative results are consistent with existing educational research that supports the advantages of incorporating multimedia and using visual-auditory teaching techniques. The convergence of memorizing, understanding, and attention measurements highlights the significant influence that short films may have on enhancing the processes of encoding and retrieving information, clarifying abstract concepts, and maintaining focused attention. Students possess enhanced abilities to understand information, retain knowledge, and focus their attention when they are exposed to intriguing and relevant short films that supplement the course content.

Instructors seeking to optimize classroom outcomes should strongly consider adopting short films, given their apparent utility. Even brief video clips could serve as a catalyst for boosting memorisation aptitudes, crystallizing difficult material, and capturing student interest.

For further study, it is suggested that this method could be used for other programs in polytechnics in order to investigate the effectiveness of short film to be applied in higher education, especially in the TVET education system. In conclusion, the application of edutainment tools as a medium for conveying theories is both engaging and entertaining to apply in the context of education.

ACKNOWLEDGEMENT

The authors express their gratitude to the production team of the Mise-en-Scene short film, as well as the lecturers and students from JRKV, Polytechnic Tuanku Syed Sirajuddin, Perlis for their invaluable assistance during this research. Additionally, the authors would like to thank the lecturers and students of Polytechnic METRO Tasek Gelugor for providing the chance to carry out this study. This research was not sponsored by any public, commercial, or non-profit organizations.

REFERENCES

Aju, S., Kramer, B., & Lilian, W. (2022). Edutainment, gender and intra-household decision-making in agriculture: a field experiment in kenya.. https://doi.org/10.2499/p15738coll2.136486

Alim, J. A., Hermita, N., Alim, M. L., Wijaya, T. T., & Pereira, J. (2021). Developing a math textbook using realistic mathematics education approach to increase elementary students' learning motivation. Jurnal Prima Edukasia, 9(2). https://doi.org/10.21831/jpe.v9i2.39393

Alexopoulos, E. A., Guinee, E. P., Stewart, K. A., Brown, C. S., Gold, D. T., Engle, D. L., … & Prose, N. S. (2021). keepers of the house: a documentary. The Clinical Teacher, 19(1), 36-41. https://doi.org/10.1111/tct.13439

Aziyati, Ibrahim., Irdayanti, Mat, Nashir. (2022). Demand-supply Mismatch in TVET Academic Programs: What Is It and What Should It Be?. Journal of Technical education and training, http://doi.org/10.30880/jtet.2022.14.02.016

Azlihan, Abd, Aziz., Alias, Masek., Nor, Hannan, Mohamad. (2022). Students' Participation and Motivational Factors in Student-Centered Learning: A Case of Two Malaysian Vocational Institutes. Journal of Engineering Education Transformations, http://doi.org/10.16920/jeet/2022/v35is2/22129

Barr, N. (2021). Using popular music to teach personality and developmental psychology. Psychology Teaching Review, 27(1), 68-76.

Beck, J. (2021). Edutaining audiovisual content boosts

student engagement. E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education (pp. 135-143).

Bozeman, B. B., Condit, C. M., & Grossman, G. D. (2022). Do conservation films generate support for conservation? a case study using transportation theory and hidden rivers. Science Communication, 44(6), 814-842. https://doi.org/10.1177/10755470221141460

Budiyono, S., & Santoso, G. (2020). Efforts to Improve Reading Skills Through the Critical Reading Method for Students of Widya Dharma University on Academic Year 2018/2019.. https://doi.org/10.4108/eai.20-9-2019.2296655.

Bujangga, H. (2022). Improving the listening skills of tadris students in english through the film animation application. Al-Ta Lim Journal, 29(2), 91-98. https://doi.org/10.15548/jt.v29i2.686

Cavinato, L. (2021). Integrating Edutainment with Interactive Teaching: Augmented Reality Engineering Applications. Applied Sciences, 11(11), 5228.

Che, Ghani, Che, Kob., A., Shah., Arasinah., Shangeetavaani, Kannapiran. (2019). Generated Formula based on Index Learning Style among Engineering Students towards Academic Achievement at Polytechnic Malaysia. The International Journal of Academic Research in Business and Social Sciences, doi: 10.6007/IJARBSS/V9-I9/6289

Dae, Ryun, Chang. (2020). Using Films to Achieve Diversity Goals in Marketing Education. Journal of Marketing Education, doi: 10.1177/0273475319878868

Dzinamarira, T., Nachipo, B., Nyathi, A., Madziva, R., Herrera, H., Siegel, H., … & Musuka, G. (2022). The case to scale up edutainment as an effective public health communication intervention to combat the covid-19 pandemic in zimbabwe. Health Promotion Perspectives, 12(1), 34-36. https://doi.org/10.34172/hpp.202

Endriani, M. A., Shaluhiyah, Z., & Laksono, B. (2020). Youtube videos as prevention of risky sexual behaviour in adolescents. Proceedings of the 5th Universitas Ahmad Dahlan Public Health Conference (UPHEC 2019). https://doi.org/10.2991/ahsr.k.200311.020

Feiyue, Z. (2022). Edutainment methods in the learning process: quickly, fun and satisfying. International Journal of Environment, Engineering and Education, 4(1), 19-26. https://doi.org/10.55151/ijeedu.v4i1.

Fleischer, P., & Hélie, S. (2020). A unified model of rule-set learning and selection. Neural networks: the official journal of the International Neural Network Society, 124, 343-356. https://doi.org/10.1016/j.neunet.2020.01.028.

Ghanbarzadeh, R., Ghapanchi, A. H., Blumenstein, M., & Talaei-Khoei, A. (2021). A decade of research on the use of three-dimensional virtual worlds in health care: A systematic literature review. Journal of Medical Internet Research, 23(2), e17996.

Hitt, S. J. and Lennerfors, T. T. (2022). Fictional film in engineering ethics education: with miyazaki's the wind rises as exemplar. Science and Engineering Ethics, 28(5). https://doi.org/10.1007/s11948-022-00399-w

Michael Hortsch (2015) "How we learn may not always be good for us" – Do new electronic teaching approaches always result in better learning outcomes? Medical Teacher, 37:6, 507-509, DOI: 10.3109/0142159X.2014.1001341

Kun, Nurachadijat. (2023). Implementation of the Talaqqi Method in Increasing the Qur'an Learning Achievement of Class 6 Students. doi: 10.55849/attasyrih. v9i1.154

Lale, Kabadayı. (2012). The Role of Short Film in Education. Procedia - Social and Behavioural Sciences, http://org.doi:10.1016/J.SBSPRO.2012.06.657

Leong, D. C. P. (2022). Outcome-based education in open distance learning: a study on its implementation amidst the pandemic. Malaysian Journal of Social Sciences and Humanities (MJSSH), 7(9), e001747. https://doi.org/10.47405/mjssh.v7i9.1747

Loo, F. Y., Chai, K. E., Loo, F. C., & Chua, Y. P. (2021). Exploring synergy in a mobile learning model for piano playing ornaments exercise with local musical heritage. International Journal of Music Education, 40(3), 407-418. https://doi.org/10.1177/02557614211066344

Malini., T, J, Deepak., P., Kannan., P., Venishri. (2017). Outcome-based personalised learning measurement tool for engineering education at INTI International University - INTI OBE tool (IOBET). International journal of continuing engineering education and life-long learning, https://doi.org/10.1504/IJCEELL.2017.10003591

Matthew, M. A. and Nasri, N. M. (2022). Teachers' readiness and knowledge about adhd students among mainstream school teachers: a systematic literature review. International Journal of Academic Research in Progressive Education and Development, 11(3). https://doi.org/10.6007/ijarped/v11-i3/14414

Mayer, R. E. (2005). Cognitive theory of multimedia learning. The Cambridge handbook of multimedia learning, 31(1), 31-48.

Mayer, R. E. (2021). Multimedia learning (3rd ed.). Cambridge University Press.

Menezes, L. C. G. d., Guedes, M. V. C., Oliveira, S. K. P. d., Rocha, R. M., Pinheiro, A. K. B., Silva, L. d. F. d., … & Coelho, M. d. M. F. (2022). Production and validation of the short film pés que te quero®: educational technology for people with diabetes. Revista Brasileira De Enfermagem, 75(5). https://doi.org/10.1590/0034-7167-2021-032920210329

Milcent, A., Kadri, A., & Richir, S. (2021). Using facial expressiveness of a virtual agent to induce empathy in users. International Journal of Human–Computer Interaction, 38(3), 240-252.

Mnguni, L. (2021). Strategies for the development and application of research frameworks in sciences education research. Journal of Educational and Social Research, 11(6), 1. https://doi.org/10.36941/jesr-2021-0123 https://doi.org/10.1080/10447318.2021.1938387

Mohd, Ridhuan, Mohd, Jamil., M., S., Othman., Mohd, Firdaus, Mustaffa, Kamal. (2023). Digital Pedagogy Policy in Technical and Vocational Education and Training (TVET) in Malaysia: Fuzzy Delphi Approach. Journal of Technical education and training, https://doi.org/10.30880/jtet.2023.15.02.001

Moreno, R., & Mayer, R. E. (2002). Verbal redundancy in multimedia learning: When reading helps listening. Journal of Educational Psychology, 94(1), 156-163.

Moss, N., & Moss-Racusin, L. (2021). Attention and. Best Practices in Child and Adolescent Behavioural Health Care. https://doi.org/10.1007/978-3-030-73515-9_11.

Moundy, K., Chafiq, N., & Talbi, M. (2022). A model for scripting and designing a digital textbook. International Journal of Emerging Technologies in Learning (iJET), 17(21), 296-311. https://doi.org/10.3991/ijet.v17i21.34603

Muhammad, Khair, Noordin., M., F., Abdul, Khanan. (2022). Digital Learning in Technical and Vocational Education and Training (TVET) In Public University, Malaysia. Journal of Technical education and training, https://doi.org/10.30880/jtet.2022.14.03.005

Nurjanah, M., Istiningsih, I., & Mangkuwibawa, H. (2022). Analisis Kualitas Butir Soal Pilihan Ganda Tema 7 Indahnya Keragaman di Negeriku Kelas IV Madrasah Ibtidaiyyah. Jurnal Paedagogy. https://doi.org/10.33394/jp.v9i4.5299.

Ocampo, Ronald & Usita, Normalina. (2015). Development of Lubeg (Syzygiumlineatum (Roxb.) Merr.& Perry) Processed Products. 118-123.

Othman, H. S., Zaibon, S. B., & Abidin, A. H. Z. (2022). The significance of edutainment concept in video-based learning in proposing the elements of educational music video for children's learning. International Journal of Interactive Mobile Technologies (iJIM), 16(05),

Pereira, S. and Pinto, M. (2011). Making sense of tv for children: the case of portugal. Journal of Media Literacy Education. https://doi.org/10.23860/jmle-3-2-5

Pertiwi, U., Khuzaini, N., Beneditha, B., Cristin, A., & Clara, F. (2022). I Mind Map Application Needs Analysis to Improve Students' Mathematical Concept Understanding Ability. Al-Hijr: Journal of Adulearn World. https://doi.org/10.55849/alhijr.v1i4.68.

Pratalaharja, E. and Dirgantoro, B. (2021). Re-introducing indonesian traditional games through an interactive multiplayer table game-gobak sodor. Journal of Games, Game Art, and Gamification, 6(1), 27-31. https://doi.org/10.21512/jggag.v6i1.732491-106. https://doi.org/10.3991/ijim.v16i05.23711

Rahman, K. A. A., Jalil, N. A., M.Arsad, M. A., Hashim, S., Rahim, M. B., Yunus, F. A. N., … & Bhd, V. X. M. S. (2021). Development of mobile application framework based on competency-based education for technical and vocational education. Journal of Technical Education and Training, 13(2). https://doi.org/10.30880/jtet.2021.13.02.005

Ratni, T., Setiawan, A. I. B., & Astuti, B. (2023). The development of short film entitled "kursi kosong": media to prevent bullying. Advances in Social Science, Education and Humanities Research, 290-298. https://doi.org/10.2991/978-2-38476-034-3_36

Romadhon, S. A., Indrayanti, I., & Qurohman, M. T. (2022). Animation movies for enhancing vocabulary: a quantitative study among vocational school students. Journal of English Language Learning, 6(1), 121-126. https://doi.org/10.31949/jell.v6i1.2833

Romanenko, Ya. (2020). Methodological Aspects Of Systems Of Internship Students On Practice Of Technology Of Hystology Techniques Of Micropreparations In Course Of Hystology. 208-212. https://doi.org/10.36550/2415-7988-2020-1-189-208-212.

Sari, D., H., Kurniati, S., & Chusyairi, A. (2020). Pembuatan Film Pendek IT In Millennial Daily Life dengan Teknik Handheld dan Continuity Cutting. , 1, 302-310. https://doi.org/10.35746/jtim.v1i4.57.s

Shirani Bidabadi N, Nasr Isfahani A, Rouhollahi A, Khalili R. Effective Teaching Methods in Higher Education: Requirements and Barriers. J Adv Med Educ Prof. 2016 Oct;4(4):170-178. PMID: 27795967; PMCID: PMC5065908.

Sorden, S. D. (2005). A cognitive approach to instructional design for multimedia learning. Informing Science: The International Journal of an Emerging Transdiscipline, 8, 263-279. https://doi.org/10.28945/2337

Susanto, T., Nur, K. R. M., & Astuti, S. Y. (2020). Short film of adolescent reproductive health based on friendly of local wisdom for junior high school in bondowoso. Journal of Community Empowerment for Health, 3(1), 49. https://doi.org/10.22146/jcoemph.48978

Tang, N. T., Nguyen, T. N. T., Ho, T. P., & Nguyen, H. (2021). Students' perceptions of the effectiveness of film making/ trailers: a literature-related extracurricular activity. International Journal of Science and Management Studies (IJSMS), 17-26. https://doi.org/10.51386/25815946/ijsms-v4i6p103

Tandon, D., & Sharma, D. (2022). Effectiveness of Memory Model in Terms of Long-Term Memory of Class IX Students. International Journal of Advanced Research in Science, Communication and Technology. https://doi.org/10.48175/ijarsct-3627.

Taylor, R. J., Gisip, I. A., & Ambad, S. N. A. (2022). E-learning effectiveness amongst sabah student in technical and vocational education training (tvet) institutions. International Journal of Academic Research in Progressive Education and

Development, 11(3). https://doi.org/10.6007/ijarped/v11-i3/14961

Tour, T. D. l., Eickenberg, M., Núñez-Elizalde, A. O., & Gallant, J. L. (2022). Feature-space selection with banded ridge regression. NeuroImage, 264, 119728. https://doi.org/10.1016/j.neuroimage.2022.11972

Tussyadiah, I. P. (2021). Educational technology in tourism and hospitality: A critical review. Journal of Teaching in Travel & Tourism, 21(4), 321-337.

Wang, L., Chen, B., Hwang, G., Guan, J., & Wang, Y. (2022). Effects of digital game-based stem education on students' learning achievement: a meta-analysis. International Journal of STEM Education, 9(1). https://doi.org/10.1186/s40594-022-00344-0

Wela, R., Eliza, E., Dewi, M. P., & Syahrul, S. (2023). The effect of cartoon film toward students' reading comprehension in narrative text at the 9th grade of smpn 2 rao selatan. Alsys, 3(2), 150-156. https://doi.org/10.58578/alsys.v3i2.965

Wilson, K., & Korn, J. H. (2007). Attention during lectures: Beyond ten minutes. Teaching of Psychology, 34(2), 85-89. https://doi.org/10.1080/00986280701291291

Yeap, C. F., Suhaimi, N., & Nasir, M. K. M. (2021). Issues, challenges, and suggestions for empowering technical vocational education and training education during the covid-19 pandemic in malaysia. Creative Education, 12(08), 1818-1839. https://doi.org/10.4236/ce.2021.12813

Zhe, Zhang., Xiaowei, Qian., Zhiliang, Xia., Lianfan, Wu. (2022). Exploration on the Teaching Mode of Design in Higher Vocational Education Based on OBE. Academic journal of science and technology, https://doi.org/10.54097/ajst.v3i3.2935