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TVET in The 21st Century: Exploring Multimedia Elements in Digital Teaching and Learning Based On Art Content

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Abstract: Research in digital teaching and learning (T&L) focusing on multimedia elements based on art content is essential in enhancing the quality of the curriculum delivery. In addition, research on art content in digital T&L for Technical and Vocational Education and Training (TVET) is limited. Thus, this paper explores the elements of multimedia components in T&L for TVET based on art content. Art content refers to the subject matter or the message conveyed by the presentation. The research utilizes the Fuzzy Delphi Method (FDM) as methodology. In the first phase, five experts specializing in multimedia and art were interviewed. After finalizing the interview results, a matrix analysis that combines the literatures finding was developed in order to determine the multimedia elements based on the art content. In the second phase, nine experts, including five from the first phase, validated the elements using the instrument. By using the Fuzzy Delphi Method, average values of m1, m2, and m3, 'd' or Threshold value, expert's consensus and Fuzzy Evaluation were derived from the data. Findings indicates that forty items out of four components which are emotional, subjective, execution, and psychological have been validated by the experts and reach 75 per cent of consensus. In conclusion, multimedia components based on art content in digital T&L for TVET should be utilized as a reference in developing digital content to provide future T&L standards for educators.

Keywords: Digital learning, 21st century, multimedia element, art content, teaching and learning, TVET

1.   Introduction

Art is one of the primary forms of living knowledge that requires expertise and serves as the connection between humans and technology. Mastering the substance of art may develop a generation of competent and intelligent persons who utilize their art knowledge in their everyday lives, especially when making choices and resolving problems (Abdul, Syed, and Rafi, 2017). In contrast, Mayer (2015) defines multimedia as the presentation of text, images, videos, animations, and sounds via the use of computers. Consequently, it facilitates educators' browsing, engagement, production, and communication. In addition, integrating multimedia components in applications created for interactive learning in Technical and Vocational Education Training (TVET) may assist teachers in becoming more efficient in their work with pupils. TVET in the 21st century should be transformed along with the technology advancement. In light of this, the media sector has undergone a fast transformation due to its multidimensional nature. Aside from that, multimedia technology may include the advantages of television as a visual and aural medium, printing technology, and the ability to enhance multimedia technology via computer interaction.

Using technology-based learning methodologies has shown that the modern educational system has undergone rapid development (Joel Mtebe, Mbwilo, Mussa and Kissaka, 2015). The use of educational technology may enhance teaching and learning while saving time, effort, and money since it focuses on essential material of the subjects addressed. Globalization of science and technology and education advancement go hand in hand. Therefore, government intervention is essential to improve the quality and breadth of education supplied to children. Nevertheless, domestic funding usually hinders the accessibility and quality of education. In addition, there needs to be more instructional resources and infrastructure. The educational system must eradicate these impediments.

This research examined how art content is employed in multimedia-based elements to ensure that interactivity may enhance TVET instruction. Interactivity, the reciprocal interaction between students and multimedia components, is demonstrated in how the action system influences students' actions and vice versa. According to Ismail et al. (2021), this concept highlights the interaction between students and the optimal use of learning. In this aspect, multimedia-based materials consist of different media that may be integrated into learning environments and, concurrently, feature characteristics that may interest students in learning activities because they are required to react to provided activities in a meaningful manner (Kirschner, Park, Malone and Jarodzka, 2015). Considering the subject matter and aesthetic context of TVET in Malaysia, this research could generate significant multimedia elements for digital T&L.

2. Problem Statement

Education in the 21st century is a success that can overcome the challenges of digital learning in the classroom, particularly among TVET students, especially when using multimedia components in digital learning. Unfortunately, this success has yet to secure a position in digital T&L and has even become the second or third option. Educators need to mention 21st-century learning aspects throughout the learning session. With the first wave of the Malaysian Education Development Plan 20215-2025 (Higher Education) PPPM and the continuance of its execution, stakeholders have undertaken many activities. Understanding visual art is crucial for students and educators who want to achieve exemplary achievements in TVET at a high level of education. The industrial sector's current expansion needs a workforce with advanced cognitive abilities. The basis of a better education may be strengthened by including art material, leading to academic mastery and the development of creative talents among TVET students in 21st-century education.

The difficulty of learning using media resources is familiar, particularly in visual arts among TVET students. Hence, educators should take proactive measures to promote student accomplishment by understanding 21st-century learning based on artistic material to increase academic achievement based on multimedia components. Particularly in the elements of self-expression (self-expression), visual and tactile experience and sensation, 2D and 3D, visual communication, visual art language, content and message, image, form, content and contact, subject, functional object, aesthetic value, creative characteristics, painters and works of art, the fundamentals of design, and other areas. Education will bring learning resources that are simpler to understand in 21st-century learning via digital learning; consequently, art content is crucial among TVET students today and will further increase their academic level. Abstract art makes it difficult for educators to connect a notion and a new or different concept. Standard errors are made by educators while tackling challenges regarding digital learning in terms of ideas, organization, abilities, and comprehension. Most educators are negligent because, when solving problems in digital learning, they do not emphasize the way and delivery of T&L using art content, even though this concept states that art content can aid students in comprehending and attracting students to learning in the classroom.

Consequently, it is necessary to prioritize art topic mastery to guarantee that students accomplish at a high level. It may affect pupils if instructors can finish 21st-century learning using T&L. To guarantee that the T&L process goes well, the information delivery procedure via this art material has been developed in an ordered and structured way. By designing this investigation, learning techniques and student skills in the form of educational values and technical abilities may be directed critically and creatively. This research has investigated 21st-century learning based on art content for TVET in this study. With the emergence of a digital society, educators must be optimistic about employing visual art ideas in TVET digital T&L programs.

3. Methodology

Design research is an inquiry method that may give researchers reliable and usable data about multimedia assets based on their content and aesthetic context (Ariffin, Yusof, Siraj & Nor, 2018). This research combined multimedia components based on art content in T&L for TVET using the Fuzzy Delphi Method. McNiff (1994) asserts that the objectives will be defined using an appropriate appraisal based on the opinions and consensus of the experts.

Fuzzy Delphi necessitates two steps to be completed. In the first phase, five experts were interviewed to construct the expert's validation instrument. The instrument constructed was based on the thematic analysis in the first phase. In phase two, nine experts were consolidated to obtain a consensus on the instrument. The experts were lecturers with more than ten years of experience. It comprised of four lecturers majoring in fine arts from the art and design department and five instructors of multimedia in information technology in TVET. Each of these experts has previous T&L expertise with multimedia elements. The design of this study was fully qualitative. Figure 1 shows the number of experts in each step of the Fuzzy Delphi technique.
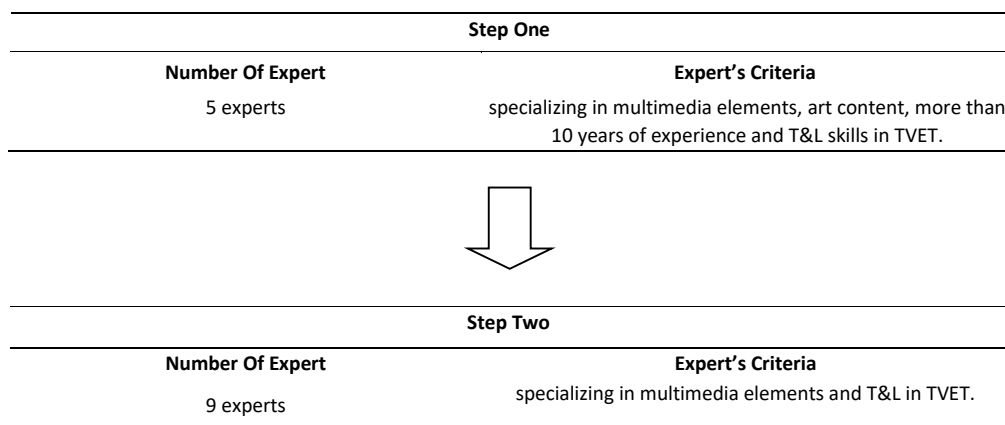
Step One	
Number Of Expert	**Expert's Criteria**
5 experts	specializing in multimedia elements, art content, more than 10 years of experience and T&L skills in TVET.

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Step Two	
Number Of Expert	**Expert's Criteria**
9 experts	specializing in multimedia elements and T&L in TVET.

Fig. 1 - Number of experts in the research

3.1 Respondent Selection Procedure

Step 1: Interviewing Five Experts

Five experts were enlisted for the interview to identify the multimedia elements based on art context and 10 to 25 years of experience regularly dealing with multimedia elements. These experts are also familiar with and have prior experience with T&L using multimedia elements. In addition, they also teach related arts and multimedia courses. The details of the expert are explained in Table 1.

Table 1 - Details of expert information in the first step

Expert	Gender	Age	Experience in T&L	Experience in Teaching using Multimedia Elements
1	Men	35 Years	10 Years	5 years teaching in subject Time-based Media
2	Men	45 Years	25 Years	20 years of teaching the in subject Time-Based Media
3	Women	48 Years	27 Years	21 years of teaching using multimedia elements
4	Men	40 Years	20 Years	20 years of experience in teaching creative multimedia
5	Men	50 Years	30 Years	26 years of teaching in creative multimedia

Step 2: Instrument validation with nine experts

The second phase includes the validation of the instruments developed based on the data gathered from the expert interviews in the first phase. The experts in this phase also met the research criteria:

- have more than five years of experience in teaching.
- are acquainted with the use of multimedia media components in the classroom.
- have implemented technical topics in the learning environment of the 21st century.

Table 2 illustrates the number of experts who participated in the second phase of the Fuzzy Delphi Method.

Table 2 - Number of experts in the research in the second step

Number of Expert	Expert's Criteria
9 experts	specializing in multimedia elements and T&L in TVET.

4. Fuzzy Delphi Technique

The Fuzzy Delphi technique or method has been widely used in Malaysian education (Ariffin, Yusof, Siraj & Nor, 2018). The Fuzzy Delphi Method (FDM) is the modified and enhanced version of the classical Delphi technique. To construct multimedia components based on art content in T&L for TVET, nine experts had to correspond using the Fuzzy Delphi method. The Fuzzy Delphi method was determined to be the most efficient method for obtaining expert approval for the elements developed by the researchers. The primary purpose of the Fuzzy Delphi technique was to gather insightful answers to problems and questions addressed to a team of experts. In addition, the effectiveness of the Delphi technique for identifying the most competent expert could have been more evident. Utilizing the Delphi technique will result in tedious reviewing. More experts should be able to accurately measure and assess a large product utilizing the Delphi

approach. The Delphi technique was created to address the flaws of the original approach. Five experts participated in open-ended interviews during the first phase. In addition to the five first-phase interviewees, four experts validated to the instrument developed in the second phase.

In this research, the interview data was compared with the literature review's results. A matrix analysis was conducted to determine the most substantial elements to be included in the final elements as in Table 3.

Table 3 - Matrix analysis

Theme	Interview Findings	Literature Findings
Emotion	* Students find it difficult to control their emotions if students are not interested in the learning or suis took. Lack of knowledge base in the subject taken can also reduce the emotional interest of students in the classroom. Elements of content and artistic context are not always used in T&L. • Appropriate text size • Brief information • Video featured provides insight. • Clear audio • Attractive images • Unobtrusive animation	*Says that the use of more than seven colours will increase consumer interest in the material presented • Easy to understand the text. • The language used is easy to understand. • Interesting animations. • Assistive audio. (Ketelsen, Janssen and Hamm, 2020)
Senses	* With the senses students will get a clear understanding of a thing or activity done. Therefore, the senses are very important in T&L as an example of the senses of sight, hearing, touch, taste, and smell. In the field of art, this matter is also very important in learning and teaching. • Text color. • Beautiful graphic design. • Audio as background sound. • Videos that enhance comprehension. • Feedback animations. * Senses are important because they can help to form a holistic perception. This perception is also called observation. For the human senses which contain the eyes, ears, nose, tongue, and skin will receive information from stimuli in the environment.	*The benefits of computer-based learning that incorporates video and audio elements involve the use of multiple visual and auditory senses. This scenario can create fun as well as cultivate students' interest in remembering the content of the lesson because it is not boring. • Font type. • Graphics that match the text. • Audio that keeps students' attention • Eye-opening videos • Student engagement animation (Rahim, Sari, Sundari, Aulia and Fauza, 2022)
Subjectivity	*In art this subjectivity is used for an individual who can be counted as an amateur as well as the complexity of the art industry along with individuals who have great influence to determine the direction of existing quality. *Change from traditional learning to modern learning by using current technologies to change the concept of learning in T&L. • Text that conforms to the limits of thought. • Interpretive text.	* The element of interactivity gives users the opportunity to explore multimedia applications in a non-linear manner that is according to their tastes either jumping from one topic to another or skipping some topics that are less requested or less needed. *The screen design of the software developed must have consistency in the arrangement of multimedia elements in order to attract the attention and interest of users while creating a harmonious and conducive atmosphere. • Convincing graphics. • Captivating graphics.

		• Eye-catching audio.
		• Audio that helps in thinking.
		• Exciting videos.
		• Positive videos.
		• Animations for students to explore.
		• Animation gives a new perception.
		(Bozarth, 2021)
Psychology	*Psychology to attract interest in T&L so that students can be guided to recognize their potential and express learning by using multimedia elements. In addition, psychology can also strengthen the interests and talents of students in class. This can encourage and educate students to produce creative and innovative ideas in T&L. • Student perception in the use of text. • Graphics as therapy. • Inspiring audio.	*Text size plays a role in user readability where small and large text sizes are likely to be read more often than the use of large text altogether. *The use of audio can increase motivation among students to be more interested in following a T&L process. • Text that has characteristics. • Graph corresponding to characteristics. • Intelligence in audio. • Video production. • Student evaluation of video. • Convincing characteristics. • Positive animation. (Andreessen, Gerjets, Meurers and Zander, 2021)

Matric analysis is used to study and distinguish between interview findings and literature findings for the development of content-based multimedia element items and art content for TVET.

5. Findings

The validation instrument pertains to creating multimedia elements based on art content for TVET instruction.
According to Muliyadi (2001), the Delphi approach stipulates that if the expert consensus is more than 75 per cent, then each item is either accepted or selected for the research.

5.1 Emotion

After the analysis was made on the items of the instrument, the researcher identified the overall expert validation for emotional items as in Table 4. According to Li, Luo, Zhang, and Shadiev (2020), emotions significantly influence judgment, perception, learning, and other cognitive processes, helping people be more creative and adaptable in problem-solving. In this study, the researcher discovered that emotions play a crucial role in digital learning.

Table 4 - Emotions in multimedia elements

No.	Item	The threshold value, d	Percentage of Expert Group agreement %
A1	Appropriate text size is used with slides	0.135	88.9
A2	The text used is easy to understand	0.112	100
A3	The language used is easy to understand	0.124	100
A4	Information is given briefly	0.124	100
A5	The videos featured help students 'comprehension	0.112	100
A6	The animation used captivated the students	0.050	100
A7	The audio used is clearly understood	0.124	100
A8	The audio used is helpful in teaching	0.112	100
A9	The images used are helpful	0.087	100
A10	Unobtrusive use of animation	0.112	100
Construct Value		**0.109**	**98.9**

The multimedia element exhibited a high level of expert agreement with a threshold value of d = 0.109 and a data group agreement percentage of 98.0 percent for the whole item. In contrast, the proportion of experts in agreement with item A1 was 88.9 per cent, with a threshold value of d = 0.13. Other than that, the overall proportion of issues requiring expert agreement was 100 per cent. However, there was a threshold value difference, with A6 having a threshold value of d = 0.050 and A9 having a threshold value of d = 0.087. For the threshold values of A3, A4, and A7, d = 0.124, while for A2, A5, A8, and A10, d = 0.112. This suggests that experts accept deep-emotion multimedia components.

5.2   Senses

Table 5 shows the percentages of experts' validation and threshold values for the senses in multimedia elements that were responded by an expert who used art content in teaching.

Table 5 - Senses in multimedia elements

No.	Item	The threshold value, d	Percentage of Expert Group agreement %
B1	Attractive use of text colors	0.220	55.6
B2	The use of writing that is easy to understand through the type of information conveyed	0.220	55.6
B3	Use of beautiful graphic design	0.189	88.9
B4	Use a graphic design that matches the text used	0.124	100.00
B5	Use audio as background sound	0.142	100.00
B6	Audio that can keep students' attention	0.203	66.67
B7	The videos displayed can make students more focused	0.142	100.00
B8	Videos that can make it easier for students to understand the learning material	0.096	100.00
B9	Animations that can grab the attention of students	0.202	88.89
B10	Animations that can provide concise information	0.124	100.00
Construct Value		**0.166**	**85.6**

According to Malisu and Saloun (2020), seen by several senses simultaneously, it should be conveyed to various senses in learning. Therefore, these findings are essential to be utilized in learning, especially in digital T&L. In Table 5, 85.6 percent of group validation experts for senses in multimedia components had a threshold value of d = 0.166, suggesting that the inner senses item is entirely accepted. However, the sensations in the multimedia section had a percentage indicating that the expert disagreed with the item. It is demonstrated by items B1, B2, and B6 with expert group agreement percentages of 55.6 percent and a threshold value of d = 0.220. However, item B6 had an expert group agreement percentage of 66.67 percent and a threshold value of d = 0.203, indicating that a group of experts rejected the item for the senses in multimedia elements.

In addition, item B3 had a percentage of expert group agreement of 88.9 percent with a threshold value of d = 0.189. Next, for item B9, the proportion of experts in the agreement was 88.89 percent, with a threshold value of d = 0.202. Except for these items, all items had 100 percent group expert agreement. However, the threshold values varied. it is shown by the item B8 threshold value, d = 0.096. For items B5 and B7, the threshold value was d = 0.142, but for items B4 and B10, the threshold value was d = 0.124.

5.3   Subjectivity

Table 6 shows the items for subjectivity in the multimedia element based on the expert's validation.

Table 6 - Subjectivity in multimedia elements

No.	Item	The threshold value, d	Percentage of Expert Group agreement %
C1	The use of text appropriate to the limits of learning thinking	0.153	100.0
C2	Use of text that follows the description of learning presented	0.153	100.0

C3	Graphic design that makes students more confident in teaching	0.105	100.0
C4	Graphics that match the text can draw students 'feelings to focus	0.156	88.89
C5	Audio as background sound can attract attention	0.123	100.00
C6	Audio that can help the instructor explain to students	0.139	100.00
C7	Videos are able to capture the interest of students	0.139	100.00
C8	Videos that can make it easier for students to be more positive in learning	0.142	100.00
C9	Animations that can convince students to review lessons	0.124	100.00
C10	Animations that can give new ideas	0.104	88.89
Construct Value		**0.134**	**97.8**

According to Table 6, the proportion of expert confirmation was 97.8 percent, corresponding to a threshold value of $d = 0.134$ for all subjective multimedia components. However, there were two items with an expert group proportion of 88.89 percent and a threshold value of $d = 0.156$ for item C4 and $d = 0.104$ for item C10. 100% percent of the remainder of the item had the threshold value for item $d = 0.153$, with items C1 and C2 having the most significant value, $d = 0.142$ for the threshold value of item 08, and $d = 0.124$ for item C9. Aside from that, it was determined that item C3 had a threshold value of $d = 0.105$, item C5 had a threshold value of $d = 0.123$, and items C6 and C7 obtained a threshold value of $d = 0.139$ at the item level. Nevertheless, in the study by Silva, Costelha, Bento, Barata, and Assuncao (2019), the assessment of haptic feedback technology for interactive multimedia against subjectivity in the form of school assessment which is contrast with the finding in this research.

5.4   Psychology
Table 7 shows psychological items in multimedia elements based on the expert's validation.

Table 7 - Psychology in multimedia elements

No.	Item	The threshold value, d	Percentage of Expert Group agreement %
D1	Use of text appropriate to the learning environment	0.050	100.0
D2	Use of text appropriate to the presentation of T&L to students	0.050	100.0
D3	Graphic design as therapy	0.119	100.0
D4	Graphics appropriate to the learning environment	0.087	100.00
D5	Audio as background sound can energize students	0.135	100.00
D6	Interesting audio can provide therapy	0.124	100.00
D7	Videos can improve student assessment	0.112	100.00
D8	Videos that can make students think more actively	0.112	100.00
D9	Animations that can enliven the atmosphere	0.112	100.00
D10	Animation that can give a positive aura to students	0.112	100.00
Construct Value		**0.101**	**100.0**

The expert group's agreement concerning the psychological items in multimedia components was one hundred percent, with $d = 0.101$ for the threshold value derived from construct values. Each item of psychology in the multimedia element received 100.00 percent for the total percentage of expert agreement despite having 63 distinct threshold values. The highest threshold value for item D5 was $d = 0.135$ percent, indicating that the expert-approved the item. Nonetheless, the threshold values for items D1 and D2 were 0.050, whereas item D4 was $d = 0.087$. $d = 0.135$ percent for the threshold value of item D5, and 0.124 percent for the threshold value of item D6. For items D7, D8, D9, and D10, the value criterion was $d = 0.11$ for the remainder. Based on Liu's (2021) research, multimedia has no related psychology. However, psychology is important in digital T&L. This demonstrates that all psychology-related multimedia elements are acceptable in this research.

6.   Discussion

The findings of this research verify Deldjoo, Schedl, Cremonesi, and Pasi's (2020) claim that the use of multimedia elements after the content-based development of art material indicates differences in learning approaches. This is also important to illustrate the usage of art content to improve students' academic achievement during the learning session. In addition, this study verifies the results of Kecojevic, Basch, Sullivan and Davi (2020), who found that academic and vocational students with higher levels of learning obtained greater levels of learning while using multimedia elements than traditional methodologies.

Text, graphics, audio, video, and animation connected to the content and context of art in terms of emotional forms, senses, subjectivity, psychology, implementation, ideas, performances, and events planned for usage in T&L for TVET have been recognized as multimedia components in the research. Table 8 lists the art content that has been validated by experts in the construction of multimedia elements. According to the findings, experts have endorsed the factors evaluated in this research. The total number of items received by the expert group for the construction of multimedia components based on art context can be seen in table 8, which displays the results for m1, m2, and m3, as well as the fuzzy score.

Table 8 - Items accepted by experts for art content in multimedia elements

	Content			
	Emotion	**Sense**	**Subjectivity**	**Psychology**
	m1, m2 and m3	**m1, m2 and m3**	**m1, m2 and m3**	**m1, m2 and m3**
Text	- Text size - Easy-to-understand text - The language used is easy to understand - Brief information	- text color - easy to understand writing	- the limits of learning thinking - learning description	- appropriate text - delivery of T&L
Graphics	- The images used are helpful	- use of graphic design -graphics that match the text	- students are more confident - attract students' feelings to focus	- Graphics as therapy - according to the learning environment
Audio	- The audio used is helpful in T&L	- audio as background sound - maintain student attention	- background noise can attract attention - help the instructor explain	- Invigorating - attract interest
Video	- Videos help students understand	- help students focus more - make it easier for students to understand the learning material	-attracts feelings of interest - facilitate students to be more positive	-increase ratings - active to think
Animation	- The animation used attracts students' interest - Unused animations	-interest - animations that give simple information	- convince students to review the lesson - give new ideas	- enliven the atmosphere - positive aura
Total Construct Value	**0.798**	**0.778**	**0.801**	**0.756**

The selection of the creation of multimedia elements based on art content serve as the foundation for the application of T&L by instructors. According to Rusli, Anam, and Putri (2019), providing T&L materials for students who would confront learning challenges is crucial. Therefore, instructors must understand the accessible multimedia components that have minimal influence on students. Therefore, integrating multimedia components is required so that instructors can build T&L without difficulty. It is hoped that instructors will be able to master T&L difficulties based on art content, thereby increasing student achievement in the subject. The findings also confirm Anwar, Choirudin, Ningsih, Dewi and Maseleno (2019) conclusion that multimedia elements may improve students' academic progress when T&L includes computer-generated resources, such as using multimedia elements as teaching materials. Accordingly, Zain, Yatim, Azizan and Baharum (2020) explain that the incorporation of multimedia components in T&L enhanced students' knowledge and learning comprehension.

This research investigates art-based multimedia aspects in TVET. Investigating multimedia components based on art material was selected since this is the foundation for exploring aspects lecturers employ for 21st-century learning. According to Saifudin and Hamzah (2021), offering students digital learning tools is crucial to confront the challenge of learning. In 21st-century education, instructors must grasp the existing multimedia aspects but have minimal impact on pupils. Hence, creating components is required so instructors can construct digital learning easily. Based on artistic material, instructors are believed to overcome learning challenges by using digital platforms effectively, increasing student subject accomplishment.

Elements such as multimedia components and art content elements are investigated in this research. There is text, graphic, audio, video, and animation components in multimedia elements. There are four art content components, which include emotions, subjectivity, sensations, and psychology. The factors for producing multimedia elements based on art content in digital T&L for TVET have been identified. The results of this research complement the findings of Bachmann et al. (2020), who found a difference in learning techniques between the usage of multimedia components developed based on art content and those not developed based on art content. Research demonstrates that art content assists students in enhancing their academic performance during learning sessions. Furthermore, this investigation validates the results of Razali (2021), who found that the rise in the academic level of TVET students who reach a high level of learning is more substantial for the group of students utilizing multimedia components than for the group of students using conventional techniques and art content. The researcher concluded that creating multimedia components based on art content in digital T&L boosts students' knowledge and comprehension in 21st-century learning. The results of this research are also congruent with those of Foon, Zainudin, Yusop, and Wan Othman (2020), who discovered that multimedia components might enhance student academic achievement when learning and teaching incorporate computer-based resources, such as the use of multimedia elements as instructional materials in TVET. This is very important for future teachers to acquire such knowledge to become professional educators (Ismail *et al.*, 2017).

7.   Conclusion

Future researchers will be able to leverage the development of multimedia elements based on art content derived from this research when dealing with the challenges in T&L. These impediments can serve as a guide and point of reference for instructors and students looking to improve their academic performance in TVET. Furthermore, it encourages instructors to integrate multimedia elements based on art content to create an engaging session thus increasing students' academic achievement (Ahmad, Zakaria, Hassan, Razali, Abd Mutalib, and Bokhari, 2021). To ensure academic success among students, a range of teaching and learning strategies or tactics may be used based on each educator's skill and degree of responsiveness (Quezada, Talbot, and Quezada-Parker, 2020). Using multimedia components and creative surroundings necessitates educators to provide straightforward methods for pupils to comprehend the subject matter. To guarantee that multimedia elements based on art content may be applied successfully during 21st-century learning, the administrator must ensure that students can access multimedia-based learning resources easily. In addition, computer laboratories should be increased to promote academic accomplishment among students and facilitate the learning process among students. Using technology elements in TVET increases students' attention on a certain topic. Based on Yamada and Otchia (2021), the student's motivation is significantly influenced by the capacity of TVET instructors to capture their interest. This research may assist the teacher and learner with technological applications. This study could be expanded to look at different parameters and variables to see how art content affects curriculum delivery. A future study might also evaluate if content-based multimedia features and art background in T&L provide any limitations or impediments to learning. Educators and students may utilize these limitations and difficulties as references and guidance to enhance academic progress in TVET. In addition, it may inspire educators to overcome their deficiencies and enhance their enthusiasm to master multimedia aspects based on art content to promote students' academic achievement.

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