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FOSTERING MOTIVATION IN TVET STUDENTS: THE ROLE OF LEARNER-PACED SEGMENTS AND COMPUTATIONAL THINKING IN DIGITAL VIDEO LEARNING

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Abstract

In recent years, digital video courseware has emerged as an effective tool for enhancing learning experiences, particularly in Technical and Vocational Education and Training (TVET) programs. As technological advancements continue to reshape industries, there is an increasing demand for students to develop both digital competence and problem-solving abilities, such as Computational Thinking (CT). Despite its importance, the integration of CT principles with personalized, self-paced learning approaches, such as learner-paced digital video courseware, has not been extensively explored. This study aims to address this gap by examining how learner-paced predefined segments and CT algorithmic thinking can impact TVET students' perceived motivation. This quasi-experimental study compares two courseware modes: learner-paced and system-paced predefined segments, to evaluate their effects on student motivation. Content delivered in the learner-paced mode allows students to progress through segments at their own pace, while the system-paced mode follows a fixed sequence. The findings from ANOVA analysis revealed that students in the learner-paced mode exhibited significantly higher motivation levels than those in the system-paced mode.

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These results highlight the benefits of integrating self-paced learning with CT strategies, suggesting that such instructional designs can enhance motivation and engagement in TVET education. The study advocates for the adoption of these approaches to improve student outcomes and better equip them with the skills needed for the digital workforce.
Keywords: CT algorithmic thinking; digital video learning; learner-paced predefined segment; perceived motivation; system predefined segment

Abstrak

Dalam beberapa tahun kebelakangan ini, penggunaan bahan kursus video digital telah muncul sebagai alat yang berkesan untuk meningkatkan pengalaman pembelajaran, terutamanya dalam program Pendidikan dan Latihan Teknikal dan Vokasional (TVET). Dengan kemajuan teknologi yang terus membentuk semula industri, terdapat permintaan yang semakin meningkat bagi pelajar untuk membangunkan kedua-dua kemahiran digital dan kebolehan menyelesaikan masalah, seperti Pemikiran Komputasional (CT). Walaupun kepentingannya diakui, penggabungan prinsip CT dengan pendekatan pembelajaran yang diperibadikan dan berasaskan kadar pelajar sendiri, seperti bahan kursus video digital dengan segmen yang ditetapkan mengikut kadar pembelajaran pelajar, masih belum banyak diterokai. Kajian ini bertujuan untuk mengisi jurang ini dengan mengkaji cara segmen yang ditetapkan mengikut kadar pembelajaran pelajar dan pemikiran algoritma CT boleh mempengaruhi motivasi yang dirasai oleh pelajar TVET. Kajian kuasi-eksperimen ini membandingkan dua mod bahan kursus: segmen yang ditetapkan mengikut kadar pembelajaran pelajar dan segmen yang ditetapkan mengikut kadar sistem, untuk menilai kesannya terhadap motivasi pelajar. Kandungan yang disampaikan dalam mod kadar pembelajaran pelajar membolehkan pelajar bergerak melalui segmen mengikut kadar pembelajaran mereka sendiri, manakala mod kadar sistem mengikuti urutan yang tetap. Keputusan daripada analisis ANOVA menunjukkan bahawa pelajar dalam mod kadar pembelajaran pelajar menunjukkan tahap motivasi yang lebih tinggi secara signifikan berbanding dengan mereka yang berada dalam mod kadar sistem. Hasil ini menekankan manfaat mengintegrasikan pembelajaran yang berasaskan kadar pembelajaran pelajar dengan strategi CT, mencadangkan bahawa reka bentuk pengajaran sebegini boleh meningkatkan motivasi dan penglibatan dalam pendidikan TVET. Kajian ini menyarankan agar pendekatan ini diterima pakai untuk memperbaiki hasil pelajar dan melengkapkan mereka dengan kemahiran yang diperlukan untuk tenaga kerja digital.
Kata kunci: Pemikiran algoritma CT; pembelajaran video digital; segmen pratakrif pelajar; motivasi yang dirasakan; segmen sistem pratakrif

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1.0 INTRODUCTION

Digital videos are increasingly significant as assessment tools in technical education, offering both practical and engaging methods for university students to acquire essential skills (McCaslin & Young, 2015). For today's digital-native students, integrating digital technology in learning is essential, as highlighted by Rodgers and Dhonnchadha (2016). Digital competence, including creating content like images, music, and videos, is a critical 21st-century skill that fosters student motivation and engagement (Juškevičiene & Dagiene, 2018). In Malaysia, bridging skill gaps among graduates is vital for economic growth and meeting industry needs in Technical and Vocational Education and Training (TVET) (Adnan et al., 2021; Yusop et al., 2022). Digital competence and computational thinking (CT) are core skills required in TVET, aligning with technological advancements and the shift towards digital video as a powerful assessment tool (Juškevičiene & Dagiene, 2018; Snelson, Yang & Temple, 2021). Research shows that digital video use in education not only enhances knowledge and achievement but also bolsters student interest, motivation, and self-efficacy (Bell & Bull, 2010; Ebrahimzadeh & Alavi, 2017; Shin, 2018).

Despite the growing importance of digital videos in education, their full potential as assessment tools remains underexplored, particularly in the context of Technical and Vocational Education and Training (TVET). The integration of learner-centered approaches, such as segmentation and self-paced learning, into digital video design can further enhance its effectiveness. These methods help reduce cognitive overload and improve content retention, making learning more accessible and personalized for diverse student needs (Guo, Kim & Rubin, 2014; Mayer, 2014). Furthermore, embedding computational thinking principles within digital video content prepares students for problem-solving and analytical tasks required in modern industries. By combining these pedagogical strategies, digital video can be transformed into a holistic tool for both learning and assessment, equipping students with the technical and digital competencies essential for success in an increasingly complex and technology-driven world.

2.0 LITERATURE REVIEWS

2.1 Digital Video Education in Malaysia HEIs

Digital video production is a common name for the subject of digital video in any higher education institutions (HEIs). The Malaysian Education Curriculum states that incorporating technology into all subjects can improve students' abilities, particularly in terms of teamwork, communication, creativity, critical thinking, and problem-solving. Employers will be looking for

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candidates with a variety of problem-solving, creative, and critical thinking talents in 2020 (World Economic Forum, 2020). Malaysia also takes efforts to encourage colleges to focus on improving students' skills and competences rather than just their knowledge (Malaysia, 2013).

To meet the graduation criteria for employment, the educational quality evolution of the current HEIs should place more emphasis on the students' high-level competencies. To ensure that Malaysian TVET graduates can adapt in a demanding digital working environment, it is necessary to prepare them with these competencies. Referring to the Malaysia Education Blueprint, it is obvious that Malaysia is making a significant change in education right now to produce a better generation of graduates. Malaysia is now placing more emphasis on developing graduates who are creative, imaginative, and capable of critical thought. These purposes subtly encourage institutions to redesign their curricula to place more emphasis on student-centered and project-based learning.

Additionally, Mayer et al. (2019) has discussed how it is expected for universities to offer instructional technology like courseware or an online learning strategy in their foundational courses. However, Clark and Mayer (2023) noted that additional study is needed to address the topic of how to develop efficient online lessons and educational technology. They also underlined that further research should be done to determine how the segmenting principle in course-based online lessons or educational technology (such courseware) influences learning. Clark and Mayer (2023) also discussed on the development of educational technology, educators should be mindful of the risks of cognitive overload brought on by extraneous information as well as the too rapid and simultaneous presentation of moving image, text, and narration. Given the potential of digital video to be one of the most useful methods for evaluating student performance during a pandemic and the advent of new technologies, this project intends to advance the fundamental skills of video production through courseware.

However, efficient teaching and instructional strategies are necessary for digital video learning (Bell & Bull, 2010). The best practises of instructional strategies are related to cognitive load theory and Cognitive Theory of Multimedia Learning (CTML) in creating successful instructional materials (Castro-Alonso et al., 2021). They have emphasised how pace-controlled techniques, such as segmenting the materials and utilising interactive features, such as a scrollbar (Hatsidimitris & Kalyuga, 2013) or next button (Mayer & Chandler, 2001; Stiller et al., 2009), enable for less temporary information to be managed, leading to

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effective learning. The advantages of using learner-paced instruction on students' achievement are highlighted by Castro-Alonso et al. (2021), with studies by Hatsidimitris and Kalyuga (2013) and Stiller et al. (2009) show that students who used learner-paced learning materials outperformed those who used instructor-paced (or system-paced) materials.

Castro-Alonso et al. (2021) also emphasizes that students' former knowledge and fields of competence have an impact on their achievement in both groups. They asserted that the novice students benefit more from instructor-paced instruction, while skilled students can perform well with learner-pace. Hence, further research should be done to examine the effects of learner-pace and instructor-pace (system-pace), the application of moderating variables of students' properties like gender and various modalities on students' psychology measures (such as self-efficacy, perceived motivation, etc.), as well as objective measures (Castro-Alonso et al., 2021). Therefore, this paper focuses to investigate the effects of Computational Thinking (CT) algorithmic thinking and segmenting principle in promoting digital video in learning, highlighting the algorithmic thinking as a complementary skill to digital competence, and the emphasizing the significance of learner-pace predefined segment.

2.2 Learner-Paced and System-Paced Predefined Segment

Courseware that can help control the cognitive overload is typically designed using the segmenting principle. It is not sufficient for a teacher or instructional designer to merely remove the critical learning materials to manage cognitive overload. The reason for this is that an educator must help the student learn and acquire the knowledge of the crucial learning materials to accomplish the educational goals. The researchers use several different segmentation principles. There are two types of segmenting principles highlighted in this paper, system predefined segment and learner-paced predefined segment. The instructor must pause for three seconds between each slide or frame of the courseware or application to complete the system-predefined segment. The learner must press the play button to go to the next set of slides or modules in the learner-paced predefined segment. By showing animation in smaller segments, the segmenting technique can also be applied (Mayer, 2002; Moreno & Mayer, 2007).

Instead of a continuous presentation, a course presentation can be made in separate segments (Mayer & Chandler, 2001). They recommended presenting one event of a presentation for roughly 8 to 10 seconds before moving on to the next item with a pause. Mayer and Chandler (2001) state that educators can include a "Continue" button to make it

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easier for students to go on to the following slides. In order to allow students to study at their own pace, Mayer, Dow and Mayer (2003) advises that educators use lists of questions during presentations. On the presenting screen, in the upper right corner, are question buttons. It has been demonstrated through the usage of all specified segmenting principles that learners can outperform non-learners in terms of performance. Numerous various methods of segmenting have been studied, with non-segmenting used as the control group in these comparisons. However, the goal of this study is to compare the outcomes of two different segmenting principles that were used on both treatment groups. In this study, the learner-paced predefined segment was applied in treatment group 1 whereas the treatment group 2 made use of system predefined segment.

This study sought to ascertain whether segmenting animations can assist students in controlling their cognitive load. The aim of this study is to compare the performance of the students in the learner-paced predefined segment, which focuses more on learners controlling their learning pace, and the system-predefined segment, which uses predetermined pacing. Along with the segmenting principle, the algorithm concept of computational thinking has also been adapted for those treatment groups. This study aims to investigate the effects of the integration for both segmenting principle and CT algorithm concept in the design of the courseware towards the student's perceived motivation. It recognizes the importance of segmenting principle and CT concept in assisting the student in learning.

2.3 Algorithmic Thinking in Learning

Traditional education primarily aims to help students learn information based on prior teachings. This research investigates how learners can utilize algorithmic thinking to enhance their computational thinking (CT) skills. By integrating algorithmic thinking into the curriculum, students can explore various ideas and content from different perspectives, thereby deepening their conceptual and theoretical understanding of subjects. Fanchamps et al. (2021) argue that algorithmic thinking is a vital aspect of CT skills, potentially boosting students' self-efficacy and satisfaction.

Algorithmic thinking is the ability to break down problems into clear steps or rules for solving them. This skill is essential not only in computer science but also in various fields and everyday situations. It involves breaking complex tasks into smaller, manageable parts, recognizing patterns, and creating structured solutions (Åkerfeldt, Kjällander & Petersen, 2024). Furthermore, incorporating algorithmic thinking into educational curricula enhances

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students' critical thinking and problem-solving skills. Research shows that teaching these concepts across all subjects beyond just computer science helps students understand and apply ideas more deeply (Adorni et al., 2024). For example, Lee and Lee (2021) found that students engaging in algorithmic thinking activities showed better analytical skills and were more adept at solving complex problems. This approach encourages learners to view challenges from different angles and fosters innovative thinking.

Moreover, teaching algorithmic thinking contributes to cognitive growth. According to Tekdal (2021), it helps students analyze information critically and make better decisions. In a digital age where navigating complex information is crucial, these skills are becoming increasingly important. Additionally, algorithmic thinking promotes creativity by allowing students to explore various problem-solving methods and recognize that multiple solutions often exist (Paf & Dincer, 2021). This adaptability is vital for success in today's job market, where innovation and flexibility are key.

Currently, educational trends highlight the importance of computational and algorithmic thinking as foundational skills. Incorporating technology, such as gamified learning platforms, has proven effective in engaging students and enhancing their algorithmic skills. Future research should focus on best practices for teaching these skills in diverse contexts and exploring how to assess students' algorithmic thinking effectively. Understanding the long-term benefits of these skills in academics and careers is also essential (Bounou et al., 2023; Zhou et al., 2024).

2.4 Perceived Motivation

Motivation underpins an individual's actions, readiness, and objectives. Generally, it refers to a need that, when fulfilled, leads to satisfaction. In 1993, educational psychologist John Keller proposed the ARCS model as a framework for analyzing and measuring motivation. This model categorizes motivational concepts into four components: attention, relevance, confidence, and satisfaction. In this study, the Instructional Materials Motivation Survey (IMMS) is utilized to assess students' perceived motivation regarding the proposed digital video courseware, measuring their current motivation levels due to the intervention.

Numerous studies have characterized perceived motivation as the desire, commitment, and determination individuals exhibit toward their chosen activities. Keller (2009) notes that motivation reflects the extent of effort a person is willing to exert to achieve a goal

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within a learning context. Additionally, Keller has emphasized the role of instructional design in enhancing student motivation (Keller, 1987, 2009, 2012). Motivation can also be viewed as the internal drive that compels individuals to pursue their goals.

Thus, a learner's perceived motivation can be understood as their proactive engagement in various educational settings, such as classrooms, lectures, tutorials, or labs. Highly motivated students often display enthusiasm for learning and greater involvement in class activities. Techniques like gamification, flipped classrooms, and blended learning can effectively capture students' attention during lessons. However, educators must prioritize the content of the information over its delivery. Consequently, this study focuses on integrating the segmenting principle of CTML with the algorithmic CT concept to develop digital video courseware that enhances student motivation while reducing cognitive load. This research aims to investigate students' perceived motivation throughout the intervention process.

The ARCS model, developed by Keller (2012), serves as the framework for quantifying perceived motivation. This model was chosen due to its proven efficacy in guiding educators and researchers in effectively supporting student motivation.

3.0 MATERIALS AND METHODS

3.1 Research Procedures

This study aims to investigate the impact of different courseware presentation modes on student motivation and learning outcomes. To ensure a robust and controlled experimental design, the research was conducted across four universities, each representing diverse academic settings. The study examines the effects of learner-paced versus system-paced instruction on TVET students, with the goal of identifying the most effective instructional method for fostering engagement and academic achievement.

Even though the experiment is conducted at four different universities, groups 1 and 2 are subjected to identical environmental conditions and methods. The experiment is facilitated using Google Meet and Google Form, both online tools. The researcher contacted one designated lecturer from each university; A, B, C, and D, and reached an agreement for their cooperation as the experiment's facilitator. Each facilitator, who is also the students' lecturer, observes their respective groups throughout the experiment.

The participants are first-year students from Malaysia Technical University Network

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(MTUN) universities, all enrolled in the same courses. The lecturers at each university have similar educational and professional backgrounds in digital video creation, ensuring consistency in facilitation. The researcher held a preparatory meeting with the facilitators, during which the experimental procedures were thoroughly explained. Facilitators were also shown how the course material operates, including a demonstration of its functionality. Clear guidelines, including the "Dos" and "Don'ts," were emphasized to both facilitators and students to minimize unexpected disruptions during the experiment.

Additionally, the researcher used Google Drive to distribute to the facilitators all necessary information, including step-by-step procedures for the experiment, instrumentation links, and courseware files. To make sure that every student has learned the material by the conclusion of the experiment, the facilitator will continue to monitor student progress throughout the learning activities.

By looking at the indicator of the menu, students can determine whether they have learned a particular module. The menu's color changes and a tick icon that appears on the menu button once the student has visited the module are two clues that the student has browsed the content.

The perceived motivation test scores of the students were used to collect the data for this investigation. The intervention and Instructional Materials Motivational Survey (IMMS) survey, which covered 90 students for each group, were held over the course of six weeks. The designated facilitators explained the subjects involved in group 1 and group 2 using the same instructions. The experiment is divided into six sessions. The facilitators inform the subjects about the experiment's goal and proceed with the sessions. For the first session, which takes place in week 1, all subjects must complete a pre-test for the knowledge achievement.

The learning activities for the second, third, and fourth sessions will be covered in week 2. To ensure that the subjects can acquire the material independently, without interruption from the facilitators or researchers, each learning activity has been allotted 40 minutes for the subjects to complete (40 minutes X 3 sessions). They are allowed to study the subject matter on their own during the session. The knowledge achievement post-test is then administered to subjects in week 3 during the fifth session. Then, in weeks 4 and 5, students are scrutinized twice each to make sure they are still studying the course material. The subjects are given the

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IMMS instrument in week six. The IMMS survey is conducted in week 6 since earlier research found that a four-week gap works best for gauging perceived motivation.

As soon as students completed the IMMS survey, the experiment's facilitators encouraged them to think on what they had learned, how they could use it in their daily lives, and how it related to upcoming learning opportunities. The facilitator also gave each student a token and a certificate at the end of the experiment sessions.

3.2 Research Instrument

The IMMS measures student motivation regarding course materials. Developed by Keller (1987), the IMMS is based on the four ARCS components: Attention, Relevance, Confidence, and Satisfaction. It consists of 36 items rated on a Likert scale from 1 (Not True) to 5 (True), including 10 negatively worded items. Example questions include:

(i) Attention: “There was something interesting at the beginning of this lesson that captured my attention.”
(ii) Relevance: “The content of this lesson is relevant to my interests.”
(iii) Confidence: “The exercises in this lesson were too difficult for me.” (negatively worded)
(iv) Satisfaction: “Completing the activities in this lesson gave me a satisfying feeling of accomplishment.”

The IMMS has been widely used in motivation research, with various adaptations to meet specific study needs. Previous studies have reported reliability coefficients ranging from 0.74 to 0.94, with Keller reporting an internal consistency of 0.96. To assess its reliability for MTUN students, this study conducted its own reliability test. The results indicate a high overall reliability of 0.97, with individual construct scores of 0.95 for Attention, 0.94 for Relevance, 0.82 for Confidence, and 0.89 for Satisfaction. These values meet acceptable reliability thresholds, confirming the IMMS as a robust instrument for measuring perceived motivation (Pallant, 2011).

4.0 RESULTS AND DISCUSSION

4.1 Analysis of Variance (ANOVA) Test for Perceived Motivation

An ANOVA test was conducted to examine the impact of two courseware presentation modes on students' perceived motivation. Below is a summary of the key conditions for the ANOVA test and whether they were met (refer to Table 1).

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Table 1. Summary of key conditions for ANOVA

Aspect	Details
Dependent Variable	**Perceived motivation scores**, measured using the **IMMS** (interval/ratio scale), assessed for differences across groups.
Independent Variable	**Courseware presentation mode**:
	- **Group 1:** Learner-paced predefined segment (students progress at their own pace through content segments).
	- **Group 2:** System predefined segment (students follow a fixed, system-paced segment structure).
Homogeneity of Variance	Levene's test indicated **p = .014**, showing unequal variances between the two groups. While this violates the assumption of homogeneity of variances, **ANOVA** remains robust when group sizes are similar, which they are in this case. A post-hoc test was conducted to further examine group differences.
Sample Size	Both groups contained more than **30 participants**, fulfilling the assumption for normality and ensuring a sufficient sample size for accurate statistical analysis.
Normality	**Kolmogorov-Smirnov** and **Shapiro-Wilk** tests yielded **p = .000**, indicating that the data significantly deviated from normality. Despite this, with the large sample size (**n > 30**), this deviation does not significantly affect the analysis.
	Q-Q plots were used for graphical verification and confirmed that the data approximately followed a normal distribution.
ANOVA Results	**One-way ANOVA** was conducted to compare the mean perceived motivation scores between **Group 1** and **Group 2**. The results showed a significant difference between groups (F = 8.52, **p = 0.004**), indicating that the courseware presentation mode (learner-paced vs. system-paced) had a significant effect on student motivation.
Post-Hoc Results	**Post-hoc Tukey's test** was used to further explore differences between the two groups. The results indicated that **Group 1 (learner-paced)** had significantly higher perceived motivation scores than **Group 2 (system-paced)** (**p = 0.003**), suggesting that learner-paced content segmentation was more motivating for students than system-paced segmentation.

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The ANOVA test indicated a statistically significant difference in perceived motivation between the two groups (p = 0.004). This means that the type of courseware presentation (learner-paced vs. system-paced) had an impact on students' motivation. The Tukey post-hoc test confirmed that group 1 (learner-paced) had significantly higher motivation scores compared to group 2 (system-paced), with a p-value of 0.003. This suggests that students in the learner-paced group experienced a stronger sense of motivation, likely due to the ability to progress through the content at their own pace, which may have reduced cognitive load and increased engagement. This detailed breakdown provides insight into the significance of courseware presentation mode on student motivation, further supported by the post-hoc analysis. The ANOVA revealed a significant difference in perceived motivation between the two courseware presentation modes [$F(1, 190) = 71.706$, $p < .05$, $\eta^2 = .274$], indicating a large effect size (refer to Table 2).

Table 2. One-way ANOVA for Perceived Motivation (IMMS)

Source	SS	df	MS	F	p-value	Partial Eta Squared
Treatment Group (Courseware)	5.999	1	5.999	71.706	.000	0.274
Error	15.895	190	0.084			
Total	3663.551	196				

Referring to Table 3, students using the learner-paced predefined segment mode showed significantly higher perceived motivation (M = 4.484) compared to those using the system predefined segment (M = 4.128). The mean difference between groups was 0.356 (p = .000). The ANOVA results demonstrate a significant difference in perceived motivation between the two courseware presentation modes, favoring the learner-paced predefined segment. All necessary conditions for ANOVA were satisfied, making the results robust and reliable for further interpretation.

Table 3. Means and Standard Deviations for Perceived Motivation

Courseware Mode	Mean	SD	Std. Error
Learner-paced predefined	4.484	0.263	0.026
System predefined	4.128	0.321	0.033

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Keller (2016) highlights the role of behavioral psychology, specifically motivation, in instructional technology. Findings from this study reveal that university students exposed to learner-paced predefined segments reported significantly higher motivation for learning content than those using system-defined segments, with the former also showing improved performance. This suggests that learner-paced segments enhance cognitive engagement, potentially raising knowledge acquisition (Samsudin, 2020). The segmenting principle thus appears to support deeper processing and social motivation, resulting in better learning outcomes.

Using Keller's (1987) IMMS, ANOVA test results showed that students in the learner-paced segment group reported greater motivation than those in the system-defined group, indicating the significant motivational effect of learner control on content engagement. Consistent with Alamri et al. (2020) and Sorgenfrei and Smolnik (2016), this study supports the link between learner control and positive emotional responses, such as heightened motivation and satisfaction (Fisher, Wasserman & Orvis, 2010; Sun & Hsu, 2013). However, while other studies found no conclusive connection between learner control and motivation (Bell & Kozlowski, 2008; Chen, Zeng & Wang, 2021), this study's findings confirm that learner-paced segments significantly enhance motivation.

Notably, this study uniquely examines the impact of algorithmic thinking integration with the segmenting principle (learner-paced vs. system-defined) on motivation in digital video production courseware. Results indicate that applying these principles in educational media can meaningfully elevate students' perceived motivation.

5.0 CONCLUSION

In conclusion, university students exposed to learner-paced predefined segments reported significantly higher perceived motivation toward learning materials than those using system-defined segments. The findings suggest that digital video courseware using learner-paced segments is more effective for students in digital video production courses. This study also contributes to integrating the computational thinking (CT) algorithm concept with Mayer's segmenting principle.

Overall, applying the segmenting principle in multimedia presentations enhances information retention by reducing cognitive load, thus fostering active processing and improved learning. The findings support Mayer's theory that dividing information into

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manageable segments, rather than a continuous flow, aids knowledge retention for both learner-paced and system-defined segments. Moreover, integrating learner-paced segments with algorithmic thinking showed greater motivational impact, indicating that learner-paced segments positively influence students' perceived motivation compared to system-defined segments.

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