e-ISSN 2821-9074
Print-ISSN 2730-2601
RICE Journal of Creative Entrepreneurship and Management, Vol. 6, No. 3, pp. 61-74,
September-December 2025

doi: 10.14456/rjcm.2025.17
Received 18.05.25/ Revised 7.10.25/ Accepted 25.10.25

Online Learning Resources Design for Video Content Production

Jaruwat Noothong[1]
Weerawat Pengchuay[2*]

[1] College of Social Communication Innovation, Srinakharinwirot University
Bangkok, Thailand
[2] Rajamangala University of Technology Rattanakosin
Nakhon Pathom, Thailand
[*] Corresponding author
[1] Email: dr.jaruwat@gmail.com
[2] Email: weerawat.pen@rmutr.ac.th

Abstract

The objectives of this research were to (1) develop an online learning resource on video content production, (2) assess the learning achievement of students using the online learning resource on video content production, and (3) evaluate their satisfaction with the online learning resource on video content production. The quasi-experimental research design with one group pre-test post-test was used with 30 undergraduate students in the field of photography and film technology, Department of Communication and Industrial Technology, Faculty of Science and Technology, Rajamangala University of Technology Krungthep. Three research instruments secured data on (i) content and design of the developed online learning resource on video content production, (ii) learning achievement of students using the online learning resource on video content production, and (iii) evaluating their satisfaction with the online learning resource. The obtained data was analyzed by percentage, mean, standard deviation and t-test for dependent variables. The findings revealed the online learning resource on video content production at the high level *overall* ($\bar{x}$= 4.33, S.D. = 0.05), its *content* at the high level ($\bar{x}$= 4.33, S.D. = 0.12), and its *design* at the high level ($\bar{x}$= 4.36, S.D. = 0.18). As for students' learning *achievement*, the post-test score was significantly higher than the pre-test score, followed by their high satisfaction with the online learning resource ($\bar{x}$= 4.38, S.D. = 0.19). It was expected that the research results can generate practical implications for the design and use of online learning resource on video content production at the higher education level.

Keywords: *Online learning resources, online lesson design, video content, learning achievement*

1. Introduction

The development of the global economy and industry is constantly changing. The world has become increasingly interconnected in a borderless environment. Technological development trends are evolving rapidly, especially digital technology, which has advanced dramatically. It is no longer just a tool to support work as in the past, but has now become integrated into everyday life. According to the National Policy and Plan for Digital Development for the Economy and Society (2018-2040) the emphasis is placed on developing the country through digital technology to drive the economy and society, and to fully leverage

digital innovation (Office of the National Economic and Social Development Council (2017). Global transformation and changing consumer behavior are crucial factors in shaping the national vision and strategic direction to align with evolving contexts. The 20-Year National Strategy Framework (2017-2036) and the 13th National Economic and Social Development Plan (2023-2027) define the primary goal of development as equipping Thai people with the skills and attributes appropriate to the times (Office of the National Economic and Social Development Council, 2020). This includes accelerating the preparation of a quality workforce in alignment with labor market demands, facilitating the restructuring of the economy toward higher-potential production and service sectors, and promoting science, technology, research, and innovation as key drivers of development across all sectors to enhance Thailand's competitiveness. This is accompanied by efforts to upgrade the skill sets of those about to enter the labor market as well as those currently employed.

Education serves as a mechanism for developing knowledge and skills that enable individuals to keep up with the fast-paced and diverse changes of the world. Education plays a crucial role in enhancing the country's human capabilities. The development of education aims to elevate the potential of human resources to align with the shifting economic and social systems at national, regional, and global levels. The National Education Plan (2017-2036) requires modern education to adapt in line with the direction of 21st-century skills development, which are essential for living, working, and driving the country's economic and social progress (Office of the Education Council, 2017, 2024; Ministry of Digital Economy and Society, 2018). Modern educational approaches have incorporated technological and internet advancements into teaching and learning on a wide scale. Learners can study, review lessons, do exercises, and participate in group activities through technological tools. This aligns with educational development under the Thailand 4.0 framework, enabling learners to independently seek knowledge from all forms of instructional media (Office of the National Education Commission, 1999). This helps foster learners' self-reliance, enhances intrinsic motivation, stimulates the desire to learn, and supports purposeful learning. As a result, learners learn better, remember more for longer periods, and can apply knowledge more effectively. The enhancement of content knowledge**,** specific skills**,** specialized expertise**,** and literacy competencies is therefore a key factor that learners must acquire to learn effectively in this transformative 21st-century society (Phothinakhon, 2017).

Research and development of learning resources to support workforce development in the digital content industry has resulted in the creation of knowledge bases for both formal and non-formal education. This serves as a vital mechanism for enhancing the competencies of the country's workforce, helping them attain higher occupational skills. This advancement will lead to increased national competitiveness, expand opportunities, generate income, reduce social inequality, and ultimately transform Thailand toward "Thailand 4.0," with its core principle being "Thai People 4.0" (Thailand Professional Qualifications Institute, 2021).

In this regard, the rapid growth of online learning platforms has transformed the educational landscape. Video content has become a powerful medium for delivering knowledge, facilitating knowledge preservation, and aligning with modern learner behaviors.

The researchers therefore felt an urgent need to investigate the context of online education management, online learning platforms, the development of online learning resources, design, and content related to video content production. This is closely linked to the development of knowledge and skills in modern video content production. The findings can be extended to teaching at the higher education level, particularly in fields related to digital content and creative media, in ways that are appropriate to current conditions and real-world contexts. This is meant to support and enhance teaching and learning, as well as promote the development of individual skills — especially for emerging professions and areas experiencing workforce shortages in the country. This, in turn, can help foster progress that aligns with the needs of the digital content industry, which serves as an economic value-creating medium and a source of national revenue in the future.

2. Research Objectives

The study aimed at three objectives:

(1) To develop an online learning resource on video content production,

(2) To assess the learning achievement of students using online learning resource on video content production, and

(3) To evaluate their satisfaction with online learning resource on video content production.

3. Concepts and Related Theories

In this paper, the researchers briefly reviewed concepts on Learning resources, Digital learning resources, Self-directed learning, followed by related theories on Constructivist theory, the ADDIE Model, and the CIPPA Model.

Learning resources are essential bodies of knowledge that learners can easily access, whether they occur naturally or are man-made. A learning resource is defined as a person, place, natural element, or technology that provides knowledge, facilitates, promotes, and supports learning, as well as offers experiential opportunities (Royal Thai Institute, 2012).

Digital learning resources refer to learning resources available via the Internet. They serve as media to support and enhance learning, characterized by the storage of information that allows users to search various data. These are increasingly important in educational management due to the advancement of information technology. Malithong (2005) asserted that the use of ICT enables flexible learning that can take place anytime, anywhere. Educational institutions are thus no longer limited to schools and formal establishments; they can exist anywhere, supporting lifelong learning. Learners can access knowledge through both physical and virtual learning sources on the Internet.

In addition, virtual field trips are vital tools that allow learners to experience the world beyond the classroom by virtually accessing important global locations through digital technology. This enhances learners' knowledge and understanding of the subject matter (Phelps, 2022). These learning resources not only promote the education of gifted students but also enable instructors to design and manage online teaching more effectively.

Self-directed learning refers to a process where learners take responsibility for planning, executing, and evaluating their own learning progress. Learners can transfer knowledge and skills acquired from one situation to another. It involves analyzing personal learning needs, setting learning goals, seeking support, identifying knowledge sources and educational media, and evaluating one's own learning outcomes. Learners may or may not receive help from others. Self-directed learning is a way of seeking knowledge that enables individuals to live productively in society. It nurtures curiosity and a desire for knowledge, allowing individuals to learn a variety of topics and continue studying without external direction. Learners become initiators who plan and carry out their learning process from start to finish. Therefore, self-directed learning is a vital tool for lifelong education, driven by the learner's own voluntary engagement rather than external enforcement (Isarawat, 1998).

Constructivist theory aligns with the philosophy of constructivism. It is a learning theory based on psychology, philosophy, and anthropology—especially cognitive psychology. It posits that knowledge is not discovered externally or derived from the environment, but rather constructed internally in the mind. This knowledge arises from interpreting events, experiences, or information by drawing upon one's prior knowledge, beliefs, theories, and expectations. Learners do not merely receive and store knowledge, but instead interpret it through personal experiences, expand upon it, and test their own interpretations (Ratsamiphrom, 1999).

The ADDIE Model is an instructional design framework used to design and develop educational systems based on a systems approach. It is highly effective for educational development. The name ADDIE is an acronym representing the five stages: Analysis, Design, Development, Implementation, and Evaluation. The ADDIE Model is a valuable tool for instructional design, encompassing the entire process from planning to assessment. When applied appropriately, it can greatly enhance the effectiveness of the teaching and learning process (McGriff, 2000).

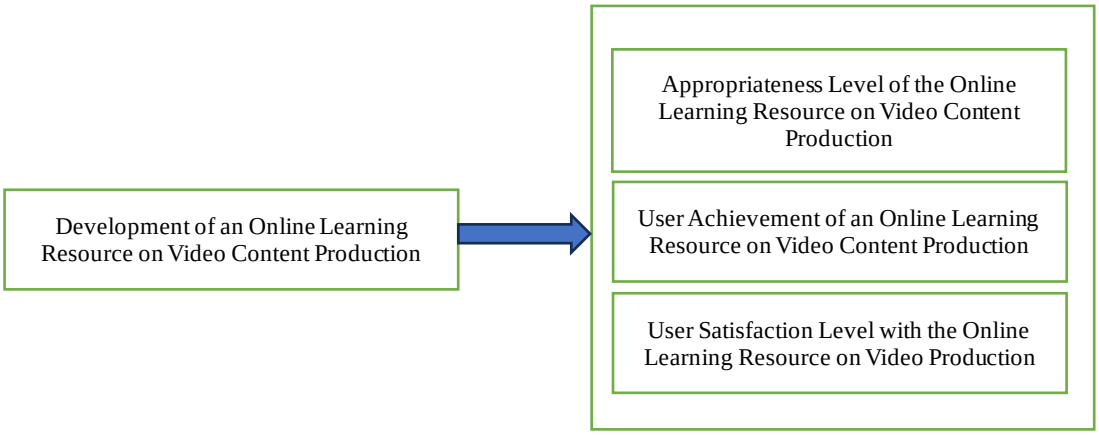
The CIPPA Model is an instructional approach developed by Tisana Khammani. It emphasizes learner-centered education by integrating five key concepts: Constructionism, Inquiry, Participation, Process, and Application. Implementing the CIPPA model enhances various aspects of student development. It helps learners achieve better academic performance, improves retention, and promotes analytical and creative thinking as well as problem-solving skills. It also strengthens teamwork, communication, and social participation. Students show increased interest and satisfaction in learning. Applying the CIPPA model involves designing activities that promote knowledge construction, inquiry, and participation, such as project-based learning, experiments, and group discussions. It also stresses the importance of applying

knowledge to real-world situations, supporting the development of knowledge, skills, and attitudes. This model fosters meaningful and sustainable learning and can also be effectively adapted for online education (Khammani, 1999).

These concepts and related theories serve as a background of the study so that the researchers used them as a platform to (i) develop an online learning resource on video content production for the participating learners under study, and (ii) identify their learning achievement and satisfaction with online learning resource on video content production, as specified in the three identified research objectives.

4. Research Conceptual Framework

Figure 1: Research Conceptual Framework



5. Research Methodology

This research used a quasi-experimental design with a one-group pretest-posttest. The researchers conducted the study as follows:

Phase 1: Development of an Online Learning Resource on Video Content Production. Five educational technology experts were selected via purposive sampling to validate the developed online learning resource on video content production. These experts were individuals with a Ph.D. in Educational Technology with at least 3 years of teaching experience in public higher education institutions, or with a Master's degree in Educational Technology or Communication Arts with at least 5 years of teaching experience in higher education. These five experts assessed the appropriateness of the content and the quality of the developed online learning resource on video content production.

Phase 2: Experimental Study

Population and Sample Group

Population: 300 undergraduate students majoring in Photography and Film Technology, Department of Communication and Industrial Technology, Faculty of Science and Technology, Rajamangala University of Technology Krungthep.

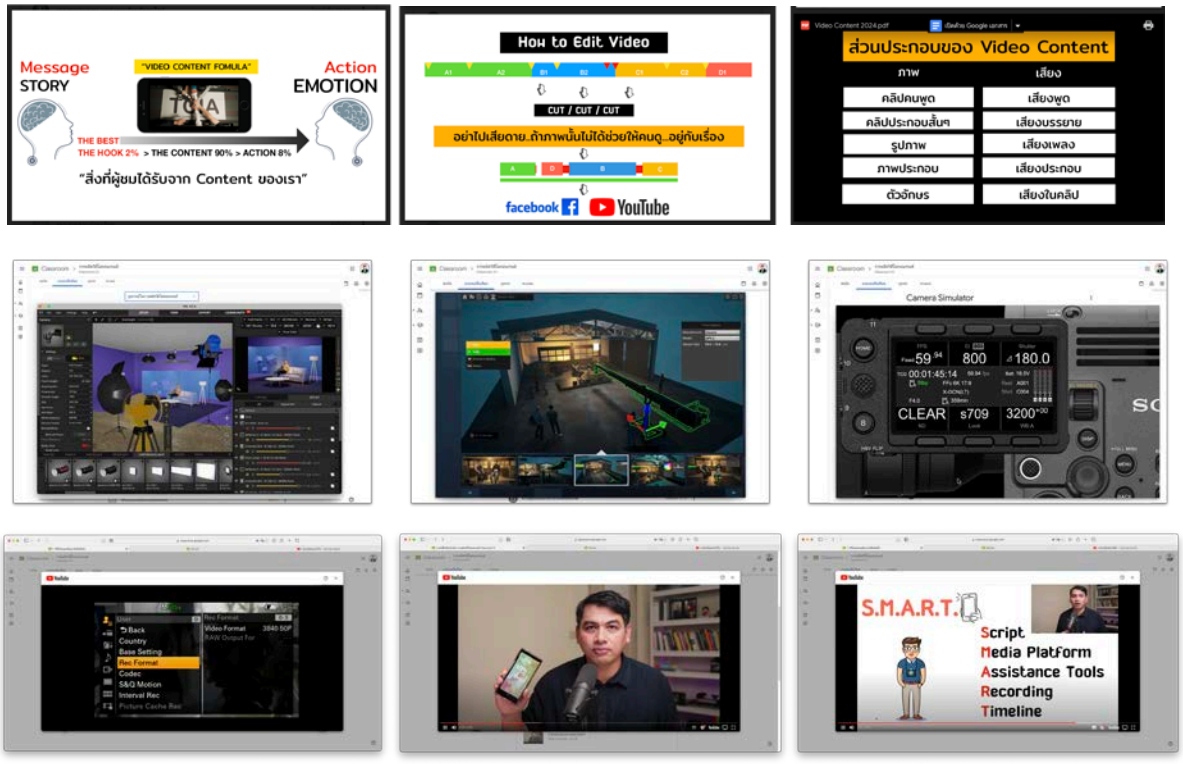
Sample Group: 30 undergraduate students from the same major and department, enrolled in the first semester of the academic year 2024, aged 18 or older. These participants were selected using purposive sampling on a voluntary basis. They participated in learning through the developed online learning resource on video content production, took a learning achievement test, and completed a satisfaction questionnaire.

Research Instruments

The online learning resource on "Video Content Production" was developed based on the ADDIE Model instructional design and the CIPPA Model (a learner-centered instructional model). The online learning resource was implemented using the Google Classroom platform. It was divided into 6 learning units as follows:

Unit 1: Introduction to Video Content
Unit 2: Content Design for Video Production
Unit 3: Preparation for Video Content
Unit 4: Equipment for Video Production
Unit 5: Video Content Production
Unit 6: Publishing Video Content, Evaluation, and Assessment

Figure 2: Learning Resource on "Video Content Production" on the Google Classroom System



The Online Learning Resource Quality Assessment Form

The online learning resource quality assessment form for the topic "Video Content Production" was structured as a 5-point rating scale questionnaire. The questions cover aspects related to content and the design of the online learning resource. The tool's quality was verified using the Index of Item-Objective Congruence (IOC) method, evaluated by five experts. Only items with an IOC index of 0.50 or higher were selected for use in the final version.

Learning Achievement Test on Video Content Production

A 30-question test was constructed to assess learning outcomes related to video content production. The questions were reviewed by five experts to ensure alignment between the test items and learning objectives using the Index of Item Objective Congruence (IOC). Only questions with an IOC index of 0.50 or higher were selected for use with the sample group.

Satisfaction Evaluation Form for the Online Learning Resource on Video Content Production

A satisfaction questionnaire consisted of 12 questions regarding the use of the online learning resource on video content production. It used a 5-point rating scale, ranging from least satisfied to most satisfied. The quality of the instrument was verified by evaluating the alignment between the questions and the objectives using the Index of Item Objective Congruence (IOC). Five qualified experts reviewed the satisfaction questionnaire, and only items with an IOC index of 0.50 or higher were selected for use in assessing learner satisfaction.

In response to three research objectives, all obtained data were analyzed by percentage, mean, standard deviation and t-test for dependent variables.

6. Research Results

Based on Research Objective 1, the overall appropriateness of the online learning resource on video content production was rated by five experts at a high level. The content aspect was considered highly appropriate, and the design of the online learning resource was also rated highly appropriate, as shown in Table 1.

Table 1: Mean Scores of the Appropriateness of the Online Learning Resource on Video Content Production

Assessment Items	Average Appropriateness Score		
	$\overline{X}$	S.D.	Interpretation
1. Content Aspect	**4.33**	**0.12**	High
1.1 Structure of the content covering learning objectives	5.00	0.00	Very High
1.2 Amount of content per lesson page	4.20	0.45	High
1.3 Content accuracy based on academic principles	4.00	0.00	High
1.4 Content appropriateness for learners' knowledge level	4.00	0.00	High
1.5 Clarity of content explanation	4.60	0.55	Very High
1.6 Suitability of content for self-study	4.20	0.45	High

2. Online Learning Resource Design Aspect	**4.36**	**0.18**	High
2.1 Ease of access to the online learning resource	4.20	0.45	High
2.2 Design of the main interface screen	4.60	0.55	Very High
2.3 Accessibility of content and activities	4.80	0.45	Very High
2.4 Important lesson information easily visible	4.00	0.00	High
2.5 Quality of still and animated media	4.00	0.00	High
2.6 Speed of content presentation	4.20	0.55	High
2.7 Navigation within the online learning resource	4.60	0.55	Very High
2.8 Linking to external learning resources	4.00	0.00	High
2.9 Smooth and seamless usage experience	4.60	0.55	Very High
Average	**4.33**	**0.05**	High

As seen in Table 1, five experts considered that the online learning resource on *Video Content Production* is, overall, highly appropriate.

Based on Research Objective 2, the average post-learning score using the online learning resource on Video Content Production was significantly higher than the pre-learning score at the 0.05 statistical significance level, as shown in Table 2.

Table 2: Comparison of the Average Pre-Learning and Post-Learning Scores of a Sample Group of 30 Participants Using the Online Learning Resource on Video Content Production

Score Type	n	$\overline{X}$	S.D.	t	p
Pre-learning score	30	18.03	2.89	21.10**	.000
Post-learning score	30	24.97	2.41		

* Statistically significant at the .05 level

Table 2 shows that learning through the online learning resource on Video Content Production resulted in a statistically significant increase in the post-learning average score compared to the pre-learning score at the 0.05 level.

Based on Research Objective 3, the results of the student satisfaction evaluation toward the online learning resource on Video Content Production, using a 5-level rating scale, revealed that the learners under study had an overall high level of satisfaction. The analysis results are presented in Table 3.

Table 3: Mean and Standard Deviation of the Analysis Results on Satisfaction toward Learning through the Online Learning Resource on Video Content Production

Evaluation Items	Satisfaction Level Rating		
	$\overline{X}$	S.D.	Interpretation
1. I like the online learning resource on video content production	4.03	0.81	High
2. I feel that I have benefited from the online learning resource on video content production	4.47	0.51	High
3. Convenience of accessing the online learning resource	4.50	0.51	High
4. Clarity of usage instructions for the online learning resource	3.03	0.81	High
5. The content organization in the online learning resource is clearly categorized and sequenced	4.37	0.49	High
6. Content within the learning resource is easily accessible	4.40	0.56	High
7. Content presentation aligns with the stated objectives	4.43	0.50	High
8. Quality of images, sound, graphics, and text in the online lesson	4.67	0.48	Very High
9. Speed of content presentation within the lesson	4.33	0.61	High
10 Overall satisfaction with the online learning resource on video content production	4.53	0.57	Very High
Average	**4.38**	**0.19**	**High**

Table 3 shows that the online learning resource on video content production resulted in an overall high level of learner satisfaction.

7. Discussion and Conclusion of Major Findings

The Development of the Online Learning Resource on Video Content Production

The findings revealed that the average rating of expert opinions regarding its consistency and appropriateness was at a satisfactory level. The evaluation was divided into *conten*t and *design* aspects of the learning platform. The online learning resource developed by the researcher, assessed by five experts, was found to be appropriate. Online learning has become a crucial topic in education, especially during the COVID-19 pandemic, which made technology an essential tool in teaching and learning. The study "Successful Online Learning with Gifted Students" by Phelps (2022) offers comprehensive guidance on designing online instruction for gifted students, focusing on enhancing learning quality in the digital age. It emphasizes using technology to support learning activities with clear objectives such as using Google Forms to build learning modules or Google Sites for long-term educational games. The design must consider meaningful and engaging activities to foster analytical thinking and deep learning. Instructional design should also account for students' diversity--cultural, linguistic, or economic to ensure equitable access to learning. This helps reduce educational disparities in the digital era.

Quality online learning is not just about technology use; it requires thoughtful design, clear goals, appropriate tools, and understanding of student needs. The research aligns with the study by Wongchai (2019), who studied the development of higher-order thinking skills a key

competency for 21st-century learners. His research proposed using resource-based learning to develop essential skills and promote a learner-centered approach, encouraging learners' active participation and connection with diverse knowledge sources, both in classrooms and communities. Alammary et al. (2014) also examined blended learning a mix of face-to-face and online methods to enhance students' learning experience. They found that blended learning boosts flexibility and teaching effectiveness, builds a sense of learning community, and increases engagement, aligning with Bouilheres et al. (2020), who emphasized the benefits of combining digital access with in-person interaction. Similarly, Nilsook et al. (2021) explored the needs and issues regarding modern digital learning resources for working-age learners. Using a survey of 600 individuals in the formal labor system and 300 in the informal sector, they discovered the most desired resources were: (i) free learning platforms, (ii) video-based content, and (iii) website-based resources. Most respondents preferred smartphones as their primary learning device. This corresponds with the study by Noothong (2016), who developed a lesson on Color Grading for undergraduates at the College of Social Communication Innovation, Srinakharinwirot University, on the iOS platform. The lesson test with 30 participants showed high satisfaction with this mini-course.

As seen, the design of online learning resources should be based on instructional design principles. The design must have clear objectives and prioritize learners' needs. Content presented online should be clearly viewable on smartphones, and videos should be the primary format of delivery, with learner-centered considerations being paramount.

Learning Achievement

The results from comparing the average scores before and after using the online learning resource on Video Content Production using the t-test statistical method showed that post-learning achievement was significantly higher than pre-learning, with statistical significance at the .05 level. This aligns with the study by Kanchanapiboon (2023), which explored the use of learning resources to measure academic achievement in Sufficiency Economy among 32 social studies students from the Faculty of Education, Phranakhon Si Ayutthaya Rajabhat University. Their findings showed that students' achievement after using the learning resources was significantly higher than before, with a significance level of .01. Similarly, Klaithong, P. (2017). conducted research on the Virtual Learning Resource of Wat Ratchapraditsathan (Wat Phako) in Sathing Phra District, Songkhla Province. They found that volunteers' learning outcomes significantly improved after visiting the virtual learning resource, with a statistical significance level of .01, and the group expressed the highest level of satisfaction with the virtual learning resource ($\bar{X} = 4.60$, S.D. = 0.49).

The obtained results indicate that using online learning resources designed through structured processes based on instructional principles and theories—such as learner-centered instruction, self-directed learning, and step-by-step development of learning resources—encourages students to engage and be motivated to learn. The diversity in teaching methods fosters learning motivation, which leads to improved academic achievement.

Students' Satisfaction

The results on the participating students' satisfaction with learning through the online learning resource "Video Content Production" was found to be at a high level overall ($\bar{x}$ = 4.38, SD = 0.19). According to a study by Ubell (2019), before the pandemic, only one-third of students participated in online learning. However, during the COVID crisis, educational institutions had to rapidly adapt, transitioning nearly all teaching to online formats. This transition was made possible by two key technologies: Learning Management Systems (LMS) and video conferencing systems.

This aligns with a study by Polkowski et al. (2023), which found that institutions are adapting to improve systems for greater efficiency and intelligence to support new forms of learning. Similarly, Fredericksen (2019) found that in well-designed online courses, 94% of learners felt they learned as much or more than in traditional classroom settings. In the same vein, Amornrit & Bootchuy (2024) studied the development of a teaching model called "PLEARN", using podcasts in a distance education system. The sample consisted of 34 students in course 16455 "Creative Content and Streaming" at Sukhothai Thammathirat Open University. The model consisted of six core components and emphasized five learning activities: podcast-based learning, learning stimulation, active learning, summarizing, and knowledge exchange. The research found that learners' post-learning achievement was significantly higher than pre-learning, with a statistical significance level of .05. The students under study also showed very high satisfaction with the instructional model, with an average score of 4.53 and a standard deviation of 0.51.

Overall, the development of online learning resources that are designed based on sound learning principles and supported by appropriate technology can effectively enhance students' academic achievement and satisfaction. It also responds well to the diverse needs of learners in the digital age.

8. Implications of the Study

Based on the research findings, the researchers considered implications for online learning resource development in the aspects of design, content, and delivery for developers' consideration. First, developers need to gear instructional design toward students' diversity--cultural, linguistic, or economic to ensure learning equity. Secondly, it is vitally important to identify clear objectives when prioritizing learners' needs for online lesson content. Thirdly, the primary format of delivery requires content visibility on smartphones, and video quality in support of learner-centered modes. Importantly, the use of online learning resources design based on instructional principles and theories need to encourage and engage students to learn effectively. Such expected learning outcomes can be realized by eclectic teaching methods to improve learners' overall academic achievement.

9. Suggestions for Future Research

The researchers would like to suggest future research into online learning resources in the issues of: (i) online learning resource development related to professional skills, with more diverse content provided by entrepreneurs, (ii) the content needs, knowledge, and specific professional skills that align with occupational qualification standards, and (iii) content presentation formats that align with the learning behaviors of Generation Z students. Interested researchers may also consider the current issues in digital platform selection, learners' personalization, and data privacy and security.

10. The Authors

Jaruwat Noothong is an Assistant Professor and a lecturer in the College of Social Communication Innovation, Srinakharinwirot University, Bangkok, Thailand.

Weerawat Pengchuay is a lecturer in the Faculty of Industry and Technology, Rajamangala University of Technology Rattanakosin, Hua Hin Campus, Prachuab Khiri Khan, Thailand.

Both authors have their research interest in autonomous learning, digital learning model development, online learning resources design, and video content production.

11. References

Alammary, A., Sheard, J. & Carbone, A. (2014). Blended learning in higher education: Three different design approaches. *Australasian Journal of Educational Technology, 30*(4), 440-454.

Amornrit, P. & Bootchuy, P. (2024). Development of "PLEARN" Model through podcasts in the distance education system. *ECT Journal, 19*(26), 107-122.

Bouilheres, F., Le, L. T. V. H., McDonald, S., Nkhoma, C. & Jandug-Montera, L. (2020). Defining student learning experience through blended learning. *Education and Information Technologies, 25*, 3049-3069.

Fredericksen, E. (2019). Student satisfaction and perceived learning with online courses. *Online Learning, 4*(2), 7-41.

Isarawatana, S. (1998). Self-directed learning: A strategy for balanced education. *Journal of Education Studies, 27(*1), 33-40.

Kanchanapiboon, S. (2023). Learning management by using learning resources to develop learning achievement according to the philosophy of sufficiency economy. *Journal of Graduate Studies Mahachula Khon Kaen, 10*(3), 53-58.

Khammani, T. (1999). Learner-centered instruction management: CIPPA Model. *Journal of Education, 27(*3), 1-15.

Klaithong, P. (2017). The development of virtual learning resources Wat Ratchapradisthan (Wat Pha Kho) in Sathing Phra District, Songkhla Province. *Journal of Faculty of Education Pibulsongkram Rajabhat University, 5*(1), 30-43.

Malithong, K. (2005). *Technology and Communication for Education*. Bangkok: Chulalongkorn University Press.

McGriff, S. J. (2000). Instructional system design (ISD): Using the ADDIE model. College of Education, Penn State University.

Ministry of Digital Economy and Society. (2018). National digital economy and society development policy and plan 2018-2040. (Online). https://www.mdes.go.th, November 1, 2024.

Nilsook, P., Wannapiroon, P., Nittayathammakul, V. & Anupan, A. (2021). Problems and needs of using modern learning resources in the digital age for learners in the working age. *Journal of Learning Innovation and Technology, 1*(1), 64-71.

Noothong, J. (2016). Development of knowledge sharing process on color grading together with lessons on iOS system for mini course. *Journal of Social Communication Innovation, 4*(2), 117-126.

Office of the Education Council. (2017). *National Education Plan 2017-2036*. Bangkok: Office of the Education Council Printing House.

Office of the Education Council. (2024). *Proposals for a Learning System Responsive to Future World Changes in 2040*. Bangkok: Office of the Education Council Printing House.

Office of the National Economic and Social Development Council. (2017). *The Twelfth National Economic and Social Development Plan (2017-2021)*. Bangkok: NESDC.

Office of the National Economic and Social Development Council. (2022). *The Thirteenth National Economic and Social Development Plan (2023–2027)*. (Online). https://www.nesdc.go.th, November 1, 2024.

Office of the National Education Commission. (1999). *National Education Act, B.E. 2542 (1999)*. Bangkok: Office of the National Education Commission Printing House.

Phelps, V. (2022). *Successful Online Learning with Gifted Students: Designing Online and Blended Lessons for Gifted and Advanced Learners in Grades 5-8*. Oxfordshire, UK: Routledge.

Phothinakhon, C. (2017). Annual General Meeting 2016 and Academic Conference on "Digital Library and Thailand 4.0 Transition," Bangkok, 23 March 2017.

Polkowski, Z., Borah, S., Mishra, S. K. & Desai, D. (Eds.). (2023). *Online Learning Systems: Methods and Applications with Large-Scale Data*. Boca Raton, Florida, USA: CRC Press.

Ratsamiphrom, W. (1999). *Instructional Design and Development*. Bangkok: Faculty of Education, Srinakharinwirot University Press.

Royal Thai Institute. (2012). *Royal Institute Dictionary of Educational Terms*. Bangkok: Arun Printing.

Thailand Professional Qualification Institute. (2021). *Occupational Standards in the Entertainment Industry*. (Online). https://www.tpqi.go.th, September 1, 2024.

Ubell, R. (2019). *Higher Ed Has Now Split into Dual Economies: Online and Traditional*. Burlingame, California, USA: EdSurge.

Wongchai, S. (2019). Resource-based learning for development of higher-order thinking skills in 21st century. *Veridian E-Journal, Silpakorn University, Humanities, Social Sciences and Arts, 12*(2), 1131-1145.