

# Creative Design Thinking Learning Model Integrated Immersive Experiential Marketing to Enhance Digital Entrepreneurs

Siriporn Chouylum, Panita Wannapiroon, and Prachyanun Nilsook

**Abstract**—This research is research and development aims to develop a creative design thinking learning (CDTL) model integrated immersive experiential marketing to enhance digital entrepreneurs' competence. The research methodology are as follows: study CDTL process integrated immersive experiential marketing, study digital entrepreneurs, develop CDTL models, develop CDTL systems, and evaluate digital entrepreneurs' competence. The samples were 30 vocational diploma students of the business computer program of Intrachai Commercial College. The instrument was the digital entrepreneurs' competence evaluation forms. Data were statistically analyzed with mean and standard deviation. The results indicated that (1) the CDTL process has 3 steps: preparation, implementation, and evaluation; (2) digital entrepreneur's competence has 3 competence: digital entrepreneurship competence, digital competence, creative digital economy innovation; (3) the learning model efficiency score was at the highest level; (4) the students study through the learning model obtained digital entrepreneurship competence score at the highest level and creative digital economy innovation at a high level.

**Index Terms**—Design thinking, experiential marketing, immersive experience, digital entrepreneur.

## I. INTRODUCTION

Thailand has been entering into the digital economy and social age. Digital technology has changed people's way of life, economic structure, activities, production process, trade, service, etc. Therefore, digital technology is an important tool to drive national development as the definition of “digital Thailand” means Thailand to create and utilize the full potential of digital technology in the development of infrastructure, innovation, information, human capital, and any other resources to drive the country's economic and social development towards stability, wealthy and sustainability [1].

In this regard, the government has promoted cooperation and partnership with all parties both government and private sectors in all branches of production and service including local communities. To create an environment and element of the research system, develop strong innovation and integrate research and development with commercial-use and innovation development.

The government has supported the communities to use new creative ideas and create a quality society to prepare the country for science and technology development and innovation. The government has emphasized in the development of entrepreneurs to be technological entrepreneurs (Technopreneur) by promoting a new generation of entrepreneurs to be strong SME (small, medium entrepreneur) society to be able to use innovation and digital technology to create the value of products and services [2].

This research proposes a CDTL model integrated immersive experiential marketing to enhance digital entrepreneurs' competence. The model consists of the following 6 components: empathy and understand sense, define emotional feel, ideate and think, develop prototype and act, implementation and relate, and evaluation. This is an integration of design thinking [3] and immersive experiential marketing [4] through technology that supports modern marketing to create customers' experience both in the real or digital world to gain customers' immersive experience with the products or services to create a good experience for customers to remember and influence the decision to buy a product or service. This will lead to a new way of augmented reality (AR) technology that combines real environments with virtual images. This is a technology that encourages an immersive experience, allows people to experience one or more of the five senses: vision, auditory, tactile, olfaction, gustation [5].

This research aims (1) to study the CDTL process integrated immersive experiential marketing to enhance digital entrepreneurs' competence, (2) to study digital entrepreneurship competence, (3) to develop the CDTL model integrated immersive experiential marketing to enhance digital entrepreneurs' competence, (4) to develop the CDTL system integrated immersive experiential marketing to enhance digital entrepreneurs' competence, (5) to evaluate digital entrepreneurship competence of the students who study through the CDTL model integrated immersive experiential marketing to enhance digital entrepreneurs' competence. The hypothesis of the research was the students who study through the CDTL model integrated immersive experiential marketing have high digital entrepreneurship competence.

## II. LITERATURE REVIEW

Design thinking is a systematic process of creative innovation. It has been using to solve problems and create innovations through products and services, consists of 3 main components: (1) understanding the problem - this process

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requires time to understand the problem deeply, which plays a large role in determining the direction to solve the problem. (2) thinking outside the box - to generate ideas and evaluate the possibility, (3) learning through experiments by creating prototypes to communicate and generate clear concepts [6]. In addition, the design thinking process is also a process that combines creative thinking and business thinking to develop new things and innovation based on customers' satisfaction and problem-solving (Human-Centered) [7]. The process of design thinking consists of empathize, define, ideate, prototype, test [3]. In conclusion, the design thinking process is a process that leads to the development of innovations to solve problems to meet the needs of customers or clients. The design thinking process must be acted repeatedly until achieving the best innovation before putting it into use.

Experiential Marketing focuses on giving consumers good experience, memorable or recalling past stories with brands. Experiential marketing can be used to combine marketing science in different forms [8]. The experiential marketing consists of 5 main components: (1) sense - the experience that occurs from the 5 senses: vision, hearing, smell, taste, and touch, (2) feel – the marketing that focuses on experience with deep feelings and emotions for consumers to create positive attitudes and feelings about the product, (3) intellectual experience – the creativity in participation in problem-solving to stimulate consumers to understand, (4) act – the physical behavior experience is marketing that aims at enhancing the experience of using or consuming the product of the target group. (5) relate – the experience caused by connecting or having relationships with social and cultural groups. Marketing aims at expanding the experience of creating a relationship with something related to the outside society [4]. In conclusion, experiential marketing means the process of creating connections between buyers or clients and products or services. In which the buyer or client can experience the old experience or the new experience linked to that product or service

Immersive experience is a technology that expands reality. or create a new reality by leveraging 360 degrees of space. Some immersive technology expands the reality by overlaying digital images in a user environment to create a new reality by disabling user interaction from the rest of the real world and allows users to experience in digital environments by using one of the following technologies: virtual reality (VR), augmented reality (AR) and mixed reality (MR) to create new experiences to interest the users. These lead to a new term called the immersive experience, which is the experience gained from the technology that creates harmony between the real world and the digital simulation world. Every interaction that occurs from all channels and perceptions will connect users with cutting-edge devices and new forms of interaction between users and technology [9]. In conclusion, immersive experience means using technology to create an immersive experience, virtual perception, create harmony between the physical world and the digital world so that users can feel the experience

Digital entrepreneur refers to business owners who are actively using digital technology to develop skills and management, business strategy planning as well as creating competitiveness by applying technological knowledge to

improve business processes [1]. The entrepreneurs who turn into digital entrepreneurs must create product value or services, workplaces look like digital organizations, digital markets. All activities that occur due to the use of information technology to help to create marketing or providing services with digital technology. The digital entrepreneurs will not be able to deliver their products or services or the service cannot be created without digital technology. Digital entrepreneurs can use social media to help customers access their business digitally with just a click, but millions of users around the world will access the business allowing businesses to easily reach target customers. Digital entrepreneurs, therefore, focus on digital commerce to create products and services in which delivered are supported by all online systems [10]. In conclusion, the digital entrepreneurs are those who founded businesses and operate through technology to run businesses immersive and creatively. Digital entrepreneurs must have digital competence, digital entrepreneurship competence, and creative digital economy innovation.

Therefore, the CDTL model integrated immersive experiential marketing is instruction through the CDTL model integrated immersive experiential marketing which enhances learners to be digital entrepreneurs with 3 competence: digital competence, digital entrepreneurship competence, and creative digital economy innovation.

### III. METHODOLOGY

This research is research and development, it is quantitative reach. The methodology flows as follow:

#### *A. Study Creative Design Thinking Learning Process Integrated Immersive Experiential Marketing*

- 1) Study related documents to design the CDTL process integrated immersive experiential marketing to enhance digital entrepreneurs' competence. The instruments are content analysis form, data were analyzed by content analysis techniques.
- 2) Synthesize design thinking process, experiential marketing process, digital competence, digital entrepreneurship, CDTL process integrated immersive experiential marketing to enhance digital entrepreneurs' competence, and synthesize equipment supporting CDTL model integrated immersive experiential marketing to enhance digital entrepreneurs' competence.
- 3) Apply synthesis results in designing the CDTL process integrated immersive experiential marketing to enhance digital entrepreneurs' competence.
- 4) Evaluate suitability of the CDTL process integrated immersive experiential marketing to enhance digital entrepreneurs' competence by 7 experts who experienced in the related field at least 5 years, selected by purposive sampling. The evaluation instrument was suitability evaluation form of the CDTL process integrated immersive experiential marketing to enhance digital entrepreneurs' competence.

#### *B. Study Digital Entrepreneurship Competence*

- 1) Study and synthesize related documents to determine the conceptual framework of digital entrepreneurship competence.

- 2) Study and synthesize related documents to determine the conceptual framework of digital competence
- 3) Study and synthesize related documents to determine the conceptual framework of creative digital economic innovation.
- 4) Create instruments, evaluation forms and evaluate index of item-objective congruence (IOC) of the digital entrepreneurship competence evaluation form of, digital competence evaluation form, creative digital economy innovation evaluation form, by the 7 experts who experienced in the related field at least 5 years.

**C. Develop Creative Design Thinking Learning Model Integrated Immersive Experiential Marketing to Enhance Digital Entrepreneurs' Competence**

- 1) Study and synthesize related documents to develop the CDTL model integrated immersive experiential marketing to enhance digital entrepreneurs' competence.
- 2) Synthesize components of the CDTL model integrated immersive experiential marketing to enhance digital entrepreneurs' competence.
- 3) Develop the CDTL model integrated immersive experiential marketing to enhance digital entrepreneurs' competence by applying information from research phase 1 CDTL model integrated immersive experiential marketing, and phase 2 digital entrepreneurship competence.
- 4) Evaluate the suitability of the CDTL model integrated immersive experiential marketing to enhance digital entrepreneurs' competence by the 7 experts who experienced in the related field at least 5 years.

**D. Develop the Creative Design Thinking Learning System Integrated Immersive Experiential Marketing to Enhance Digital Entrepreneurs' Competence**

- 1) Study and synthesize related documents to develop the CDTL system integrated immersive experiential marketing to enhance digital entrepreneurs' competence.
- 2) Synthesize components of the CDTL process integrated immersive experiential marketing to enhance digital entrepreneurs' competence to apply in the development of the CDTL system integrated immersive experiential marketing to enhance digital entrepreneurs' competence.
- 3) Develop the CDTL system integrated immersive experiential marketing to enhance digital entrepreneurs' competence by apply information from research in phase 1 CDTL process integrated immersive experiential marketing, and phase 2 digital entrepreneurship competence.
- 4) Evaluate the suitability of the CDTL system integrated immersive experiential marketing to enhance digital entrepreneurs' competence by the 7 experts who experienced in the related field at least 5 years.

**E. Evaluate Digital Entrepreneurship Competence**

Evaluate digital entrepreneurship competence, digital competence, creative digital economy innovation.

The samples of this research were 30 vocational certificate students in the 2<sup>nd</sup> year of business computer program in 2<sup>nd</sup> semester of academic year 2019, Intrachai Commercial College selected by random sampling. The research instrument used in data collection was digital entrepreneurs'

competence evaluation form and the data collected was statistically analyzed by mean and standard deviation.

**IV. RESULT**

**A. Result of Studying the Creative Design Thinking Learning Process Integrated Immersive Experiential Marketing**

The CDTL process integrated immersive experiential marketing as presented in Fig. 1 consists of 5 steps: (1) empathy and understand, (2) define emotional feel, (3) ideate think perception, (4) develop prototype and act, (5) implementation and relate.

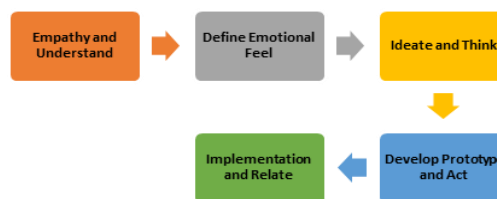


Fig. 1. Creative design thinking learning process integrated immersive experiential marketing.

The suitability evaluation result of the CDTL process integrated immersive experiential marketing evaluated by the 7 experts was at the highest level. The average score of all step was ( $\bar{x} = 4.71$ , S.D. = 0.46)

**B. Result of Studying Digital Entrepreneurship Competence**

The digital entrepreneurship competence consists of 3 competences: (1) digital entrepreneurship competence, (2) digital competence, and (3) creative digital economy innovation.

- 1) Digital entrepreneur competence (Fig. 2) consists of components: digital literacy and digital marketing, create a digital business environment, digital skills and digital leadership, understand the culture of entrepreneurship. Consistency index result of the digital entrepreneurs competence was between (0.57 – 1.00).



Fig. 2. Components of digital entrepreneur competence.



Fig. 3. Components of digital competence.

- 2) Digital competence (Fig. 3) consists of 6 components: (1) information and data literacy, (2) communication and collaboration, (3) digital content creation, (4) information access, selection, critical evaluation, (5) safety, and (6) problem solving. Consistency index result of the digital competence was between (0.57 – 1.00).
- 3) Creative digital economy innovation consists of 2 components: (1) create prototypes of creative digital economy innovation to respond to customer needs. Including the use of digital knowledge in customer service, (2) development of creative digital economy innovation to connect between customers and products. The consistency index result of the creative digital economy innovation was between (0.57 – 1.00)

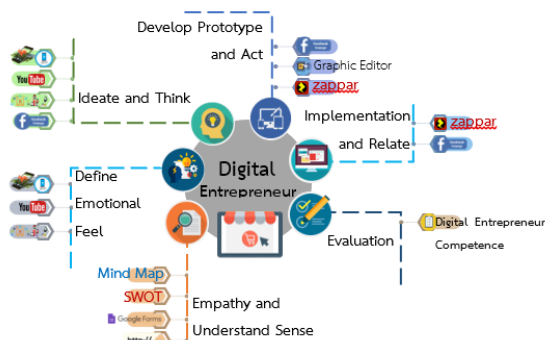


Fig. 4. Creative design thinking learning model integrated immersive experiential marketing to enhance digital entrepreneurs competence.

*C. Teaching-Learning through the creative Design Thinking Learning Model Integrated Immersive Experiential Marketing to Enhance the Digital Entrepreneur's Competence*

Teaching-learning through the CDTL model integrated immersive experiential marketing to enhance the digital entrepreneur's competence (Fig. 4) consists of 3 steps:

- 1) Preparation before the experiment
  - 1.1 Learners orientation, inform learning objectives, teaching and evaluation plans.
  - 1.2 Workshop on how to use supporting learning equipment such as Facebook, Facebook group, Facebook fan page, Google form, digital mind map, swot, e-commerce web site, immersive technology, graphic editor
- 2) The duration of teaching-learning through the CDTL model integrated immersive experiential marketing is 8 weeks.
- 3) The CDTL model integrated immersive experiential to enhance the digital entrepreneur competence consists of 6 steps:
  - 3.1 Empathy and understand sense: Learners must understand the target audience and study how to present products through sensory perception such as sight, hearing.
  - 3.2 Define emotional feel: Learners to identify ideas to create the creative digital economic innovation to make the target group or customers aware and have co-emotions with the product or service.
  - 3.3 Ideate and think: Learners are given the idea to create the immersive creative digital economic innovation by technology.
  - 3.4 Develop prototype and act: Learners create useable prototypes of creative digital economic innovation and useful to customers or target groups.

- 3.5 Implementation and relate: Learners create immersive creative digital economic innovation to connect the customer or target group with the product or service.
- 3.6 Evaluation: Evaluate digital entrepreneur competence consists of 3 competences: digital entrepreneur competence, digital competence, and creative digital economy innovation.

The suitability evaluation results of the CDTL model integrated immersive experiential marketing to enhance digital entrepreneur's competence evaluated by the experts was at the highest level. The average score of all components was ( $\bar{x} = 4.52$ , S.D. = 0.70).

*D. Results of Developing the Creative Design Thinking Learning System Integrated Immersive Experiential Marketing to Enhance Digital Entrepreneurs' Competence Consist of 5 Components*

The CDTL system integrated immersive experiential marketing to enhance digital entrepreneurs' competence (Fig. 5) consist of 5 components: (1) instructors and learners, (2) system components, (3) instruments - lesson plans, (4) supporting learning technologies such as Facebook, Facebook group, Facebook fan page, Google form, digital mind map, SWOT, e-commerce website, immersive technology, graphic editor and, (5) digital entrepreneur competence evaluation form.

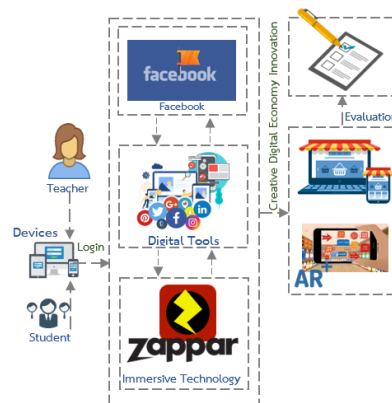


Fig. 5. Creative design thinking learning system integrated immersive experiential marketing to enhance digital entrepreneurs' competence.

The suitability evaluation results of the CDTL system integrated immersive experiential marketing to enhance digital entrepreneurs' competence evaluated by experts were at the highest level. The average score of all components was ( $\bar{x} = 4.54$ , S.D. = 0.45).

*E. Result of Digital Entrepreneur Competence Evaluation*

Before evaluating the digital entrepreneurs' competence of learners learning through CDTL model integrated immersive experiential marketing, the index of item-objective congruence of the evaluation form of digital entrepreneurship competence, digital competence, creative digital economy innovation were evaluated by the 7 experts who experienced in the related field at least 5 years. The consistency index of 3 competence was between (0.57 - 1.00).

*F. Results of Evaluating Digital Entrepreneur Competence of the Learners Learning through Creative Design Thinking Learning Model Integrated Immersive Experiential*

The digital entrepreneur competence of the learners

learning through CDTL integrated immersive experiential consists of 3 components:

- 1) Evaluation of digital entrepreneurship competence consists of 4 aspects: (1) digital knowledge and digital marketing, (2) creating digital business environments, (3) digital skills and digital leadership, (4) cultural understanding of entrepreneurship. The average score of all aspects was at the highest level ( $\bar{x} = 4.58$ , s.d. = 0.37) as presented in the Table I:

TABLE I: EVALUATION RESULT OF DIGITAL ENTREPRENEURSHIP COMPETENCE

Evaluation Items	Average	SD	Result
1. Digital knowledge and digital marketing	4.93	0.18	Highest
2. creating digital business environments	4.80	0.32	Highest
3. digital skills and digital leadership	4.34	0.47	High
4. cultural understanding of entrepreneurship	4.27	0.52	High
<b>Total Average</b>	<b>4.58</b>	<b>0.37</b>	<b>Highest</b>

- 2) Evaluation of digital competence consists of 6 aspects: (1) information and data literacy, (2) communication and collaboration, (3) digital content creation, (4) data access, selection and assessment, (5) safety, (6) problem-solving. The average score of all aspects was at the highest level ( $\bar{x} = 4.73$ , s.d. = 0.24) as presented in the Table 2:

TABLE II: EVALUATION RESULT OF DIGITAL COMPETENCE

Evaluation Items	Average	SD	Result
1. Information and data literacy	4.76	0.28	Highest
2. Communication and collaboration	4.97	0.09	Highest
3. Digital content creation	4.82	0.22	Highest
4. Data access, selection and assessment	4.66	0.24	Highest
5. Safety	4.42	0.35	High
6. Problem Solving	4.72	0.28	Highest
<b>Total Average</b>	<b>4.73</b>	<b>0.24</b>	<b>Highest</b>

- 3) Evaluation of creative digital economy innovation consists of 2 aspects: (1) creating prototypes of the creative digital economic innovations that respond to customer needs including the use of digital knowledge in customer service, (2) developing reative digital economic innovation to connect between customers and products. The average score of all aspects was at high level ( $\bar{x} = 3.52$ , S.D. = 0.84) as presented in the Table III:

TABLE III: EVALUATION RESULT THE CREATIVE DIGITAL ECONOMY INNOVATION

Evaluation Items	Average	SD	Result
1. Creating prototype online shop by immersive technology that respond to customer needs	3.69	0.84	High
2. Opening online shop by immersive technology to link between customers and products.	3.35	0.84	Fair
<b>Total Average</b>	<b>3.52</b>	<b>0.84</b>	<b>High</b>

## V. DISCUSSION

From analysis and synthesis of documents, including suggestions from experts. There are issues for discussion as

follows:

### A. The Creative Design Thinking Learning Model Integrated Immersive Experiential Marketing to Enhance Digital Entrepreneurs' Competence

The CDTL model integrated immersive experiential marketing to enhance digital entrepreneurs' competence consists of 6 steps: (1) empathy and understand sense, (2) define emotional feel, (3) ideate and think, (4) develop prototype and act, (5) implementation and relate, (6) evaluation. Each step is learning through design thinking integrated experiential marketing and encourages students to be creative in creating immersive creative digital economy innovation. The design thinking process is consistent with design thinking of Stanford d.school [3] which describes the principles of the innovation process consists of 5 components: (1) empathize is a step that must understand the problems of customers or users of innovation, (2) define is a step to identify the problems to find the solution, (3) ideate is a process of brainstorming, creating creative ideas to develop innovation to meet the needs of innovation users, (4) prototype is steps to create prototypes of innovation which may use simple methods and can be used as a model and lead to the development of real innovation, (5) test is the process of testing innovation by actual use and evaluate the use of innovations to develop and improve to meet the needs of users and maximize benefits. Each step will be integrated experiential marketing which will create learners' creativity to connect the target group or customers with the product or service. This is consistent with Schmitt's experience in marketing. [9]described the customer experience strategy in 5 components: (1) sense - experiential marketing from the 5 senses, namely vision, hearing, smell, taste, and touch, (2) feel - experiential marketing of emotion, feeling of the consumers, (3) think - experiential marketing of creativity to participate in solving problems, (4) act - experiential marketing of physical or action or customer service, (5) relate experiential marketing by connecting or having relationships with social and cultural groups.

The immersive experience, the students are encouraged to use augmented reality (AR) technology to participate in creating immersive experiential marketing which is consistent with Ng and Ramasamy [11] describes the creation of technological knowledge that will result in the development of marketing innovations with augmented reality (AR) technology. This technology will develop better user information, helps to create the experience and creative marketing methods. In the future, the use of AR technology for marketing will become normal and be able to develop appropriately

### B. Evaluation of Digital Entrepreneurship Competence of the Students Learning through Creative Design Thinking Learning Model Integrated Immersive Experiential Marketing

- 1) Evaluation of digital entrepreneurship competence consists of 4 aspect: (1) digital knowledge and digital marketing, (2) creating digital business environments, (3) digital skills and digital leadership, (4) cultural understanding of entrepreneurship which is consistent with J Melnikov, V Jurgaityte and J Zaščerinska [12] conduct research on promoting immigrants and refugees

to become a digital entrepreneur by using the model of entrepreneur development with new methods which is the use of digital technology to promote digital entrepreneurs to the labor market. Therefore, the evaluation of digital entrepreneur competence is to support and leads the training of the target group to be digital entrepreneurs. The immigrants or refugees will have the opportunity to create new businesses resulting from the use of ICT, internet, mobile phones and other digital platform.

- 2) Evaluation of digital competency consists of 6 aspects: (1) information and data literacy, (2) communication and collaboration, (3) digital content creation, (4) information access, selection, critical evaluation, (5) safety, (6) problem-solving. This is consistent with Porlán and Sánchez's research [13], evaluate the digital competence of students before entering higher education at the University of Murcia. From their research show the learners' level of digital competency when entering the university's first year. This will lead to the development of digital skills at a more proficient level. At the same time, it is expected that the results of the digital competency evaluation of students before entering university must be at a basic level of all citizens should have to be able to apply in daily life and meet the needs of the labor market.
- 3) Evaluation of creative digital economy innovation consists of 2 aspects: (1) creating an online shop prototype with immersive technology that responds to the needs of customers including the use of digital knowledge in customer service, (2) opening an online shop with immersive technology to connect between customers and products. This is consistent with Wiebach and Send research. [14] mentioned that augmented reality (AR) will have the potential to change digital marketing strategy and mobile marketing in the next few years. In the research, it shows the important factors that affect the evaluation and acceptance of customers who buy products using AR technology and clearly that customers interact with the purchase of products using AR technology in a good direction. Research also shows that the use of technology for digital marketing is an important factor, depending on the development and further technical improvements. There are still many challenges to implementing AR technology. Especially the development of AR technology is not a complicated matter. The enhancement of this technology will help customers to be more convenient to buy products especially the view of products or services through the display screen that may be too narrow at the moment. Therefore, the equipment aspect considered an important factor affecting the customer purchase process. But various flaws said does not negatively affect the customers' evaluation of the use of AR technology to develop digital marketing innovations. It is therefore assumed that some technical problems will be resolved until finding the best way to use AR technology.

## VI. CONCLUSION

Learning-teaching through the CDTL model integrated

immersive experiential marketing helps to enhance learners' competence of a digital entrepreneur. The learners are able to develop digital commerce creatively, The use of design thinking process integrated experiential marketing helps learners understand the needs of customers and leads to creating concepts and developing digital commerce to meet customer needs. The use of immersive technology to apply to digital commerce for customers to participate and create a virtual experience in purchasing products or services, create a new experience associated with the shop or service. In addition, learners can further expand the idea of innovation in digital entrepreneurs or create new attitudes New ways of thinking By using technology to operate a digital business

The researcher would suggest for implementation of teaching-learning through CDTL model integrated immersive experiential marketing to enhance entrepreneurs competence as follows:

1. Hardware: such as computers that support the internet connection, support software installation for graphics and animation should be well prepared. Including the preparation of suitable and adequate internet network systems to connect devices used in learning-teaching.
2. Software: such as programs or applications to use in graphics, animation, text, logo edition, use of immersive technology should be well installed. Including install browsers for using sample websites of online stores and tools for developing creative digital commerce.
3. Content: such as teaching content through the CDTL model integrated immersive experiential marketing to enhance entrepreneurs competence is electronic commerce systems development course of diploma program, Office of the Vocational Education Commission by integrating knowledge or concepts from marketing science, digital technology skills including instructor and learners experience to creating a new body of knowledge that encourages learners to become digital entrepreneurs.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## AUTHOR CONTRIBUTIONS

Siriporn Chouyluam, Panita Wannapiroon, and Prachyanun Nilsook as a team developed and implemented "Creative Design Thinking Learning Model Integrated Immersive Experiential Marketing to Enhance Digital Entrepreneurs" program and contributed to the writing of the paper.

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