# L-WI : Digital Innovation for Incubating Local Wisdom Innovators in Creative and Innovation Skills

Thanathnuth Chatpakkarattana & Patthanan Bootchuy

DOI:10.59668/1269.15643



Local Wisdom Incubator is a professional web application that uses a seamless learning model to enhance creativity and innovation skills by using wisdom knowledge and five design thinking processes. Local entrepreneurs were encouraged to invent innovation and create new products to meet the needs of customers. The web application allows local entrepreneurs to study and research data in real life that can practice creating innovative works based on the design thinking concept in order to innovate and create new products.

## Introduction

In Thailand's local communities, villages, and community collectives are being helped by the government-supported OTOP program. OTOP is short for 'One Tambon One Product' (Community Development Department, 2020). Artisans in different regions of the country produce an array of unique handmade products that showcase the traditions of that particular area. The research problem is local entrepreneurs lack the skills to create new unique products and the knowledge to create innovation for product development to meet the needs of customers. Thus, the solution is to develop digital innovation for incubating local wisdom innovators in the creative and innovation skills of local entrepreneurs. The web application allows local entrepreneurs to study and research data in real life while also storing, sharing, and disseminating knowledge digitally anytime and anywhere. Local entrepreneurs can practice creating innovative works based on the design thinking concept in order to innovate and create new products. The research participants were 32 OTOP manufacturers and entrepreneurs in Nonthaburi Province, Thailand.

## **Literature Review**

Organizations in a wide array of fields and disciplines are increasingly using design thinking as an innovative process to create products or services that address wicked problems in their industries. (Bender-Salazar, 2023) Design thinking has undergone constant change; from being used for activities aimed at creating new products to being implemented as a solution in managerial practices that face strategic challenges (Dell'Era et al., 2020; Carella et al., 2023) A series of studies have defined design thinking as a powerful practice: a set of techniques, methods and tools that can support managers to face and overcome difficult and multifaceted challenges. (Brown, 2008, Carella et al., 2023). By embedding learning and reflective practices into the structure of design thinking, a web application that uses a seamless learning model of design thinking emerges that is a more effective tool for framing, setting in context, and solving these types of problems within teams to innovate and create new products.

## **Development Process of the Local Wisdom Incubator**

Local Wisdom Incubator (L-WI) was created as a digital platform for local entrepreneurs to learn new skills (Reskill). The design of the web application consists of (1) web app structure or site map, (2) screen design, data input, and user interface, (3) web application components, (4) interaction parts, and (5) seamless learning model. The developed web application consists of 4 main menus: 1) Guide, 2) Media, 3) Workshop, and 4) Account. The development language is PHP, displayed in HTML5 format, and the web application is structured with CSS bootstrap5.

Digital media used to develop wisdom-based creativity and innovation is in the form of video clips (visual and audio) with expert lecturers delivering the content. The media consists of four categories: 1) Creation of innovation wisdom knowledge, 2) Design thinking for creating innovation, 3) Creation of innovation by applying business concepts, and 4) Creation of media to stimulate sales and meet customers' needs creatively

## The design thinking workshop process in L-WI has 5 steps as follows.

Step 1: Empathize. Understand the problem or needs of the target group by observing behavior, interviewing, and listening to fully comprehend the needs of the target group without the interviewer's attitude. This is done by using an Empathy Map.

Step 2: Define. Define the problem and identify and analyze the cause of the problem (Pains) thoroughly to find a way to solve the problem directly (Gains). The crucial aspect is that it is a problem from the user's point of view, not a business problem. This is done by using a Define Map.

Step 3: Ideate. To brainstorm new ideas to find solutions to the target group's problems and to create new things. At this point, there is no need to be concerned about any boundaries or limitations. Any idea can be fully presented. There is no right or wrong. The emphasis is on developing new and innovative ideas that meet the needs of customers, focusing on creating a variety of alternative ideas and prioritizing ideas to develop prototypes. This is done by using Ideate Map.

Step 4: Prototype. To take the best idea to create a prototype by drawing a structure or creating a digital model. All information is input to test the idea to see if it can solve problems and meet the needs of the target group or not. This is done by using the Business Model Canvas.

Step 5: Test. To test efficiency, the prototype is tested for actual use with a target group that has attributes similar to the consumer group. Evaluation is conducted. Then, before releasing products and services to the market, the difficulties, barriers, advantages, and disadvantages that arise are used to improve and fix them. This is done by using a Test Map.

## **Roadmap for Using Local Wisdom Incubator**

A seamless learning process map to promote wisdom-based creativity and innovation skills for local innovators consists of the physical dimension (F2F/Onsite) and the digital dimension (Online). Learning in the digital dimension can be divided into synchronous and asynchronous learning with a learning period of 4 weeks. Learning can be divided into 6 steps: (1) Pretest for evaluating creative and innovation skills in three areas including thinking creatively, working creatively with others, and implementing innovation; (2) F2F workshop included empathizing, defining, and ideating; (3) Self-learning via L-WI application by studying learning materials and resources; (4) Online workshop involved listen to lectures, practice, and create a prototype; (5) Pitching comprised present, pilot test, and receive feedback; and (6) Posttest for evaluating skills and work of innovation

#### Figure 1

The Roadmap of Local Wisdom Incubator



## How to Use Local Wisdom Incubator

1. Register to use the web application by entering the basic information required of local entrepreneurs. (https://ioet.stou.ac.th/lilc/)

- 2. Study learning materials in the form of video clips to enhance creative and innovation skills and search for learning resources about local wisdom.
- 3. Participate in a workshop based on the 5-step design thinking process, which includes empathizing, delineating, ideating, prototyping, and testing through a tool called Local Wisdom Canvas.
- 4. Study manuals and learning maps based on the design thinking process in the Guide menu.

5. Use the Chat & Share menu to type a query message to the administrator and/or post information immediately.

Figure 2

#### The Steps How to Use Local Wisdom Incubator



## **Results**

This research question is whether the Local Wisdom Incubator enhances local entrepreneurs' creativity and innovation skills. The research methodology is experimental research (the one-group pretest-posttest design). The data were analyzed by mean, standard deviation and t-test. The results of using the Local Wisdom Incubator to enhance creativity and innovation skills by using wisdom knowledge for local innovators found that the participants had a score of self-efficacy perception on creativity and innovation skills after the experiment significantly higher than before the experiment at the .05 level (see Table 1). There were 20 works of innovation creation using wisdom knowledge (n = 32). The evaluation topics were divided into five areas. (1) The process of creating innovations, (2) the application of knowledge and creativity in the development of works, (3) the integration and collaboration, (4) the application of wisdom in the creation of innovations to create added value, and (5) the value resulting from innovation creation (see Figure 3).

#### Table 1

A Pretest and Posttest Score of Self-Efficacy Perception on Creativity and Innovation Skills

	Ν	Mean	SD	SD		sig
Pretest	32	3.92	0.19	0.64	-9.24*	0.000
Posttest	32	4.57	0.34			

\*The mean difference is significant at the 0.05 level.

#### Figure 3

The 20 Works of Innovation Creation Using Wisdom Knowledge



## Discussion

This study's findings suggest that the web application that uses a seamless learning model by using wisdom knowledge and five design thinking processes is an effective framework for addressing creativity and innovation skills. Namely, participants were able to recall various terms, such as "ideation" and "prototyping" when defining this web application. The design of the web application to serve as a digital tool to cultivate local innovators emphasizes a user-friendly design to facilitate easy learning and use. It also focuses on simplicity, consistency, and uniqueness. The application provides useful content and has a navigation system for users. The system supports responsive access and display (IxDF, 2022). This is in accordance with the research of Xin et al. (2018), in which a seamless learning platform model can effectively integrate the learning resources and teachers of the open education system and social individual education system and provide high-quality shared learning resources and diverse stratification teachers to students and social workers. The results of the study found that the implementation of seamless learning strategies through mobile phones was an important factor in promoting students' ability to learn concepts. The advantages of seamless learning through mobile phones are 1) Learners can learn unlimitedly both in the classroom and outside the classroom; 2) Learners can learn anywhere, anytime; 3) It combines formal education and non-formal education; 4) Learners are digital natives. Therefore, they are familiar with mobile phones; 5) Learners can learn both personally and socially; and 6) Learners can learn both physically and digitally.

## References

- Bender-Salazar, R. (2023). Design thinking as an effective method for problem-setting and needfinding for entrepreneurial teams addressing wicked problems. *Journal of Innovation Entrepreneurship*, *12*(24). <u>https://doi.org/10.1186/s13731-023-00291-2</u>.
- Brown, T. (2008). Design Thinking. Harvard Business Review. https://hbr.org/2008/06/design-thinking.
- Carella, G., Cautela, C., Melazzini, M., Pei, X., & Schmittinger, F.(2023). Design thinking for entrepreneurship: An explorative inquiry into its practical contributions, *The Design Journal, 26*(1). https://doi.org/10.1080/14606925.2022.2144565

Community Development Department, Ministry of Interior. (2020). https://cep.cdd.go.th/

- Dell'Era, C., Magistretti, S., Cautela, C., Verganti, R., & Zurlo, F. (2020). "Four kinds of design thinking: From ideating to making, engaging, and criticizing." Creativity and Innovation Management, <u>29(2)</u>, 324–344. <u>https://doi.org/10.1111/caim.12353</u>
- Interaction Design Foundation IxDF. (2022). Responsive Design: Best Practices. Interaction Design Foundation -IxDF. https://www.interaction-design.org/literature/article/responsive-design-let-the-device-do-the-wor
- Xin, Y., Zuo, X. and Huang, Q. (2018), "Research on the construction of seamless learning platform based on open education", *Asian Association of Open Universities Journal*, *13*(1), pp. 88-99. https://doi.org/10.1108/AAOUJ-01-2018-0005

### Acknowledgment

This article is part of a research project on the development of a seamless learning model to enhance creativity and innovation skills by using wisdom knowledge based for local innovators funded by the National Research Council of Thailand (NRCT)



This content is provided to you freely by The Journal of Applied Instructional Design.

Access it online or download it at <a href="https://jaid.edtechbooks.org/jaid\_13\_2/lwi\_digital\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_incubating\_local\_wisdom\_innovators\_in\_creative\_and\_innovation\_for\_i