摘要

隨著時代不斷推進，各種新的社會需求與不同領域的問題與日俱增，舉凡社會議題、環境議題、公民議題、政治議題、教育議題、商業議題、設計議題等，都是日常生活中會面臨到的現實問題。為了因應為數眾多的全球議題，找出解決方案被視為當今問題解決最主要的核心，然而部分文獻指出事實並非如此，認為一個好的問題解決流程在於一開始是否問對問題，因此如何於問題解決流程中找出問題的核心與定義出好的問題將會成為一項重要的議題。

本研究透過文獻探討創新的問題解決流程，從決策管理、創新管理的角度去審視其與問題解決過程的關聯性，從文獻的脈絡中找出問題解決過程的共同點作為本研究的設計元素，並根據設計思考的脈絡去探索其可能需要的工具及流程，建立一個協助問題決策者之問題界定平台。透透過參與三創與設計思維課程，本研究結合行動研究於縱貫性研究當中，使用設計思考方法來觀察 53 名學生於開發專案過程中所遇到的問題，從中發現三項要點，(一)學生需要一套標準化的標準來評鑑其使用設計思考工具的有效性，(二)學生需要更多的範例來指引他們如何使用工具的正確性，(三)學生需要一套完整的問題解決流程指引以確保可以有更好的解決方案。本研究設計了一套問題解決流程，並透過紙本模擬的方式邀請了 6 位來自不同領域的大學生共同參與實驗，從中了解本研究之流程與系統製作上需增進之處，亦分析了本流程對學生的問題發現能力之提升、學生對系統介面的感受等，了解使用者對系統的需求與期待。最後根據使用者提供的建議，本研究發展了一套網頁系統原型，並邀請 6 位正在進行跨校合作比賽的學生共同參與網頁操作，得到更進一步之研究證實。

本研究發現學生於開發專案的過程中，常常發現不到真正的核心問題為何。鑒於此現象，本研究透過歷程引導與階段性任務幫助使用者聚焦問題、發現問題，從了解使用者的需求至挖掘問題的背後見解，進而定義出關鍵的問題核心，最後協助使用者根據觀察與發現去找出可能的解決方案及設計原則。

本研究貢獻分做理論貢獻： (一)整合問題框架理論之關鍵組成要素，(二)使用者經驗獲得，透過本研究讓使用者初階認識與深入理解設計思考思維，了解設計思考為一循環過程；與「ProFramer 問題界定流程」實作貢獻： (一)證實透過整合現有設計思考方法並開發系統化的問題界定流程能夠有效提升專案開發團隊從發現問題至界定問題的核心及方向，(二)提供設計原則，並判定使用者之設計是否符合使用者經驗標準，(三)設計符合使用者需求與經驗之問題界定服務平台。

關鍵字:問題界定、問題解決、創造性過程、創新管理、設計思考

ABSTRACT

With the advancement of modern life, meanwhile, emerging new social needs and problems coming from different fields are increasing every day. Like most social problems, environmental problems, civil problems, political problems, educational problems, business problems, and design problems had been considered as a wicked problem which means ill-structured, complex, and real world problems. Previous study indicated that an effective problem-solving process starts with asking the right questions in the beginning (Perry and Vanderklein, 2009). Therefore, how to define and get insights of a problem and frame a problem in the problem-solving process has become a crucial issue.

Based on review on relevant models in problem solving, decision making, innovation management, and so on, we considered Design Thinking process as building blocks to constitute our design patterns. We investigated the required tools and process to develop a platform for problem solvers to define their problem based on the context of Design Thinking. Through engaging ourselves into a class with 53 students named “Creativity, Innovation, Entrepreneurship, and Design Thinking “, this research combined an action research with a longitudinal study and used Design Thinking methods to observe the problems that happening in the class. There were three findings: (1) students need a set of standardized criteria of tools for evaluating the effectiveness of design thinking tools; (2) students need to have more instructional examples for references to check the correctness of the usage of Design Thinking tools; (3) students need to have a well-structured instruction for guiding them to a better solution.

Drawing on the user experience derived from the field study, we developed a problem-framing system for problem solvers based on the insight of user needs. The service system includes: (1) Finding Construction, (2) Data Collection, (3) Insight Construction, (4) Profile Construction, (5) Journey Construction, and (6) Idea Construction. We also developed the program and the conducted prototyping test, and the results showed that this service system can help them reframe their project comprehensively and provide a guidance of the right direction with the supported tools.

There are five contributions of this research, including theoretical and practical contribution. The theoretical contributions include: (1) identifying the key components of problem framing, and (2) helping users better understand about how to use Design Thinking tools correctly to solve a problem. The practical contributions include: (3) assisting users to improve the ability of framing problem and make sure the project develop well in a both systematic and rational way, (4) helping users to find out the ultimate goal of design and determine whether it is feasible or not based on

the user experiences, and (5) providing a problem-framing platform based on user needs and experiences.

Keywords: Problem framing、Problem solving、Creative process、Innovation management、Design thinking