

Chapter 45

A Case Study of a Knowledge-Sharing Web-Based Platform for Energy Education

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ABSTRACT

This study presented the implementation and development of a knowledge-sharing web-based platform for energy education, called “Energy Magician”. The web-based platform was designed for the students who participating in “Energy Saving and CO₂ Reduction Innovation Contest” to share their experience and ideas of energy saving. The researchers applied a web-based survey to explore how the participants with different personal characteristics value the key factors of functional mechanism design, reward system, and knowledge sharing of the platform. The research found that the participants valued differently the various key factors such as the reward system, the platform’s functional mechanisms, and sustained knowledge sharing. Participants in different groups with different background, such as prior experience in using the platform, usage duration, and degree of participation, valued the platform’s reward system differently. Moreover, participants in different groups ordered the importance of the platform’s functional mechanisms in distinct ways. As for the key factor of sustained knowledge sharing, the participants with prior experience in web-based knowledge sharing tended to emphasize the “fostering of the ability in data compilation”; elementary school students tended to emphasize “level titles and privileges” and “cash and prize rewards” while contestants with high degrees of participation tended to emphasize the “joy in knowledge sharing”, “joy in taking part in the contest”, and “level titles and privileges”. When building similar platforms in the future, it is recommended that the design should be differentiated in terms of the reward systems and platform functions and be tailored to the participants’ characteristics, so as to maximize their effective use.

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1. INTRODUCTION

In this era in which searching the web for knowledge has become so prevalent, a web-based knowledge sharing platform can provide the users a space to share, search for, and explore knowledge. According to the “Survey of Network Usage in Taiwan” conducted by the Taiwan Network Information Center in March 2012, it was estimated that there were 15,936,977 people, about 69% of the total population, who had used the Internet, indicating that using the Internet has become an important experience in people’s daily lives and that people can complete many tasks quickly and conveniently through the Internet (TNI Center, 2012). Meanwhile, under the government’s active promotion of information technology education in elementary and high schools, the Internet has really become an indispensable tool in the daily lives of the students.

Surveys have indicated that students receiving web-based learning rewards have higher web-based learning willingness than those not receiving them, and students receiving web-based learning perform better in the comment-and-reply aspect, as measured in the degree of participation in web-based learning, than students not receiving the rewards. Additionally, all students receiving different reward mechanisms express positive affirmation for web-based learning. Therefore, reward mechanisms are a very critical factor for web-based learning (Yen & OuTang, 2012).

The “Energy Magician” knowledge-sharing platform was established primarily for the Energy Saving and CO₂ Reduction Innovation Contest sponsored by the National Science Council of the Executive Yuan. Its main goals were to expand the breadth and depth of the participants’ concepts in “energy saving and carbon reduction” and provide the web-based platform for the participants to share knowledge in energy technologies, discuss, communicate and exchange ideas, and to reinforce the participants’ motivation. On such a knowledge-sharing platform with conspicuous themes, the

elementary and high school students participating in the contest all had different backgrounds as well as habits in using the Internet. Would they exhibit distinct disparities in their responses to the various functional mechanisms of the platform design? Targeting the students participating in the knowledge sharing, the researchers have designed and conducted a web-based survey, in a hope to explore how the participants with different personal characteristics would value the key factors of the functional mechanisms design, reward system, and knowledge sharing of the platform.

2. PURPOSES OF RESEARCH

This research aims to identify the key factors for the web users relating to the functional design mechanisms of knowledge sharing platforms, the use of reward systems, and knowledge sharing. The subjects of this research were the participants who joined in the “Energy Magician” knowledge sharing platform of the Energy Saving and CO₂ Reduction Innovation Contest. The purposes of this study were: (a) to explore how the participants value and operate the various functions of the platform; (b) to find the key factors for participating in the knowledge sharing different among contesting students of different groups.

3. LITERATURE REVIEW

3.1. The Functional Mechanism of Knowledge Sharing Web-Based Platform

The world-wide Internet and well-developing communication technology have transcended the limitations of time and space and allowed social communities to connect with people in different regions. Through the application of Web 2.0, the functions of the Internet have expanded from fast data search and file and information sharing to ad-

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