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應用藝術研究所

碩士論文

數位移民的適應指南：不同數位程度者的電子書學習歷程

The Adaptation Guideline for Digital Immigrants:
The E-Reader Learning Journey of Different Digital-skilled Users

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摘要

隨著數位科技迅速的發展，數位移民和數位原生民之間的差距越加明顯。為了減少他們之間的數位落差，本研究以台灣的宗教型非營利組織中的數位移民為研究對象，因為他們在該類型的組織中佔超過半數，且正面臨組織電子化的過程。我們以慈濟組織所推行的靜思電子書做為研究案例，並透過脈絡調查法(contextual inquiry)以及 Dreyfus 的技能習得模型(Dreyfus model of skill acquisition)來檢視慈濟的數位移民學習靜思電子書的過程；此外，由於不同數位程度的數位移民學習數位工具的成效並不相同，我們依據靜思電子書使用者的電腦使用經驗將他們區分為三種數位程度，並比較他們學習靜思電子書的過程。最後本研究提出數位移民學習的五階段過程以及在每一階段學習上的建議。

根據研究的結果與討論，以下是對於宗教型非營利組織推行電子化的建議：
(1) 創造使用數位工具或服務的動機；(2) 開發數位平台供不同的數位工具使用；
(3) 建立組織成員間的學習互助網絡。本研究結果期望能夠提供宗教型非營利組織在推行電子化的過程能夠有效地協助數位移民學習數位工具的方向。

關鍵字：數位移民、慈濟、電子書、技能習得模型

Abstract

As digital technology develops at a significant rate, the divide between digital immigrants and digital natives is more obvious. In order to reduce the divide, we focused on the digital immigrants of the religious nonprofit organizations in Taiwan since they account for over half of the religious nonprofit organizations and they are encountering the digitalization of their organizations. Therefore, we took the Tzu Chi e-reader as the case study, and used contextual inquiry and the Dreyfus model of skill acquisition for viewing the digital immigrant's process of learning how to use the Tzu Chi e-reader from a holistic perspective. In addition, the performance in learning a digital tool differs between the digital immigrants with different digital skills. We divided the Tzu Chi e-reader users into three levels of digital skills according to their computer-using experience, and compared their learning process of the Tzu Chi e-reader. Finally, we proposed the five stages of the digital immigrant's learning process and the recommendations in each stage.

According to the results and the discussion, here is the implication of digitalization for the religious organizations: (1) Create the motive of using the digital tool or services; (2) Develop the digital platform for the different digital tools; (3) Build the assistant net. The results of the study are expected to give the religious nonprofit organizations a strategy for promoting the digitalization work as well as assisting the digital immigrants in learning the digital tool.

Key words : digital immigrant, Tzu Chi, e-reader, model of skill acquisition

誌謝

當初握著 IAA 的車票，原定兩年後到站的時刻表，在第二年之後一再地誤點，一度不小心繞到德國境內，最後終於在三年後的這天看見終點站的身影。

這段期間，在 IAA 列車上遇見了各式各樣的乘客以及列車長。在鄧老列車長的車廂裡，學到了如何觀察使用者的行為，並且從使用者的角度思考事情，培養自己對於他人的同理心；因此走出鄧老列車長的車廂後，總是不自覺地留意其他乘客的舉動，注意周遭所處的環境。在陳老列車長的車廂裡，總是能夠感受到滿滿的愛與包容。在莊林兩老列車長的車廂裡，有幸親身蒞臨大砲與機關槍的震撼現場。而在走道上不時遇見有著夢幻森林氣息的賴老列車長以及充滿活力大地氣息的謝老列車長。車廂內來來去去的乘客，正是 IAA 列車最珍貴且無可取代的資產，我想足以列為世界文化遺跡之一吧。

用一句話來總結這三年多隨著 IAA 列車遊歷的感想：

    IAA 列車讓我看見比學業書本上還要精采、豐富且更重要的風景。

手上握著 CP 值超乎預期的 IAA 車票即將到期，我也該準備搭乘另一班列車。希望仍留在列車上的老乘客以及即將上車的新乘客，能夠好好的享受搭乘 IAA 列車的日子。

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CH1 Introduction

1-1 The Background

The Conflicts between Generations in The Digital World

As the digital technology develops, the divide between generations is more obvious. Marc Prensky (2001) coined the terms "digital native" and "digital immigrant" as a metaphor to describe the phenomenon in education. According to Techopedia, the definition of "digital native" is an individual who was born after the widespread adoption of digital technology. They seem to learn a new technology quick since the early exposure to technology has fundamentally changed the way they learn. Oppositely, "digital immigrant" means a person who was born before the widespread adoption of digital technology and who was not exposed to it at an early age.

Due to the difference of growing background, it caused tension, misunderstanding, and conflict at home, school, and workplace between digital natives and digital immigrants (Zur, O. &Zur, A., 2011). For example, parents and teachers always complain children spend more time on surfing rather than studying. In fact, children can study via surfing. Parents and teachers misunderstand children easily because they have not studied in this way since they were young. This situation makes digital natives feel misunderstood and disrespected; on the other hand, digital immigrants feel concerned and upset.

The Accelerated Digitalization Society

The development of digital technology changes not only people themselves but also their society; moreover, it still grows at a significant rate of digitalization. In recent fifteen years, many businesses and public services have been digitalized due to the rising of internet as well as the trend of eco-friendliness. In other words, both employees and public have to get used to digital-based services instead of traditional one as it has been part of our lives. It is not a big deal for digital natives except digital immigrants. Digital immigrants are unable to learn and get used to it well as digital natives do because of their physical or psychological handicaps. As a result, it will leave them isolated in the digital world (Holmes, L., 2012).

If we assist digital immigrants in learning the new technology, it can not only reduce tension and conflicts between digital immigrants and digital natives but also make digital immigrants close to the digital world.

1-2 The Motivation

The Rising of Touchscreen Device

In order to reduce the digital divide between generations, our government has provided free computer courses for elder digital immigrants every year since 2006 (行政院研考會,2012).They found that traditional personal computer and laptop are not so easy to use for digital immigrants due to the operation of keyboard and mouse. In recent years, the rising of smartphones and tablets gives us a more intuitive and user-friendly way to operate digital tools. According to a market research from America, the proportion of e-reader user is growing with age. There are around 33% users over 55 years old (張彥華 &宋振世,2013). In Taiwan, there are 27.2% users age 65 and older owning tablets, which is the most in all ages. In general, tablets owners age over 40 are more than younger (行政院研考會,2012). As a result, touchscreen devices seem to be popular and appropriate to digital immigrants.

Not All Digital Immigrants Are The Same

It is found that the performance of learning a new technology differs from each digital immigrant (行政院研考會,2012). Why do some digital immigrants learn a new technology quick and well but others do not? It seems that the definition of digital immigrant by Prensky is too simplistic to explain (Feeney, L., 2010). In fact, there are another ways to divide people in this group besides age. Azzia and Ofer (2011) said that digital immigrants are a highly diverse group according to their attitudes and capacities toward digital technology. Furthermore, they sorted digital immigrants into three major groups: Avoiders, Reluctant Adopters, and Enthusiastic Adopters. Avoiders prefer their lives without digital technology or with minimal technology. Reluctant Adopters accept technology and try to engage with it, but they still feel alien to it. Enthusiastic Adopters have the potential to perform as digital natives. Most digital immigrants are reluctant adopters. It also means most of them are willing to learn new digital technology but need more help and guidance.

The Digitalization of The Religious Nonprofit Organizations in Taiwan

Not only businesses have been digitalized, nonprofit organizations also followed the trend of digitalization. There are many nonprofit organizations in Taiwan, and the religious organizations take the most part of it. Moreover, the rate of religious organizations' participants grows with their age. The participants who are over 45 years

old account for 54.2% of all ages (行政院主計處,2003). That is to say, most nonprofit organizations in Taiwan are related to religion, and over half participants are digital immigrants who are encountering the digitalization of their organizations.

The Tzu Chi e-Reader (慈濟靜思電子書)

The Tzu Chi Foundation or Tzu Chi is an international humanitarian organization and the largest nonprofit organization in Taiwan. Since the trend of eco-friendliness and digitalization, they cooperated with ASUS, a Taiwanese multinational computer hardware and electronics company, and Chunghwa Telecom (中華電信), the largest telecommunications company in Taiwan, to develop Tzu Chi e-reader in 2010. Combined with many functions only for Tzu Chi activities such as fundraising record, digital sutras, Tzu Chi news, etc., the main purpose of Tzu Chi e-reader is to promote paperless work and reduce digital gap (http://www.techbang.com/posts/4070-asus-chunghwa-telecom-and-to-promote-paperless-reading-tzu). Since most Tzu Chi members are elders without digital background, there are many functions of Tzu Chi e-reader in consideration of their needs.
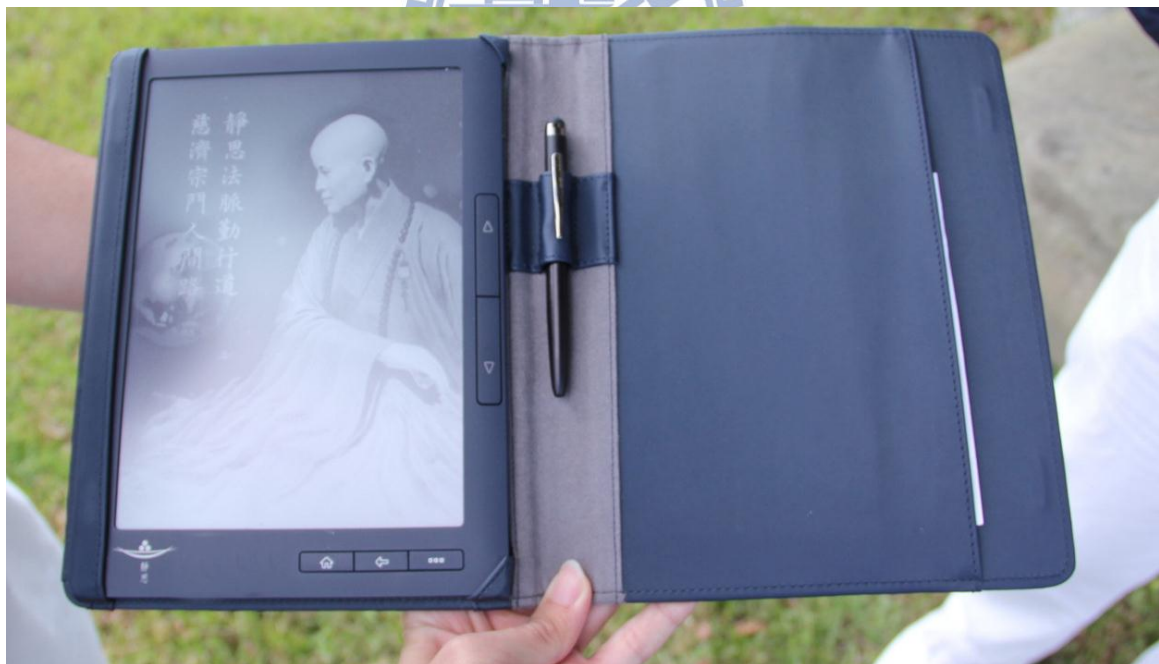
Figure 1.1 The Tzu Chi e-reader

According to the topics mentioned above, making Tzu Chi e-reader in practice seems a proper case study to understand how different digital immigrants learn a new digital technology since most Tzu Chi members are elders as well as the digital tool is touchscreen device.

1-3 The Objectives

In this study, we focused on the digital immigrants of the religious nonprofit organizations in Taiwan since they account for over half of the religious nonprofit organizations and they are encountering the digitalization of their organizations. Therefore, we took the Tzu Chi e-reader as the case study and tried to view the digital immigrant's learning process of the Tzu Chi e-reader from a holistic perspective, so that we can indicate where the barriers exist in their learning process to overcome. In addition, the performance of learning a digital tool differs from the digital immigrants with different digital abilities. In comparison with the digital immigrants whose digital abilities are different can help us see the diversity among them, so that we can find out a better way to assist them in learning the digital tool. The following is our objectives in this study:

1. **Understanding the digital immigrants' learning process of the Tzu Chi e-reader.**

2. **Comparing the learning process of the Tzu Chi e-reader between the digital immigrants with different digital abilities.**

The results of the study are expected to give the religious nonprofit organizations the strategy of promoting the digitalization works as well as assisting the digital immigrants in learning the digital tool.

1-4 The Scope and The Limitation

Despite of the Tzu Chi e-reader with a variety of functions, we mainly focused on the functions related to the fundraising tasks. Since only the committee members of Tzu Chi are permitted applying for the Tzu Chi e-reader, and their primary responsibility is to do the fundraising task. In other words, the committee members use the Tzu Chi e-reader primarily for the fundraising tasks. In order to understand how the Tzu Chi e-reader users do fundraising task from paperwork to the digital work, we decided to conduct the contextual inquiry, a qualitative method, with them. Since the ease of studying, all the participants were recruited from the Hsinchu area.

1-5 The Structure of The Thesis

The structure of the thesis consists of six chapters as follows:

Chapter 1 Introduction

This chapter introduces the background about how the digital world influences the digital immigrants nowadays. The objective is to understand how the digital immigrants with different digital skills learn a digital tool via the case study of the Tzu Chi e-reader.

Chapter 2 Literature Review

There are five parts in this chapter: The first part, we introduced the digitalization of the Buddhist organizations in Taiwan. The next part, we introduced the structure of Tzu Chi. The third part, we discussed why chose e-reader as digital immigrant's learning tool. The fourth part, we introduced Technology Acceptance Model (TAM) as well as its studies related to elders. The last part, we used Dreyfus Model of Skill Acquisition to demonstrate the five stages of learning.

Chapter 3 Methodology

This chapter introduces the research structure, the pilot study, the process of contextual inquiry, the research tools, and finally explains the analysis tools - work models.

Chapter 4 Result

This chapter demonstrates the results of four different work models. The first one is consolidated flow model which reveals the responsibilities of each roles and the interaction between them in the whole fundraising task. The second one is consolidated sequence model which shows how fundraising task works and contrasts traditional paperwork with digital work. The third one is consolidated artifact models which introduce the purposes of different fundraising tools. The last one is consolidated cultural model which illustrates how different cultures influence Tzu Chi e-reader users.

Chapter 5 Discussion

According to literature review from chapter 2 and the results from chapter 4, this chapter discusses different digital immigrants' learning conditions in the five stages.

Chapter 6 Conclusion

This chapter concludes the advice for the religious organizations on promoting the digitalization works and assisting the digital immigrants in learning the digital tool. Finally, we give the recommends for the future work.

References and Appendix

All Chinese and English literature from the internet and books are displayed in the references, and the complete affinity diagrams of each participant are shown in the appendix.
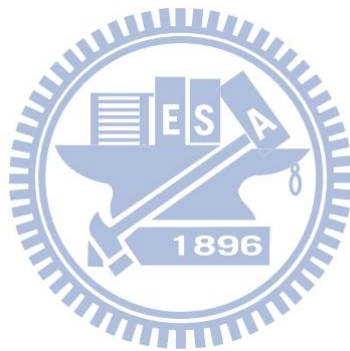
CH2 Literature Review

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2-1 The Digitalization of The Buddhist Organizations in Taiwan

Although there are many religious nonprofit organizations in Taiwan, we focused on the digitalization of Buddhist organizations in this section since the case study, Tzu Chi foundation, in our research is a Buddhist organization. According to the literature about the digitalization of main Buddhist organizations in Taiwan, such as Tzu Chi (慈濟), Dharma Drum Mountain (法鼓山), Fo Guang Shan (佛光山), Hwa Dzan Pure Land Learning Society (華藏淨宗學會), and Tibetan Buddhism Kagyu Lineage (藏傳佛教噶舉傳承), we concluded two reasons why they decided to be digitalized. One is for the management of fund and human resources, and the other is for the management of knowledge.

2-1-1 The Management of Fund and Human Resources

As the trend of digital technology, the profit organizations and the government organizations made management as well as working process become digitalized in order to lower cost and raise efficiency. Although the purpose of the nonprofit organizations is not making profits as the profit organizations do, the nonprofit organizations become institutionalized as the profit organizations while getting bigger (韓意勤,2001). After 1980s, the religious nonprofit organizations such as Buddhism became popular in Taiwan since they not only preached Buddhism but also devoted to the well-being of the public. There were more and more people joining the organizations and more and more money donating to the organizations. In order to manage the large number of people and money as well as keep operating for a long time, the Buddhist organizations were inevitable to be institutionalized and operate as the profit organizations (林瑋婷,2012). As a result, they also followed the trend of digitalization in 1990s.

Fundraising is the most important condition for the nonprofit organizations to keep operating (涂建平,2003). The Buddhist organizations collect donation from their followers primarily. As a large number of followers increasing significantly, the Buddhist organizations built digital fundraising system for managing a large number of followers' data and funds (黃琦智,1993). On the other hand, in order to gain more funds, the Buddhist organizations propagandized their religious beliefs and contribution to the public through media and the internet. For instance, Tzu Chi had published Tzu Chi magazines every month since 1967. At first, the purpose of Tzu Chi magazines was displaying the list of donor's name and funds during 1967 to 1979. After 1979, Tzu Chi magazines created the column for spreading Dharma Master's doctrine and what they did for the public. In 2007, Tzu Chi published paper and digital magazines at the same time, so that people had another options to read the information via the internet (鄭凱文,2012). Due to the digitalization of fundraising data and the informatization of the organization's contribution, it made people's donation clear so that people had more confidence in the Buddhist organizations (涂建平,2003).

2-1-2 The Management of Knowledge

The Buddhist knowledge is important for the Buddhist organizations to preserve and preach to the followers. In the past, the Buddhist knowledge was recorded as books; however, the traditional books will decay as time goes by. On the other hand, as Buddhism was spread worldwide, there were more and more overseas followers (盧岳軍,2008). In order to keep the Buddhist knowledge complete as well as spread it to the followers everywhere, the digital archives of sutra had been started since 1990s in Taiwan (杜正民,1999). The following are some examples about the projects of digital archives of different Buddhist organizations in Taiwan.

Fo Guang Shan (佛光山)

Since there was no easy understanding reference books for people to study Buddhism, Hsing Yun (星雲法師), the founder of Fo Guang Shan, had started to compile "Fo Guang Dictionary" (佛光大辭典) since 1978 and published it after ten years. As the trend of digitalization and the need of followers, "Fo Guang Shan Buddhist Electronic Texts" (佛光山電子大藏經) was founded to digitalize "Fo Guang Dictionary" in 1990. Then, the first disc of the Buddhist reference book, which provided full text search for people to search on the computers, was finished in 1997, and it was published as PDA edition for people to search anytime and everywhere in 2004 (釋永本,2008).

Hwa Dzan Pure Land Learning Society (華藏淨宗學會)

Hwa Dzan Pure Land Learning Society was founded in 1989. The lectures of Dharma Master were recorded as audio tapes or edited as books for the followers who cannot attend the lectures in person. However, audio tapes were easily decayed and cost high. As the technology developing, the discs took the place of audio tapes. At the time, the lectures were recorded as books and discs, and were also uploaded into the internet; however, the publishing media were focused on the discs and the internet. Although the publishing number of discs increased steadily, the publishing number of books still took a certain part of all publishing number since books were still popular among the followers (Figure 2.1) (盧岳軍,2008).

年度	卡帶		CD/MP3		DVD		VCD		書籍	
	種	數量/卡	種	數量/片	種	數量/片	種	數量/片	種	數量/冊
2007			17	246,000	115	3,956,500	7	23,000	119	735,270
2006			24	188,000	68	3,836,500	30	296,000	109	732,580
2005			33	665,000	60	2,863,000	84	2,408,000	130	1,261,100
2004	10	38,000	27	434,000	3	182,000	115	8,536,000	144	663,500
2003	30	234,000	21	501,000			115	5,170,768	90	325,550
總計	40	272,000	122	2,034,000	246	10,838,000	351	16,433,768	592	3,718,000

Figure 2.1 The publishing number of all media from 2003 to 2007

Tibetan Buddhism Kagyu Lineage (藏傳佛教噶舉傳承)

Dr. Gene Smith, who worked in the Library of Congress in America, had conducted a project to gather Tibetan Buddhism books for keeping them away from the Cultural Revolution since 1975. In 1999, Dr. Gene Smith founded "The Tibetan Buddhist Resource Center" (TBRC) with Dell computer engineer David Lunsford to preserve Tibetan Buddhism books as the digital archives, so that the digital archives provided worldwide followers search and browse on the internet. In order to give the followers more convenient and interactive experience in acquiring abundant Tibetan Buddhist knowledge, Chen (2011) used FlashPageFlip software to create dynamic page flipping e-book model and conducted the user testing with nine followers, whose age between 20 to 30. Chen found that reading via the e-book gave the followers more interactive and interesting experience than reading on the website (陳政君,2011).

Tzu Chi (慈濟)

In order to preach Dharma Master's wisdom to people, Tzu Chi published the first magazine in 1967. They had their own broadcast in 1985. Then, they published Jing Si Aphorisms (靜思語) in 1989 and established their own publisher next year. Eight years later, they had their own TV channel "Da Ai" (大愛電視台). Finally, they consolidated all media into Tzu Chi Culture and Communication Foundation in 2005. As the development of the internet, Tzu Chi also had online radio, online video, and website so that the followers can acquire the information of Tzu Chi ubiquitously (沈孟湄,2012). Since the trend of eco-friendliness, Cheng Yen (證嚴法師), the founder of Tzu Chi, decided to publish digital magazines and e-books since 2007 for decreasing the number of publishing paper books. Moreover, Tzu Chi cooperated with ASUS and Chunghwa Telecom to develop Tzu Chi e-reader for the followers reading e-books easily in 2010 (鄭凱文,2012).

As the examples mentioned above, the digitalization of Buddhist knowledge stemmed from preserving the Buddhism books from decaying as time goes by or being damaged by human factors. As the organizations expanded from a local area to overseas, they used variety of media, such as magazines, audio tapes, video discs, broadcasts, or TV channel, to preach the Buddhist knowledge to the followers who cannot attend Dharma Masters' lectures in person. After the rising of the internet, the organizations saw the convenience and the ubiquity of the internet; therefore, they built the search engine and uploaded the Buddhist knowledge and the information of the organizations into the internet so that the followers could acquire the information they need easily.

We also saw that the founder of the Buddhist organizations played an important role to lead the digitalization of the organizations. Most religious organizations were led by the leader's charisma (林瑋婷,2012; 林麗容,2010; 涂建平,2003). That is to say, the founder of the Buddhist organization has more power to influence the followers to fulfill the founder's decision. Such as Dharma Master Cheng Yen decided to promote the concept of eco-friendliness, so that Tzu Chi published e-books as well as developed the Tzu Chi e-reader to support Dharma Master Cheng Yen's idea.

It is the trend that the religious organizations become digitalized, but there are some challenges existed. Although many Buddhist organizations have digitalized the resources of Buddhist knowledge and provided the services on the internet, the traditional books were still popular among the followers (as shown in Figure 2.1). According to a study that focused on 40 to 60-year-old Buddhist followers who study Buddhism at home, there

were 23.3% followers used the Buddhist digital archives and 12.9% followers used the internet resources to solve the problems of studying Buddhism. Most followers preferred studying via the traditional books (57.8%) and discussing in person (61.2%). The study also said that the reason why the followers did not use the online resources was "they never had the idea to solve the problems via the internet."(陳咨澔,2010)

As the chapter 1 mentioned, more than 54.2% participants of the religious organizations in Taiwan are over 45 years old; that is to say, over half participants of the religious organizations in Taiwan are digital immigrants. However, many studies about the digitalization of the Buddhist organizations did not seem to consider the factor. Especially when it comes to the age of mobile technology, the service should be more user-friendly and intuitive, so that the digital immigrants will be willing to use the digital resources and acquire the information they need efficiently from the great amount of information (李志強,2008；葉健欣,2012).

2-2 The Structure of Tzu Chi

Tzu Chi is a Buddhist organization and the largest non-governmental organization (NGO) in the Chinese-speaking world. Tzu Chi was founded by Dharma Master Cheng Yen, a Buddhist nun, on May 14, 1966 in Hualien, Taiwan. As a Buddhist organization, Tzu Chi not only focuses on Buddhist origins and beliefs but also devotes to community service in the areas of Charity, Medicine, Education, and Culture ("Tzu Chi", 2013).

In general, the members of Tzu Chi include the monk and the nun, the professional member, the associator, and the committee member. The monks and the nuns practice Buddhism with Dharma Master Cheng Yen. As the Tzu Chi foundation becomes bigger and institutionalized, it needs a management system to run the foundation. Therefore, the professional members are recruited to contribute their expertise to manage the Tzu Chi foundation. According to the statistics of 2004, there were around 700 professional members in Tzu Chi, which was the nonprofit organization with the most human resources in Taiwan. To be an associator, the condition is to donate and leave the personal information to Tzu Chi, so that Tzu Chi will record the data in digital fundraising system and give the associator a code number (張培新,2005).

The committee members play an important role in Tzu Chi since they are responsible for the fundraising tasks, visiting the associators and someone who needs help, and spreading the doctrine of Tzu Chi. Most committee members are inspired by the charisma of Dharma Master Cheng Yen, so that they decide to become the committee

members from the associators (林本炫,1996: 238-241). There were 47008 committee members in 2011 (釋證嚴,2012: 544-545). According to the statistics of the Tzu Chi committee member (林本炫,1996: 230-232), the female accounted for 88.9% of all committee members, and the committee members who were over 40 years old accounted for 82.2%; moreover, those who were over 50 years old accounted for 43.9%. There was 52.7% committee members that being employed. That is to say, Tzu Chi mostly relies on the employed female committee members and most of them are over 40 years old.

As the literature mentioned above, we know that most Tzu Chi committee members, as the subject of our study, are digital immigrants and half of them are employed, which means they work and contribute to the Tzu Chi events simultaneously. Although it is hard to do both works at the same time, they still decided to become the committee members since the charisma of Dharma Master Cheng Yen.

2-3 E-Reader: The Best Friend of The Digital Immigrant

2-3-1 The Elder's Needs

When people get old, their physical functions such as eyesight, hearing, dexterity, and memory decline. As a result, a large number of elders cannot use digital tools very well due to other physical or psychological handicaps in the digital world (Paul, G. & Stegbauer, C., 2005).They cannot see the monitor for a long time since their visual impairment. They use keyboard and mouse awkwardly due to their uncoordinated motions. They always forget how to operate the device as their bad memories. From the perspective of human factors and ergonomics, those digital tools should offer more user-friendly and intuitive way for digital immigrants to satisfy their physical needs. As chapter 1 mentioned, the rising of touchscreen technology seems to give digital immigrants a hope in this digital world because of its intuitive operation that digital immigrants enable to operate directly on the screen.

2-3-2 The Comparison between e-Reader, PDA, Smartphone, and Tablet

The touchscreen technology has been developed in several digital tools such as PDA, e-reader, smartphone, and tablet. Although they are all used touchscreen technology, they still differ from each other with their own features. The comparison of those digital tools as Table 2.1 shows.

According to the items of Table 2.1, a big monitor is good for reading and operating. The monitor size of e-reader and tablet are both bigger than PDA and smartphone. There are two materials of monitor display, E-ink and LCD. Despite of its grayscale images, the former one makes reading more comfortable since it reflects light as ordinary paper. The later one is colorful but makes reading tired easily. The power is closely related to the material of monitor. E-ink is an ultra-low power consumption technology; therefore, it can be used longer than other digital tools with LCD. Smartphone and tablet offer more functions than e-reader and PDA.

Table 2.1 The comparison between digital tools with touchscreen (宋振世,2013)

	e-Reader	**PDA**	**Smartphone**	**Tablet**
Monitor Size	Big	Small	Small	Big
Monitor Display	E-ink monitor, Comfortable for reading	LCD monitor, Easily tired while reading	LCD monitor, Easily tired while reading	LCD monitor, Easily tired while reading
Power	Low	High	High	High
Function	Less	Less	More	More

In consideration of elder's needs, e-reader might be the first choice as a starter to digital immigrants. Its big e-ink monitor gives them a comfortable way in reading since their eyesight has been weakened; besides, it also makes them no worried about charging frequently due to its ultra-low power consumption. In addition, a bigger touchscreen makes them operate easily and intuitively as it reduces their loading of working memory (張珈瑜,2008). Although it offers less functions than smartphone and tablet; in other words, it offers a simple and clear way for digital immigrants to use.

2-4 Accept New Technology

2-4-1 Technology Acceptance Theory

There are a couple of researches study how the users come to accept and use a new technology. The Technology Acceptance Model (TAM) is one of the influential theories that propose a number of factors influence users' attitude and intention to decide how and when they will use it. There are two primary factors: **Perceived Usefulness** (PU) and **Perceived Ease of Use** (PEOU). The former one was defined as "the degree to which a person believes that using a particular system would enhance his/her job performance" and the later one was defined as "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989).

As TAM has been used in several empirical studies, it was found that it's unable to well explain users' behavior of using technology with factors "perceived usefulness" and "perceived ease of use" in other words, there are still other factors does influence users' decision of using technology. Chou (2012) mentioned Lee's research about literature analysis of 101 TAM studies from 1986 to 2003, it concluded that there are 25 external variables. In this study, we propose "digital skill" as the other factor to discuss how it will influence digital immigrants' learning process of Tzu Chi e-reader.
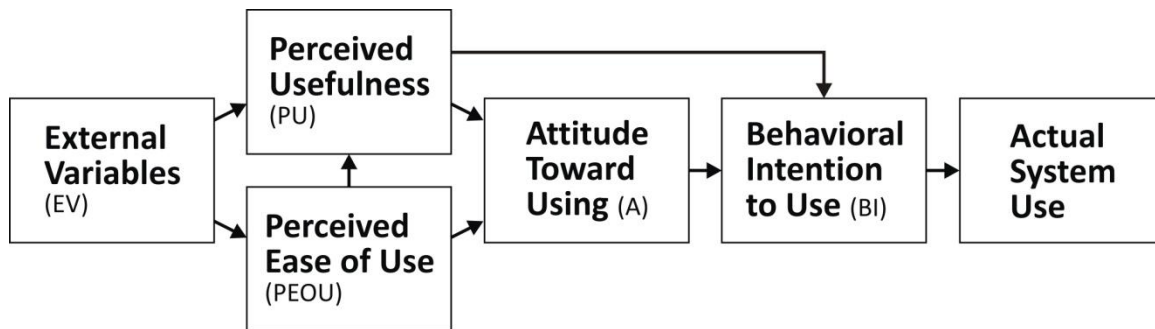
Figure 2.2 Technology Acceptance Model (TAM)

2-4-2 How Do Digital Immigrants Accept New Digital Technology

TAM has been continuously used and expended in several studies. Digital immigrants are also studied in a number of TAM researches, and most the subjects of digital tool are traditional personal computer. There are less researches about tablet or e-reader since those digital tools just show up in recent years.

Although the stereotype of digital immigrants is that they are unable, unwilling, or afraid to use new digital technology (Tracy, 2010). In fact, they are interested in those new stuff, but the digital technology needs to deliver real value, such as more social, active, meaningful, and independent life to them (Seppo, 2010). In addition, we should emphasize the benefits of digital technology and create motivation for use via education and training programs (Nicole, 2010; Tracy, 2010). When they perceive the value accompanied with digital technology, they will attempt to overcome the problem of usability. After overcoming it, they will be more willing to accept the digital technology (Terry, 2008). Besides, many researches demonstrate that "perceived usefulness" and "perceived ease of use" positively and significantly influenced digital immigrant's attitude toward using and intention to use digital technology (Terry, 2008; Lexman, 2010; Shuya, 2010; Tracy, 2010; 林成宏,2010). That is to say, more useful the digital tool is, less anxious digital immigrants will feel; therefore, they are more willing to use it.

According to those studies above-mentioned, the key points about how to help digital immigrants accept digital technology are : (1) **Make them perceive the real value accompanied with the digital tool**, and (2) **The digital tool is useful and easy to use**.

2-5 The Five Stages of Skill Acquisition

When users begin to accept digital technology, they will encounter a series of challenges during their learning and adaption process. Shelley, Justin, Hugh (2010) describe the process of a user engaging in the new system as the process of a player playing in a multilevel digital game. Firstly, the novice player perceives there are different scores of the game (perception of the environment), knowing the level at which that score was achieved so that the player can assess his/her skill (creating a model); therefore, the player can adjust difficulty of the game to keep him/herself in the flow between boredom and frustration (adapting to meet a performance objective). We can say that the process of adapting to digital technology is dynamic and adjustable according to user's skill.

According to the case studies of learning second language, chess, and pilot training, Dreyfus (1986) proposed a model of skill acquisition that describe five distinct stages of learning process: Novice, Competent, Proficient, Expert, and Master. Gabe and Christopher (2011) applied Dreyfus's model in system design but adjusted the definition of each role, such as the last stage is Visionary instead of Master. Combined original Dreyfus model and Gabe's model, the introduction of five stages is listed below:

1. **Novice**

   They have no context about the whole system environment since they are first time to use it. If they are given rules to follow even though they don't understand its logic and meaning, they can complete a simple task.

2. **Competent**

   They can understand parts of its logic and meaning while connecting rules with real situations.

3. **Proficient**

   They have holistic understanding of the system after practicing many times and increasing experience. When they encounter different problems, they can find out the appropriate solution which is based on their experience to deal with.

4. Expert

With abundant experience and holistic understanding of system, they can find out the appropriate solution intuitively to cope with a variety of difficulties.

5. Visionary

They think outside of user's box and put in designer or developer's shoes to improve the whole system.

According to the model of skill acquisition, we know a user will grow up from Novice to Visionary through practicing again and again to get abundant experience. In this study, we will use the five stages model of skill acquisition to review the digital immigrants' learning process of the Tzu Chi e-reader.
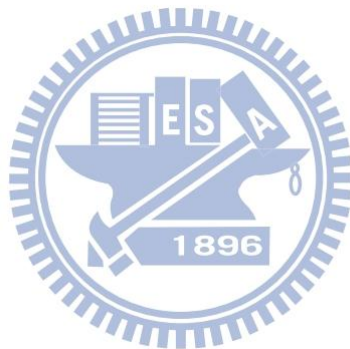
CH3 Methodology

3-1 Research Structure

After collecting the literature about the technology acceptance, we used the qualitative method to study fundraising tasks, from the traditional paperwork to the digital work, in order to complete the lack of quantitative studies in the past. The research consists of four parts as follows:

The First Step : Collecting Data

At first, we collected the literature about the digitalization of religious organizations and the information about the Tzu Chi e-reader. Then, we attended the lecture on the digital fundraising books, which was hosted by Tzu Chi, to understand how the Tzu Chi e-reader works. After the lecture, we conducted a pilot study with a Tzu Chi e-reader seeded teacher, who is also a regular committee member of Tzu Chi, to understand how the fundraising task works, from the traditional paperwork to the digital work, so that we can prepare the tools for the contextual inquiry with the Tzu Chi e-reader users.

The Second Step : Data Analysis

At first, we created notes from the raw data of contextual inquiry and grouped the notes into four categories: Fundraising, Interaction, Recording, and Using Behavior. Then, we built four kinds of work models: Flow Model, Sequence Model, Artifact Model, and Cultural Model, for each Tzu Chi e-reader user. Finally, each kind of work models was consolidated in order to see the holistic fundraising task.

The Third Step : Discussion

According to the consolidated models, we discussed what challenges and skills that the digital immigrants with different digital skills will experience in each learning stage.

The Final Step : Conclusion and Implication

According to the results, we proposed the recommendations on the digitalization of the religious organizations.

Table 3.1 The research structure

The First Step: **Collecting Data**	- Collecting the literature about the digitalization of religious organizations and information about the Tzu Chi e-reader
	- Attending the lecture on the digital fundraising book and having a pilot study with a Tzu Chi e-reader seeded teacher
	- Planning the contextual inquiry
	- Recruiting the Tzu Chi e-reader users
	- Conducting the contextual inquiry with nine Tzu Chi e-reader users
The Second Step: **Data Analysis**	- Affinity Diagram: Creating notes from raw data and grouping into four categories: Fundraising, Interaction, Recording, and Using Behavior
	- Building Work Models: Flow Model, Sequence Model, Artifact Model, Cultural Model
	- Consolidating Work Models: Consolidated Flow Model, Consolidated Sequence Model, Consolidated Artifact Model, Consolidated Cultural Model
The Third Step: **Discussion**	- Discussing what kind of challenges and skills that digital immigrants will experience in each learning stage
The Final Step: **Conclusion and Implication**	- Proposing recommendations on the digitalization of the religious organizations

3-2 The Process of Lecture on Digital Fundraising Book

Before the pilot study, the Tzu Chi e-reader seeded teacher suggested that attending the lecture on the digital fundraising book should give us some background knowledge

about the Tzu Chi e-reader. Therefore, we attended the half-day lecture which was hosted by a seeded teacher in a Tzu Chi temple in Hsinchu. There were more than ten female regular committee members, and only one male. They were almost all around 40 or 50 years old, and some of them were elders over 60 years old. Each one was given a Tzu Chi e-reader and listened to the PowerPoint which was introduced by the seeded teacher. The PowerPoint presentation consisted of three parts as below:

1. **The Introduction of The Tzu Chi e-reader Hardware**

2. **The Concept of The Digital Fundraising Task**

3. **The Operation of The Digital Fundraising Book**

At the beginning of the lecture, the seeded teacher introduced to everyone the function of each button on the Tzu Chi e-reader and the operation of the touchscreen and charger. Then, she introduced the concept of the digital fundraising task by contrasting the working process between traditional paperwork and digital work. At last she taught everyone how to use the digital fundraising book through practicing it step by step. After the lecture, everyone was allowed to take the Tzu Chi e-reader home and have a month-long trial period. But they were unable to upload digital fundraising books unless they decided to buy their own Tzu Chi e-reader to do digital fundraising tasks instead of traditional paperwork.

Figure 3.1 The lecture on the digital fundraising book in Hsinchu

3-3 The Process of The Contextual Inquiry

After the lecture, we conducted a pilot study with a Tzu Chi e-reader seeded teacher in order to gain basic background knowledge about the Tzu Chi fundraising tasks. Most regular committee members were retired people and had less computer experience. Furthermore, only around one-fifth of all regular committee members used the Tzu Chi e-readers in the Hsinchu area, which means they needed more effort to promote and teach them to use the Tzu Chi e-readers. According to the pilot study, the Tzu Chi e-reader users were separated into two groups: "computer-using experience" and "no computer-using experience". The seeded teacher whom we interviewed also helped us recruit six Tzu Chi e-reader users for the next step's contextual inquiry in order to understand the difference between the traditional paperwork and the digital work.

After conducting the contextual inquiry with seven participants (including the seeded teacher), three were discharged from our lists since they had used the Tzu Chi e-reader for less than a half year and had not built their own using pattern. Furthermore, we found that some participants seldom use computers in their daily lives but still have a little computer-using experience due to the requirements of their past jobs. Therefore, during the next recruiting, we considered that the length of experience of using the Tzu Chi e-reader should be more than ten months. All participants were divided into three groups according to their digital skills. Finally, we conducted the contextual inquiry with nine participants in total, and each group contained three participants.

Table 3.2 The qualification of the participants

Digital Skill	Amount of Participant	Experience of Tzu Chi e-reader	Digital Background
Low	3		Have no computer-using experience
Middle	3	over 10 months	Have some computer-using experience for the requirements of past jobs, but seldom use computer in daily life
High	3		Have computer-using experience and usually use computer

Table 3.3 The participants' background

User's digital skill		Gender	Age	Occupation	Experience of Tzu Chi e-reader	Digital Background
Low	A1	Female	69	Housewife	1.5 years	Have no computer-using experience
	A2	Female	50	Housewife	1 year	Have no computer-using experience
	A3	Female	65	Baby Sitter	10 months	Have no computer-using experience
Middle	B1	Female	64	Retiree	1.5 years	Worked for Chunghwa Telecom, and learned some office tools
	B2	Female	59	Bank Officer	2 years	Learned some software only for job. Unfamiliar with internet. Enable to receive email.
	B3	Female	63	Retiree	10 months	Learned computer for the job from the age of 50.
High	C1	Female	44	Consultant on Software	1.5 years	Used digital products frequently. Tzu Chi e-reader seeded teacher.
	C2	Female	48	Human Resource Management	10 months	Learned computer for the job. Used digital products frequently.
	C3	Female	41	Housewife	10 months	Used digital products frequently.

3-4 The Contextual Inquiry Tools

According to the pilot interview, the contextual inquiry focused on four issues:

1. How did the participants do the traditional fundraising tasks?
2. Why did the participants decide to use the Tzu Chi e-reader?
3. How did the participants learn to use the Tzu Chi e-reader?
4. How did the participants do the fundraising tasks with the Tzu Chi e-reader?

Since we were not permitted to go into the participants' workplaces to observe how they did their fundraising tasks, we decided to simulate the situation by asking the participants to demonstrate how they operated the digital fundraising book with the Tzu Chi e-reader as usual. The operation process and their intent were recorded with numbers and descriptions on paper, which were printed with the digital fundraising book's interface. Since the Tzu Chi e-reader users did not use the traditional fundraising

books anymore, we printed the traditional fundraising book's sheet to allow users to demonstrate how they recorded in the past. The record process and intent were also recorded as was done before. The whole contextual inquiries were recorded via a smartphone's sound recording app, and each user's Tzu Chi e-reader and other artifacts for fundraising were also recorded by taking pictures.
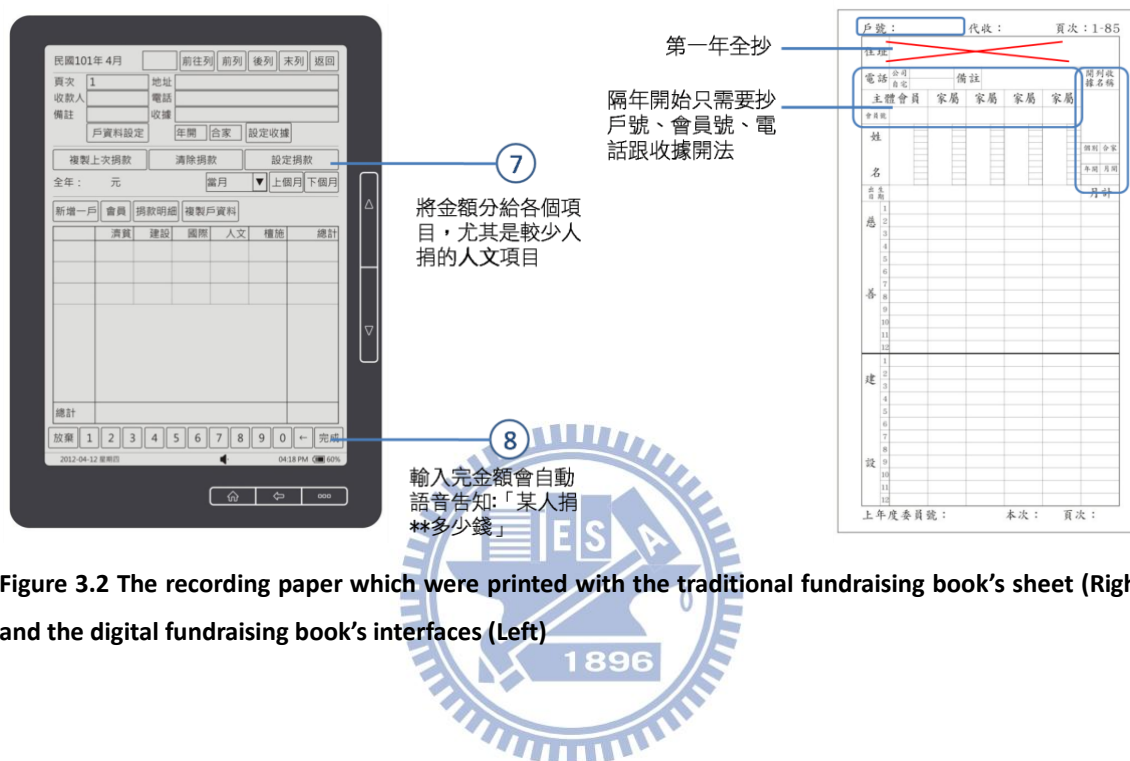

Figure 3.2 The recording paper which were printed with the traditional fundraising book's sheet (Right) and the digital fundraising book's interfaces (Left)

3-5 Data Analysis

According to the recording paper, pictures, and sound recording of interviews, we created notes which were about the tools, sequences, interactions, and mental models of each participant. All of the notes were grouped into four categories: Fundraising, Interaction, Recording, and Using Behavior. The complete affinity diagrams are shown in Appendix. Then, we built four kinds of work models: Flow Model, Sequence Model, Artifact Model, and Cultural Model, for each participant. Finally, participants' work models were consolidated in order to see the holistic fundraising task. The method of building and consolidating work models is introduced as follows.

Flow Model

The flow model shows the responsibilities of people or organization, the communication between people, and the artifacts of communication to offer a holistic view of the activity. People and organization are bubbles with their responsibilities on the model. Arrows indicated the communication between bubbles and artifacts are shown in boxes

on the arrows. The breakdown of communication between people is marked as a lightning bolt.

Sequence Model

The sequence model shows how an activity being done, what trigger make it start, and what intent behind the action. The whole activity is divided into steps which are annotated with intents. The breakdown of working process between steps is marked as a lightning bolt.
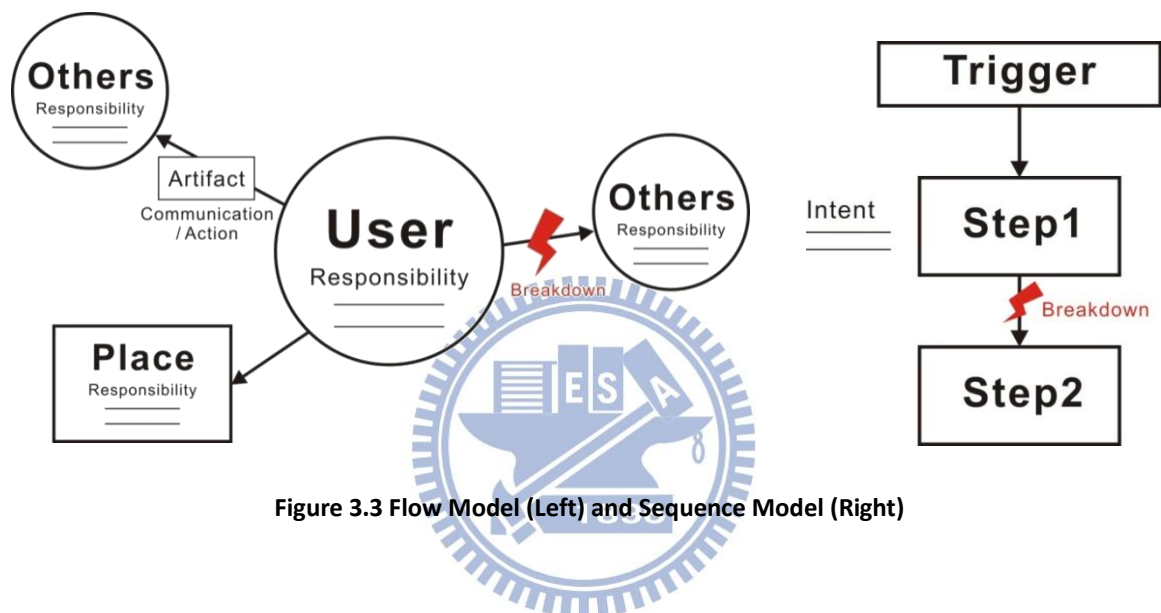
Figure 3.3 Flow Model (Left) and Sequence Model (Right)

Artifact Model

The artifact model displays how a tool be used with user's intent. The artifact can be a drawing or a photo, and its usage is written down with intents on different parts of the artifact. The breakdown of usage on the part of artifact is marked as a lightning bolt.

Cultural Model

The cultural model shows how intangible forces influence each other in people's culture. Influencers are bubbles with different size and are organized from outside to the center. The size of bubble reflects how powerful the influence is. The arrow indicates how bubbles influence each other. The breakdown of the influence between bubbles is marked as a lightning bolt.

Figure 3.4 Artifact Model (Left) and Cultural Model (Right)

CH4 Result

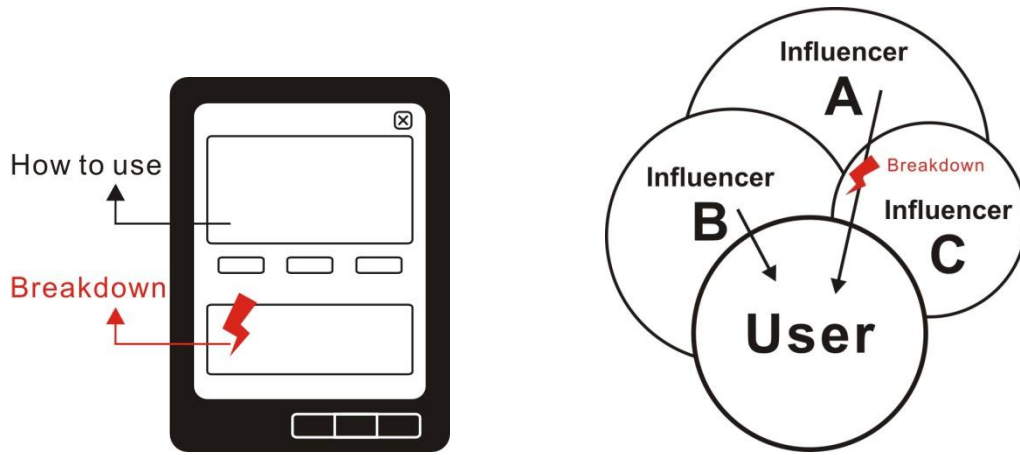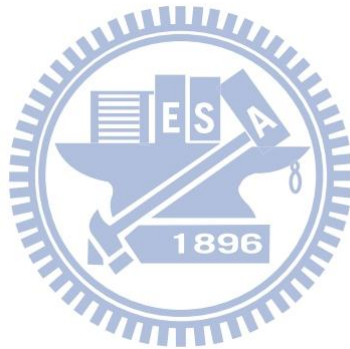According to the analysis of interview, this chapter will demonstrate the whole fundraising activity via four kinds of work models. At first, the consolidated flow models reveal the responsibilities of each roles and the interaction between them. Secondly, the consolidated sequence model shows how the fundraising works and contrasts the traditional paperwork with digital work. Thirdly, the consolidated artifact models introduce the purposes of different fundraising tools. Finally, the consolidated cultural model illustrates how different cultures influence the Tzu Chi e-reader users.

4-1 Consolidated Flow Model

In the whole fundraising activity, different digital-skilled users' flow models were consolidated into the main roles that represent the similar responsibilities. In the consolidated flow model, the bubbles represent the roles, including **Solicitor, Donor, Helper, Tzu Chi foundation, e-reader Assistant,** and **e-reader Developer**. The squares represent the places, including **Collecting Center, Internet Service,** and **Activity Service**. The icons on the arrows represent the artifacts that communicate with different roles and places. They were consolidated into four categories: (1) **Recording Tools**: fundraising book and Tzu Chi e-reader, (2) **Auxiliary Tools**: note, (3) **Contact Tools**: phone, internet, and mail, (4) **Interaction Tools**: gift and Tzu Chi magazine. If there is any breakdown between each role's communication, we will mark a lightning bolt. Here are two consolidated flow models of paperwork and digital work as follows:
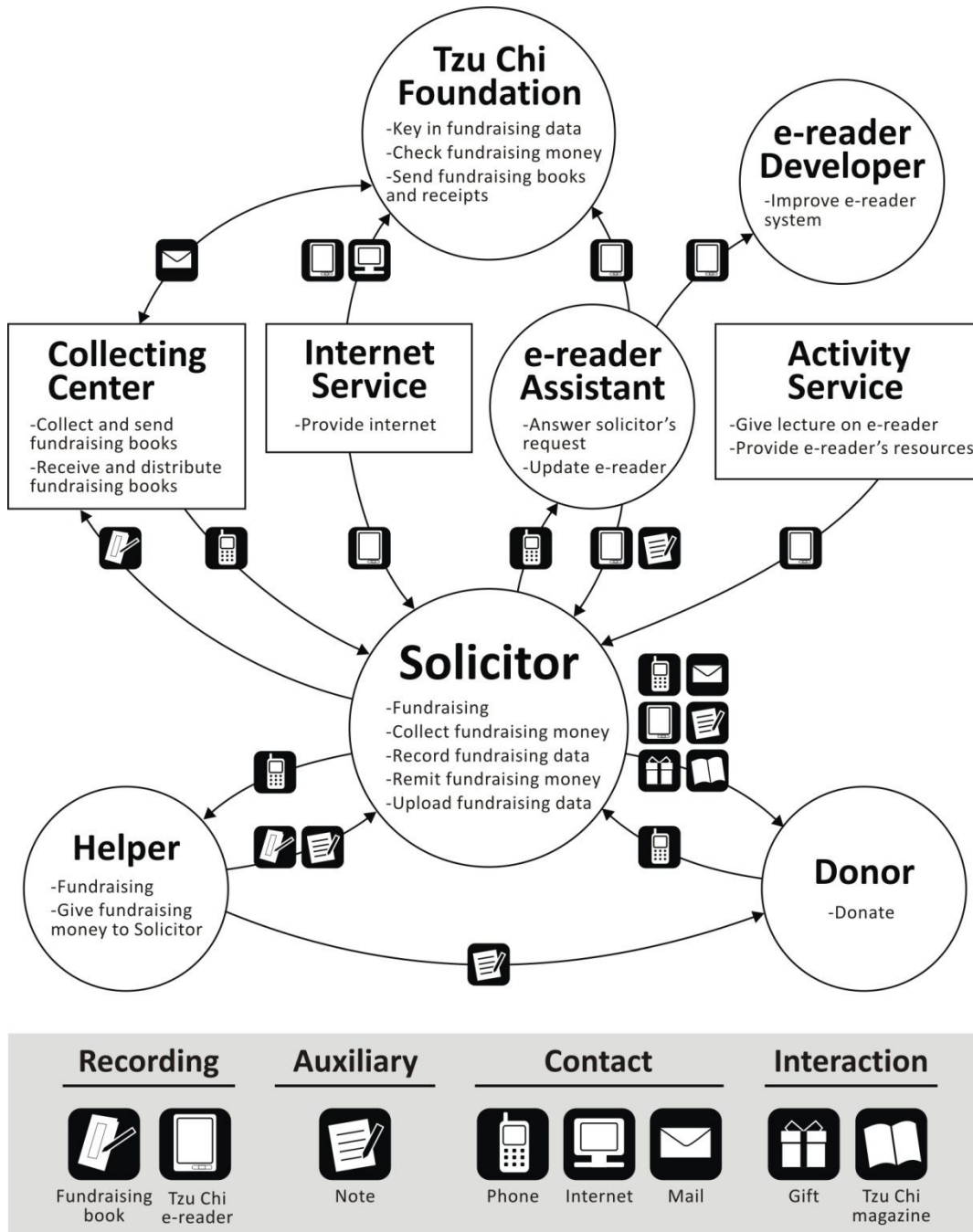
Figure 4.1 The Consolidated Flow Model

4-1-1 The Relationship of Roles in The Period of Paperwork

In the Tzu Chi foundation, the regular committee members are responsible for the fundraising task. To become a regular committee member, you have to own 40 donors at least and give all the fundraising money to the Tzu Chi foundation every month. Before

becoming a regular committee member, you should work for a certain regular committee member, who is called "Hen" in the Tzu Chi jargon, until you have 40 donors. And then you can have your own fundraising book and do fundraising task by yourself. The rank of the Tzu Chi committee member in the period of paperwork is shown as the following picture.

Paper work	見習委員 (小雞) Intern (Chicken)	培訓委員 (小雞) Associate Committee Member (Chicken)	正式委員 (母雞) Regular Committee Member (Hen)
Donors	at least 5	at least 25	at least 40
Tool	Yellow Notebook	Brown Notebook	Fundraising Book
Rule	Submit to Hen	Send to Foundation	Send to Foundation

* In Tzu Chi jargon, they call regular committee member "Hen", and intern committee member "Chicken".

Figure 4.2 The rank of the Tzu Chi committee member in the period of paperwork

The fundraising is very important for Tzu Chi to operate well, so the regular committee members play the primary roles in the consolidated flow model. Their responsibilities include fundraising, collecting fundraising money, recording fundraising data, remitting fundraising money and uploading fundraising data to the Tzu Chi foundation. The communication between **Solicitor** (the regular committee member) and other roles is introduced as follows:

1. Solicitor – Donor

Solicitor collects fundraising money from **Donor** regularly, but how often depends on **Donor**. It can be monthly, once few months, or once a year. **Solicitor** usually makes an appointment with **Donor** via phone before collecting fundraising money. **Solicitor** will give **Donor** last time's donation receipts and interact with them while fundraising, because the mission of Tzu Chi is not only fundraising but also care for **Donor**. Therefore, **Solicitor** will greet **Donor**, tell them the recent activities of Tzu Chi, and invite them for attending. If **Donor** is willing to talk more, **Solicitor** will introduce the mission of Tzu Chi via the Tzu Chi magazines and give them the magazine. Some **Solicitor** will prepare the gifts, such as Jing Si aphorism's cards (靜思語小卡), handmade charms or health food made from Tzu Chi, to give **Donor** for wishes.

Breakdown: Solicitor will pay the missing fundraising money

Solicitor will pay the missing fundraising money while discovering there is an error in the fundraising records. They are too shy to ask **Donor** the missing fundraising money, and they think it is all their faults.

2. Solicitor – Helper

In some cases, **Solicitor** has too many donors or has some donors that live too far, and they will request their intern committee members or family to collect the fundraising money from **Donor**. The intern committee member, who is called "Chicken" in the Tzu Chi jargon, is assigned some donors from **Solicitor** to collect the fundraising money, and also be asked to give the money to **Solicitor** on time every month. Sometimes **Donor** comes personally to give the fundraising money while **Solicitor** being not at home, **Solicitor**'s family will collect the money. If the donors are colleagues or neighbors of **Solicitor**'s family, **Solicitor** will ask their family to collect the fundraising money for the convenience. So the intern committee members and family play the role of **Helper**. **Helper** usually records the donor's name and the amount of fundraising money for **Solicitor** checking.

3. Solicitor - Collecting Center - Tzu Chi Foundation

When the fundraising task is finished, **Solicitor** has to remit all the fundraising money to **Tzu Chi Foundation**, and then send the fundraising book and the remittance receipt to **Tzu Chi Foundation**. After receiving the fundraising books, the staff of **Tzu Chi Foundation** will key in the fundraising records from the fundraising books into computer and check with the amount of money. If there is no problem, they will send the fundraising books back with donor's receipts. Or they will write down the missing money in the fundraising books to notice **Solicitor**. The committee members who live in the same area or have good relationship will gather each other's fundraising books and send to **Tzu Chi Foundation** by a certain committee member for saving the postage and lightning the load of **Tzu Chi Foundation**. Therefore, the certain committee member's home plays the role of **Collecting Center**, which is responsible for collecting **Solicitor**'s fundraising books, sending to **Tzu Chi Foundation**, receiving and distributing the fundraising books and receipts to **Solicitor**.

Breakdown: The committee member of Collecting Center takes more loads

It starts from a good intention of **Collecting Center**, but actually it also gives more loads on the certain committee member who is responsible for **Collecting Center**. The certain

committee member cannot send fundraising books to **Tzu Chi Foundation** until all fundraising books are collected. In other words, if any **Solicitor** being late for submitting the fundraising books, the whole fundraising task will be delayed. Not only **Collecting Center** but also **Tzu Chi Foundation** will be affected. When the fundraising books and donor's receipts arrive from **Tzu Chi Foundation**, the certain committee member has to spend much time classifying the stuff for **Solicitor** taking back. Finally, **Solicitor** has to take the consequences for the delay of next month's fundraising task.

Breakdown: Sending fundraising books costs money and time

In the period of paperwork, the only way to exchange the fundraising information between **Solicitor** and **Tzu Chi Foundation** is sending the fundraising books via mail. But it takes few days to wait for; moreover, it costs time and postage to do the sending work.

Figure 4.3 The Consolidated Flow Model in the period of paperwork

4-1-2 The Relationship of Roles in The Period of Digital Work

In the period of digital work, only regular committee members have changed the fundraising task, because only regular committee members can apply for the Tzu Chi e-reader to use the digital fundraising book, other members still use the traditional fundraising books. The primary difference between paperwork and digital work is the exchange of the fundraising information from sending the fundraising books to uploading the digital fundraising books. It not only saves time of the fundraising task but accomplishes Tzu Chi's purpose of paperless work. In order to coordinate with the new fundraising tools, there are some changes in the consolidated flow model. Two new roles, **e-reader Assistant** and **e-reader Developer**, and two new places, **Internet Service** and **Activity Service**, show up in the consolidated flow model.

Digital Work	見習委員 (小雞) **Intern (Chicken)**	培訓委員 (小雞) **Associate Committee Member (Chicken)**	正式委員 (母雞) **Regular Committee Member (Hen)**
Donors	at least 5	at least 25	at least 40
Tool	Yellow Notebook	Brown Notebook	Digital Fundraising Book
Rule	Submit to Hen	Send to Foundation	Upload to Foundation

* In Tzu Chi jargon, they call regular committee member "Hen", and intern committee member "Chicken".

Figure 4.4 The rank of the Tzu Chi committee member in the period of digital work

1. Solicitor – Activity Service

The lectures on the digital fundraising book are open for every regular committee member in each Tzu Chi temple. Therefore, at least one regular committee member in every community will be assigned to attend the half day lecture. After the lecture, there is a trial period that regular committee members can use the Tzu Chi e-readers for a month. And then the regular committee members decide whether use the digital fundraising books or not. Generally speaking, the middle and low digital-skilled users have more problems after using the digital fundraising books; therefore, they often ask for help while attending the Tzu Chi activities in the Tzu Chi temple. They also update the Tzu Chi e-reader's data there.

Breakdown: The half day lecture is not enough

The half day lecture on the digital fundraising book seems insufficient for the middle and low digital-skilled users. They are still unfamiliar with the operations of the digital fundraising books after the lecture.

2. **Solicitor – e-reader Assistant – e-reader Developer**

The Tzu Chi e-reader seeded teachers are assigned to help **Solicitor** solve their problems in every community. In fact, the seeded teachers are almost held by the high digital-skilled users. The seeded teachers always receive the calls from the middle and low digital-skilled users, and then go to help them personally at their home or in the Tzu Chi temple. The seeded teachers will demonstrate how to operate the digital fundraising book, and then write down the operation sequences for **Solicitor**. Furthermore, they will reflect **Solicitor**'s problems to **e-reader Developer** for improving the Tzu Chi e-reader system. Except for the seeded teachers, the middle and low digital-skilled users also request for their friends who are familiar with the digital fundraising books. The middle digital-skilled users will become **e-reader Assistant** while being familiar with the digital fundraising books.

Breakdown: e-reader Assistant is requested all the time

The low digital-skilled users learn the digital fundraising book's operation slower than the middle digital-skilled users, because they seldom use the Tzu Chi e-reader. Even though **e-reader Assistant** teaches them many times, they still request **e-reader Assistant** while doing the digital fundraising task every month. Therefore, they become more dependent on **e-reader Assistant**. Finally, the digital fundraising task turns out **e-reader Assistant**'s loads. Although **e-reader Assistant** feel disappointed about the result, they have no choice but keep doing their tasks.

3. **Solicitor - Internet Service - Tzu Chi Foundation**

The digital fundraising book needs internet to be exchanged between **Solicitor** and **Tzu Chi Foundation**, so it has to be done on the internet. All high digital-skilled users have the internet at home. Some middle digital-skilled users did not have the internet at home before, but they set up the internet for uploading and downloading the digital fundraising books. The low digital-skilled users have no internet at home, and they usually go to the Tzu Chi temple to do their digital fundraising tasks on weekends since the place serves Wi-Fi there. Sometimes they go to 7-11 nearby to do their digital fundraising tasks via free Wi-Fi.

4. Solicitor – Donor

The interaction between **Solicitor** and **Donor** is giving gifts and introducing the Tzu Chi magazines as in the period of paperwork. The Tzu Chi e-reader is just one of the choices that **Solicitor** interacts with **Donor**. In fact, only the high digital-skilled user C1 goes fundraising with her Tzu Chi e-reader, but the donors will be interest in her Tzu Chi e-reader while she operating the digital fundraising book in front of them. Therefore, she will introduce how the digital fundraising book works to the donors in order to get their trust in the purpose of the fundraising money. Sometimes she will resolve the donors' doubts of life via the Jing Si aphorisms (靜思語) which show up randomly at the button of the Tzu Chi e-reader's home page, and then introduces the core value of Tzu Chi.
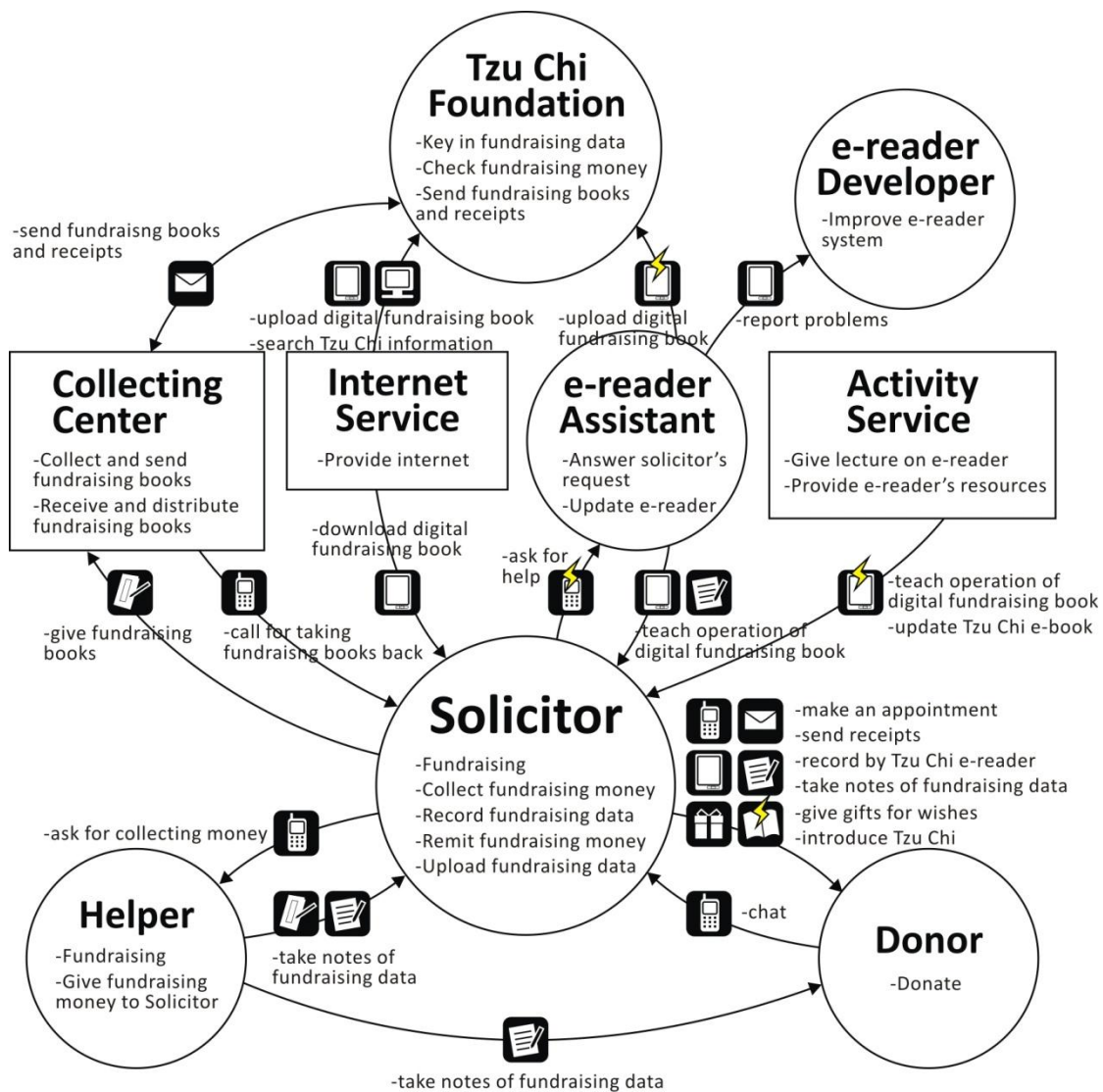

Figure 4.5 The Consolidated Flow Model in the period of digital work

Breakdown: The digital magazine cannot leave Donor something tangible

Due to the paperless movement of Tzu Chi, each **Solicitor** is only given four Tzu Chi magazines which is less than twenty Tzu Chi magazines in the period of paperwork. Therefore, the high digital-skilled user C1 introduces the digital magazines to the donors instead of the paper magazines. But she thinks the digital magazines cannot leave the donors something tangible since the digital magazines are unable to be marked the good points.

4-2 Consolidated Sequence Model

Each Tzu Chi e-reader user's sequence models were consolidated to reveal the structure of the fundraising tasks which show the primary activities and the abstract steps. The primary activities include **Receiving Fundraising Book**, **Fundraising**, **Collecting Fundraising Money**, **Recording Fundraising Data**, **Updating Fundraising Data**, **Sending Fundraising Book**, **Absorbing Tzu Chi Information**, and **Checking Fundraising Data**. Checking the fundraising data is Tzu Chi foundation's job. The Tzu Chi e-reader users update the fundraising data in December only, and absorb the Tzu Chi Information in their leisure time. The fundraising tasks start with different triggers between paperwork and digital work. The former one is triggered by receiving the phone call from the Han; the later one is triggered by receiving the donors' receipts from the Tzu Chi foundation.

4-2-1 The Advantage of Digital Work

To the Tzu Chi e-reader users and the Tzu Chi foundation, the advantage of digital work is lightening their loads and making fundraising tasks quicker; furthermore, the purpose of eco-friendliness is also accomplished. The grey parts of the consolidated sequence model in figure 4.6 indicate the advantage in the whole fundraising tasks. Here are three advantages introduced below.

Saving time for commute

In the part of **Receiving Fundraising Book**, the Tzu Chi e-reader users did not need to spend time going to the Hen's home to get their fundraising books back, they could download the digital fundraising books at home. In the part of **Sending Fundraising Book**, the Tzu Chi e-reader users had to go to the bank and remit their fundraising money to the Tzu Chi foundation first, and then went to the Hen's home to submit their fundraising books and the receipts so that the Hen could go to the post office to send them to the

Activity	Abstract Step	
	Paper Work	Digital Work
Trigger	📱 Receive phone call from Han	✉ Receive donors' receipts
Receiving Fundraising Book	📝 Go to Hen's home to get back fundraising book and receipts	📱 Download digital fundraising book with Tzu Chi e-reader
Fundraising	📱 Contact donors	📱 Contact donors
	💲 Go to donors' home to give them receipts and collect fundraising money	💲 Go to donors' home to give them receipts and collect fundraising money
	📝 Record or keep money in mind	📝 Record or keep money in mind
	💬 Interact with donors if they are available	💬 Interact with donors if they are available
Collecting Fundraising Money	💲 Collect fundraising money from helpers	💲 Collect fundraising money from helpers
	📝 Check fundraising money	📝 Check fundraising money
Recording Fundraising Data	📝 Write down the money in fundraising book	📱 Copy last month's money in digital fundraising book
	🔢 Check fundraising money with calculator	📱 Check fundraising money with digital fundraising book
	🔢 Check fundraising money with calculator again	⚡ Don't know how to do Ask for help
*Updating Fundraising Data (in December)	📝 Write down donor's information to the new fundraising book	📱 Copy donor's data to the new digital fundraising book
Sending Fundraising Book	💲 Go to bank to remit fundraising money to Tzu Chi foundation	🖥 Remit fundraising money online to Tzu Chi foundation
	📝 Go to Hen's home to submit fundraising book and receipt	📱 Upload digital fundraising book with Tzu Chi e-reader
	📝 Collect all fundraising books	⚡ Don't know how to do Ask for help
	✉ Go to post office to send fundraising books and receipts to Tzu Chi foundation	
*Absorbing Tzu Chi information (in available time)	📖 Read Tzu Chi books / magazine 🎵 and listen to Tzu Chi music	📱 Read digital books and listen to Tzu Chi music with Tzu Chi e-reader
Checking Fundraising Data	✉ Receive fundraising books and receipts	🖥 Receive digital fundraising books
	🖥 Key in fundraising books' information into computer	
	🖥 Check fundraising money with bank	🖥 Check fundraising money with bank
	✉ Send back fundraising books with donors' receipts	✉ Send back donors' receipts

Figure 4.6 The working sequence in comparison with the paperwork and the digital work

Tzu Chi foundation. After using the digital fundraising book, the Tzu Chi e-reader users could upload it by themselves at home, and some middle and high digital-skilled users remitted their fundraising money online. Due to the digital work made some activities be done at home, it accomplished the purpose of eco-friendliness via reducing the opportunities of the commute.

Lightening the loads of fundraising tasks

In the part of **Recording Fundraising Data**, the Tzu Chi e-reader users spent much time checking the amount of the fundraising money correct or not via the calculators again and again. Although some middle and high digital-skilled users did it via Excel, they still spent another time keying in the data into Excel. Since the digital fundraising book calculates while keying in the fundraising data, the Tzu Chi e-reader users did not need to calculate by themselves anymore. In the part of **Updating Fundraising Data**, they had to write down all donors' information into the next year fundraising books every December which took few days to complete. After using the fundraising books, they can copy the fundraising data easily.

In the part of **Checking Fundraising Data**, the Tzu Chi foundation's staff had to key in the fundraising data into computers after receiving the fundraising books, and then checked the fundraising money correct or not with the bank. It was the primary cause of the delay of the fundraising tasks. In order to avoid this situation, the Tzu Chi e-reader users sent their fundraising books earlier which means they completed their fundraising tasks in shorter time. In the period of digital work, the fundraising data was recorded in the system while the Tzu Chi e-reader users keying in the data into their Tzu Chi e-readers; therefore, the Tzu Chi foundation's staff could check it without keying in the data by their own. Furthermore, the Tzu Chi e-reader users did not need to wait to receive their fundraising books from the Tzu Chi foundation for one or two weeks, they could download the new digital fundraising books in two days. Due to the digital work had taken the place of some manual operation, the Tzu Chi e-reader users and the Tzu Chi foundation's staff had enough time to complete the fundraising tasks with less stress.

Studying efficiently

In the part of **Absorbing Tzu Chi Information**, the Tzu Chi e-reader users studied the Buddhist knowledge by reading the sutra and the Tzu Chi magazines or listening to the Tzu Chi music in their leisure time in order to share their thoughts with their donors. And the high digital-skilled users also got the information from the internet. After using the

Tzu Chi e-reader, the Tzu Chi e-reader users began to read the digital sutra and the digital magazines since the mobility and the convenience of the Tzu Chi e-reader. Moreover, the Tzu Chi e-reader users who were busy at work could listen to the sutra or the Tzu Chi music via audio-guiding function of the Tzu Chi e-reader during their commute. Therefore, the Tzu Chi e-readers made them spend their time efficiently on studying.

4-2-2 The Disadvantage of Digital Work

The digital work was supposed to make the fundraising tasks easier and lighten the Tzu Chi e-reader users' loads on the premise that the users operated the digital fundraising books well. In fact, it became a problem especially in the part of **Recording** and **Sending Fundraising Data** as most low digital-skilled users were not familiar with the digital fundraising books; therefore, they came back to use the traditional paperwork or asked the seeded teachers for help constantly which became the seeded teachers' loads.

4-3 Consolidated Artifact Model

All tools were classified into **Recording, Auxiliary, Checking, Contact, Interaction,** and **Studying** according to the using purpose. The primary difference between the traditional paperwork and the digital work was **Recording tool** that became the Tzu Chi e-reader instead of the traditional fundraising book. The Tzu Chi e-reader made the regular committee members have one more choice to do the fundraising tasks, even took the place of some fundraising tools.

Tool	Recording	Auxiliary		Checking		Contact	Interaction		Studying	
Paper Work	Fundraising book	Note	Keep in mind	Excel	Calculator	Phone / Fundraising book / Mail	Greeting / Gift	Tzu Chi magazine	Website / Tzu Chi magazine	Tzu Chi music
Digital Work	Tzu Chi e-reader	Note	Keep in mind	Tzu Chi e-reader		Phone / Tzu Chi e-reader	Greeting / Gift	Tzu Chi magazine / Tzu Chi e-reader	Tzu Chi e-reader	

Figure 4.7 The contrast of the fundraising tools between the paperwork and the digital work

4-3-1 Recording Tools

Fundraising Book → Tzu Chi e-reader

It is used to record the fundraising data as the proof for the Tzu Chi foundation checking the fundraising money with the bank.

Fundraising Book

Figure 4.8 The traditional fundraising book

Green & Red Parts：

The donor's information, including names, ID number, date of birth, address, phone number, kind of receipts, and associator's number, should be recorded completely at the first time. And next year, only associator's number, names, kind of receipts, committee member's number, and fundraising book's number were mandated to be recorded, the rest could be missed.

Yellow Parts：

The donor's ID number was recorded via the pencil at the first time, and then it would be erased after the Tzu Chi foundation's staff keying in into the database for protecting the donor's privacy.

White Parts：

The donation categories were Charity, Medicine, International Relief, Humanistic Culture, and Education. The fundraising money was recorded to the category that the donor wanted to donate.

Breakdown: It is a hard job to copy the fundraising data

Due to all fundraising data should be copied by the regular committee members, especially most of the regular committee members were elders with the visual impairment, it always became a hard job to be finished for few days.

Digital Fundraising Book

Figure 4.9 The digital fundraising book

White Parts：

The donor's name, address, and kind of receipts were keyed in at the beginning by the users. In general, the phone number was missed since the users had recorded it in their cell phones or notebooks. The address was only shown with the city on the screen for protecting the donor's privacy.

Green Parts：

Since most fundraising money had no change, the users used the function "copy" to copy the previous data instead of keying in again. If the fundraising money or the donation category changed, they clicked the sheet of the fundraising money and key in the data via the digital number buttons at the bottom of the page.

Red Parts：

After keying in the data, most users clicked "next page" at the top of the page to key in the next donor's data and repeated this operation until the end. Only the middle digital-skilled user B2 and high digital-skilled user C1 clicked "return" to go back to the index and selected the donor whose data was needed to change.

Breakdown: The frustration caused by the bad performance of the Tzu Chi e-reader

The bad performance of the Tzu Chi e-reader made the users frustrated because it will be lag and slow while operating. For example, sometimes the users clicked "next page" and it jumped into another page which caused the missing of some donors' data. It made the users unconfident in the Tzu Chi e-reader, especially to the middle and low digital-skilled users who just used this new digital tool. To the high digital-skilled users, they easily lost their patience to the Tzu Chi e-reader's slow speed as they were used to other digital tools with the better performance.

4-3-2 Auxiliary Recording Tools

Note, Keep in mind → Note, Keep in mind

Help the users easily record the donor's data such as names, fundraising money, and purpose while fundraising, so that they can record the data into the fundraising books later.

Note & Keep in mind

In the period of paperwork, the committee members did not carry their fundraising books to the donor's home; therefore, they took notes about how much and which category the donors wanted to donate with paper or a notebook temporarily. Since most donors had donated regularly for a long time, some committee members could remember how much the donors donated without taking notes.

Breakdown: The Tzu Chi e-reader was too slow to record

In the period of digital work, only high digital-skilled user C1 carried the Tzu Chi e-reader to the donor's home and she still prepared paper inside the e-reader's case in case the Tzu Chi e-reader was too slow to record.

Operation Note

Figure 4.10 The operation note inside the Tzu Chi e-reader's case

Since the middle and low digital-skilled users were unfamiliar with the operation of the digital fundraising books at the beginning, they prepared an operation note that the seeded teacher gave inside their Tzu Chi e-reader's case. Therefore, they could complete the recording tasks by following the operation notes.

4-3-3 Checking Tools

Calculator, Excel → Tzu Chi e-reader

Sum up the fundraising money and check it correct or not.

In The Period of Paperwork

Most regular committee members summed up the fundraising money according to the fundraising book via the calculator again and again. Only middle digital-skilled user B1 and high digital-skilled user C1 keyed in the fundraising data into Excel to sum up. If the result was correct, they copied the fundraising data in their fundraising books.

	A	B	C	D	E	F	G	H	Jan-10				小計
	Seq	戶號	會員號	姓名	善款	start	收據		慈善	建設	國際	人文	
3				xxx	慈善-每月$1000				100				100
4	1				慈善-每月$1000	Jan-91	年開			100			100
5					慈善-每月$1000						100		100
6	2				慈善-每月$100 建設-每月$100	Feb-09	年開					100	100
7	3				慈善-每月$100	Aug-09	月開						0
8	4				慈善-每月100	Sep-09	年開						0
9	5				大愛 每月100	Sep-09	年開						0
10					大愛 每月$100	Sep-09							0

Figure 4.11 Excel sheet for fundraising checking

Breakdown: It was a hard job to check the fundraising data

It was hard to check the fundraising data correct once because the regular committee members had more than 40 donors, and they had to check the data again and again. The whole processes of checking the fundraising data always took all day. Although it was hard to be wrong with Excel, keying in the fundraising data was also another job to the regular committee members.

The Sum of The Fundraising Page

Figure 4.12 The sum of the fundraising page

Red Parts：

The digital fundraising book summed up the fundraising money while keying in the fundraising data; therefore, it saved the user's time for no need to check the fundraising money via the calculator and Excel.

White Parts：

In order to know the donors belong to which chicken (the fundraising helper), the high digital-skilled user C1 classified her donors according to the chicken's names, and it also made the page look clear. Most users only used the default classification.

Breakdown: The concept of the classification in the digital fundraising book made the middle and low digital-skilled users confused

The list of the donors in the digital fundraising book was always mixed together since

most users did not classify them. Therefore, the middle and low digital-skilled users were confused when they repeated the donor's data or forgot to delete the irregular donor's data since the digital fundraising book cannot be flipped as the traditional fundraising book to check where was wrong.

4-3-4 Contact Tools

Mail, Fundraising Book, Phone → Tzu Chi e-reader, Phone

It is used to exchange the fundraising data between the regular committee members and the Tzu Chi foundation.

Contact Sheet of Fundraising Book

Figure 4.13 Contact sheet of fundraising book

If the donor's data needed updating, the regular committee member would write down the information on a contact sheet which was carried with the fundraising book, and then sent it to the Tzu Chi foundation. On the other hand, if the Tzu Chi foundation's staff found out something wrong of the fundraising data, they would annotate where was wrong with a post-it, and then sent it back to the regular committee member. If it was an urgent situation, they would contact each other via the phone.

Download and Upload Page

In the period of digital work, the fundraising data is exchanged via the internet.

Figure 4.14 The download and upload page

Red Parts：

Firstly, inserted the regular committee member's card into the upper right corner of the Tzu Chi e-reader, then keyed in passwords and downloaded the digital fundraising book via Wi-Fi. When download was completed, there was some information about the fundraising data from the Tzu Chi foundation.

Green Parts：

The users had to key in the date of the remittance and selected how they remitted before uploading the digital fundraising books. If the users wanted to correct their donor's data, they would leave a message in the box "I want to leave a message" to the Tzu Chi foundation. In general, they greeted each other with the messages every time. If the request could not be expressed clearly via the messages, such as donor's Chinese name was unable to be typed, the users would contact the Tzu Chi foundation via the phone.

4-3-5 Interaction Tools

Greeting, Gift, Tzu Chi Magazine → Greeting, Gift, Tzu Chi Magazine, Tzu Chi e-reader

It is used by the regular committee members to interact with their donors while fundraising.

Jing Si Aphorisms (靜思語)

Figure 4.15 Jing Si aphorisms at the button of home page

The way the regular committee members interacted with their donors had not changed so much until now, and it was still greeting, sending the Tzu Chi magazines or gifts. Only high digital-skilled user C1 carried the Tzu Chi e-reader to interact with the donors. For example, she resolved the donor's doubts of life via the Jing Si aphorisms which showed up randomly at the button of the Tzu Chi e-reader's home page, and then introduced the core value of Tzu Chi.

4-3-6 Studying Tools

Tzu Chi Magazine, Tzu Chi Music, Internet → Tzu Chi e-reader

It is used by the regular committee members to absorb information of Tzu Chi during the leisure time.

In the period of paperwork, the regular committee members spent their leisure time

studying via reading the sutra, the Tzu Chi magazines, or listening to the Tzu Chi music, and high digital-skilled users searched some information about Tzu Chi via the internet. In the period of digital work, the high digital-skilled users C1 and C3, as the seeded teachers, downloaded the digital books from the websites and transfer them into PDF, then saved them in their Tzu Chi e-readers. Afterward the middle and low digital-skilled users requested the seeded teachers to give those files, and they would read them during their leisure time. If the reading words were not big enough, they would adjust the size bigger for reading comfortably. When they were tired or had no time to read, they used the audio-guiding function of the Tzu Chi e-reader to listen.

4-3-7 Others

In addition to the fundraising tasks, the Tzu Chi e-reader is also used to do other tasks related to Tzu Chi by the high digital-skilled user, and then it starts taking the place of the original tools.

Tzu Chi e-reader's Calendar

Figure 4.16 Tzu Chi e-reader's calendar (Left) and smartphone's calendar (Right)

The high digital-skilled user C1 used to check her google calendar via the smartphone. As she used the Tzu Chi e-reader more often and the size of smartphone's screen became hard to read for the aged user, she decided to synchronize the Tzu Chi e-reader's calendar with her google calendar so that she could check her schedule through the Tzu Chi e-reader's larger screen.

Digital Documents
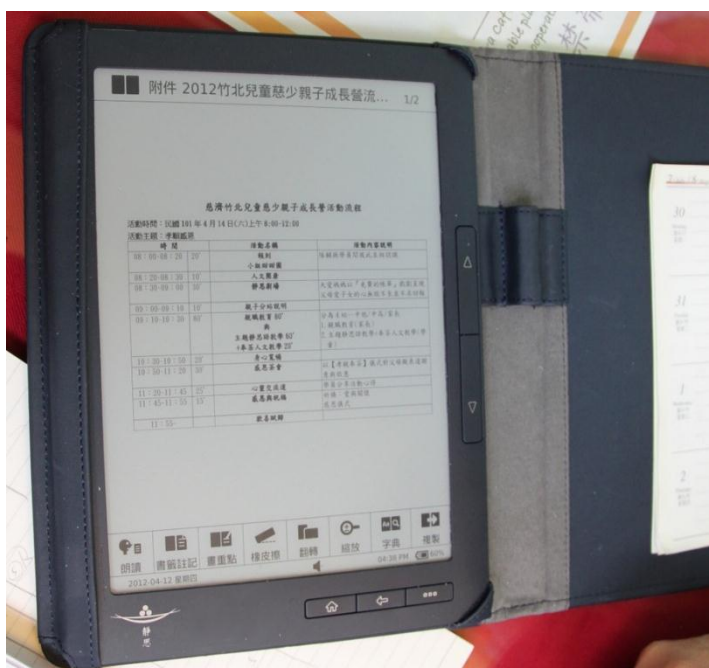
Figure 4.17 The digital documents of Tzu Chi

In order to promote the eco-friendly movement, the Tzu Chi foundation started to use the digital documents instead of the paper documents. The high digital-skilled user C1 wanted to make it into practice; therefore, she stored the digital documents into her Tzu Chi e-reader so that she could read them during the Tzu Chi activities.

4-4 Consolidated Cultural Model

The consolidated cultural model shows how intangible forces influence each other in the fundraising culture. The influencers are bubbles with different size and are organized from outside to the center. The size of the bubble reflects how powerful the influence is. The arrow indicates how bubbles influence each other, and eventually influence the regular committee members.

In the consolidated cultural model, the left side represents the positive influences, including **Cheng Yen**(證嚴) the founder of Tzu Chi, **Belief** in Tzu Chi, and **Eco-Friendly** promoted by Tzu Chi; the right side represents the negative influences, including **Fear** of technology, **Frustration** form Tzu Chi e-reader, **Dependence** on e-reader assistant, and **Peer Pressure** from other regular committee members who have no Tzu Chi e-readers yet.
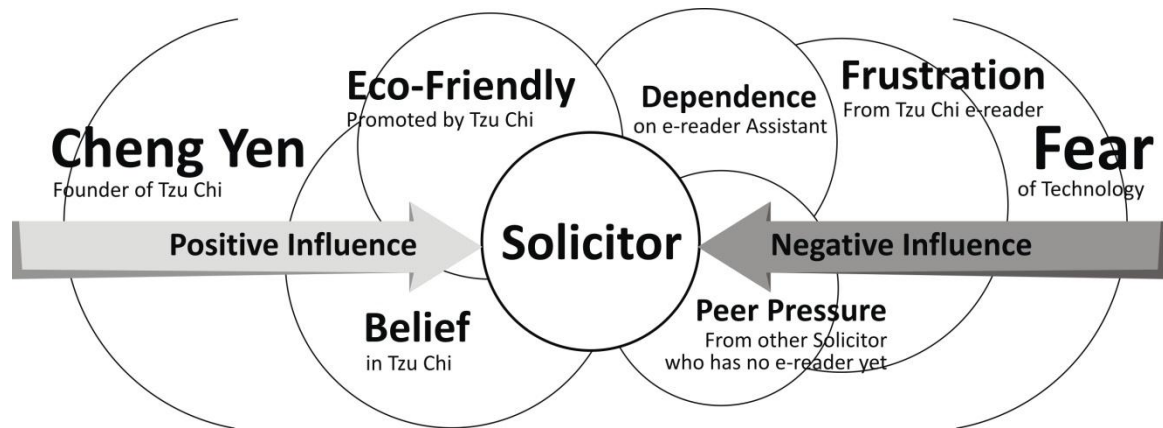
Figure 4.18 The Consolidated Cultural Model

4-4-1 The Positive Influence of The Culture

Dharma Master Cheng Yen as a founder of Tzu Chi is a very important spiritual leader to the regular committee members. In fact, all regular committee members were inspired by Dharma Master Cheng Yen's concept of eco-friendliness so that they decided to use the Tzu Chi e-reader. Furthermore, in order to continue this concept, the high digital-skilled user C1 tried to do some tasks via the Tzu Chi e-reader, such as reading documents on the Tzu Chi e-reader instead of print-out.

4-4-2 The Negative Influence of The Culture

The middle and low digital-skilled users' fear of technology caused from the lack of the digital experience influences their willing to use the Tzu Chi e-reader. According to the pilot interview with the seeded teacher, there was only one-fifth regular committee members using the Tzu Chi e-reader. And they were easy to give up using the Tzu Chi e-reader due to the frustration of the operation and the cold attitude from other regular committee members who did not have the Tzu Chi e-reader yet. Moreover, many low digital-skilled users were too dependent on the seeded teacher to learn how to operate the digital fundraising book by themselves, as a result, they used the Tzu Chi e-readers once a month while updating fundraising data.

4-4-3 The Relationship between The Positive and The Negative Culture

The regular committee members decided to use the Tzu Chi e-reader to support Dharma Master Cheng Yen despite the middle and low digital-skilled users had the fear of technology and the high digital-skilled users had their own digital tools already. Due to

the Tzu Chi e-reader's bad performance, the high digital-skilled users felt impatient of its speed and the low digital-skilled users felt frustrated of its operation; therefore, they had an idea to give up.

Most Tzu Chi e-reader users in our case study kept using the Tzu Chi e-readers for supporting Dharma Master Cheng Yen's concept. They viewed those obstacles as a kind of practice, and tried to get used to its slow speed by developing the good relationship with the Tzu Chi e-reader. But the process of getting used to the Tzu Chi e-reader was different between each digital-skilled user. The middle digital-skilled users felt less difficult to be familiar with the digital fundraising book in months. The high digital-skilled users turned to accept its inconvenience, and then they saw its value of "a book" which made them concentrate on studying without other information. Although the low digital-skilled users had more difficulties in operating the digital fundraising book, they had been familiar with it for almost a year.

But when Dharma Master Cheng Yen's concept were practiced excessively by the users, it would turn to be the opposite way. For instance, the low digital-skilled user A1 only used her Tzu Chi e-reader once a month while updating fundraising data, because she thought using the Tzu Chi e-reader as less as possible that would not waste its power.

In fact, the seeded teacher we interviewed in the pilot study said that only few users made up their minds to get used to the Tzu Chi e-reader, but most users gave up or only used it once a month because of the frustration of the bad performance of the Tzu Chi e-reader.

CH5 Discussion

We used Work Models as a lens to see the holistic fundraising activities of three kinds of digital-skilled user, and then used Dreyfus's Skill Acquisition Model to analyze their learning process of the Tzu Chi e-reader. We discussed how different digital-skilled users do with challenges as well as what skills they acquire in each learning stage, and then concluded the consequences in the end of each stage. Finally, we proposed learning recommendations for each stage.

Skill Acquisition Process	Digital Skill		
	High	**Middle**	**Low**
	Trigger Be inspired by Dharma Master Cheng Yen, the founder of Tzu Chi		
1. Novice	**Recording Change** -Record with digital fundraising book	**Recording Change** -Still record with fundraising book, and then record into e-reader -Ask e-reader assistant for help	**Recording Change** -Still record with fundraising book -Ask e-reader assistant for help
	Recording Error -Check with index	**Recording Error** -Check with index	**Recording Error** -Don't know how to check
	Low Speed -Dislike it	**Low Speed** -Take time to get used to it	**Low Speed** -Sometimes be confused
	Breakdown -Doubt of performance of e-reader	**Breakdown** -Send back to repair	**Breakdown** -Doubt of performance of e-reader
	▼ **Know how to record quickly**	▼ **Take months to know how to record**	▼ **Take a year to know how to record**
2. Competent	**Recording Change** -Someone records with e-reader while fundraising	**Recording Change** -Someone records with e-reader while fundraising	**Recording Change** -Still record with fundraising book -Don't need recording guideline
	Recording Error -Check with index	**Recording Error** -Check with index	**Recording Error** -Know how to check
	Low Speed -Develop some tricks to get used to it	**Low Speed** -Get used to it	**Low Speed** -Get used to it
	Breakdown -Send back to repair	**Breakdown** -Send back to repair	**Breakdown** -Send back to repair
	Read Digital Book & Listen to Music -Download files from computer and then store into e-reader	**Read Digital Book & Listen to Music** -Update digital book and music from e-reader assistant	**Read Digital Book & Listen to Music** -Update digital book and music from e-reader assistant
		Remit Online -Set up Wi-Fi at home not only for updating digital fundraising book but for remitting online	
	✖ Only record ▼ Develop other functions	✖ ... ▼ Develop other functions	✖ Only record ▼ Develop other functions

Skill Acquisition Process	Digital Skill		
	High	**Middle**	**Low**

3. Proficient

⊘ **Low Speed**
-Treat it as monasticism

🔧 **Interact with donor**
-Introduce mission of Tzu Chi via e-reader

Calendar Synchronization
-Synchronize e-reader's calendar with google calendar

Digitalize Document
-Store document in e-reader

∨ **Connect e-reader with Tzu Chi activities**

4. Expert

⊘ **e-reader User's Request**
-Request from e-reader users again and again

🔧 **Offer Resource**
-Update solicitors' e-reader and other resource for studying

✕ **Become servant for updating**

5. Visionary

⊘ **Indicate What is Worth Improving**
-Discover e-reader users' problem and potential needs and consider e-reader developer's situation simultaneously

Figure 5.1 The skill acquisition process of learning Tzu Chi e-reader

5-1 Before using Tzu Chi e-reader

Before the committee members decide to use the digital fundraising book, they have a chance to attend a half-day lecture on the digital fundraising book which introduces the concept as well as the operation of digital fundraising book. They can make the decision whether use the digital fundraising book or not after a month trial. According to **4-4-2 The Negative Influence of Culture**, the middle and low digital-skilled users' fear of technology does affect the willing of using the digital fundraising book due to their less digital experience; therefore, the seeded teacher of our pilot study said there are only one-fifth committee members decide to use it. The reason why they use the digital

fundraising book as **4-4-1 The Positive Influence of Culture** mentioned is that they are all inspired by Dharma Master Cheng Yen's concept of eco-friendliness, so that they start their learning journey of the Tzu Chi e-reader as a novice.

5-2 Novice

5-2-1 Challenge & Skill

There are two kinds of challenges in the Novice stage, one is **The Change of The Tool**, including "Recording Change" and "Recording Error", and the other is **The Bad Performance of The Tool**, including "Low Speed" and "Breakdown".

Challenge1 : The Change of The Tool

According to **4-3-1 Recording Tools** and **4-3-3 Checking Tools**, the recording information is still the donor's information, fundraising money, and donation categories, but recording sheets is a little different as well as recording way is changed from hand writing to key in data via touchscreen. In addition, checking way becomes switching pages in the same screen instead of flipping the fundraising book back and forth intuitively.

It's not a big deal to the middle and high digital-skilled users due to their computer-using experience. The high digital-skilled users used to do the recording tasks via Excel and now via the Tzu Chi e-reader, that is to said, they do the recording tasks via the similar digital tools. Although the middle digital-skilled users are unfamiliar with the digital fundraising book at first, they depend on their computer-using experience from the past job as well as ask other users who are familiar with the digital fundraising book. Finally, they spend few months being familiar with it.

But it is a big challenge to the low digital-skilled users who have no computer-using experience. Since they do not get used to record the fundraising data via the Tzu Chi e-reader, they still record in the traditional fundraising book and then key in the fundraising data into the Tzu Chi e-reader. The low digital-skilled users are also unfamiliar with the digital fundraising book at the beginning. They ask other users someone who are familiar with the digital fundraising book and follow the operation process, and they spend almost a year being familiar with it. When they encounter something unanticipated such as recording error, they generally have no idea how to resolve it.

Challenge 2 : The Bad Performance of The Tool

The middle and high digital-skilled users tend to compare the Tzu Chi e-reader with other digital tools they used, and they all feel it is slower and worse at handwriting recognition than others. In spite of its bad performance, the high digital-skilled users try to view them as a kind of training and accept the inconvenience, and the middle digital-skilled users only request the results of the fundraising records correctly. Although the low digital-skilled users have no computer-using experience to compare whether the performance of the Tzu Chi e-reader is good or not, sometimes they still confused when the performance of the Tzu Chi e-reader delayed.

It is unavoidable to be affected to all committee members when it comes to breakdown. The high digital-skilled users tend to consider using other better digital tools. The low digital-skilled users become doubting their decision of using the digital fundraising book and want to use the traditional fundraising book again. It is less affected to the middle digital-skilled users, because they do not use digital tools as frequently as the high digital-skilled users and they do not fear digital technology as much as the low digital-skilled users.

5-2-2 The Consequence of The Novice Stage

According to the results, the consequence of the Novice stage is all Tzu Chi e-reader users **know how to record**, but how long to learn the operation of the fundraising book that depends on the user's computer-using experience. The high digital-skilled users have enough computer-using experience to get it quickly. Although the middle and low digital-skilled users were unfamiliar with the operation of the fundraising book at first, the former one spent few months practicing to know how to use due to the computer-using experience from their past jobs, the later one spent almost a year practicing to know how to use. The key factor that makes the low digital-skilled users keep practicing is **the determination to support Dharma Master Cheng Yen**. According to **4-4-3 The Relationship between Positive and Negative Culture**, all committee members decided to use the Tzu Chi e-book due to Dharma Master Cheng Yen. Regardless of those challenges, they viewed them as a kind of training and were willing to spend almost a year in order to get it.

5-2-3 The Recommendations for The Novice Stage

Goal : Know how to use the digital fundraising book

Key Point :
1. Ease of use of digital tool
2. The performance of the digital tool maintains a certain level

The Novice stage is the most important stage because most Tzu Chi e-reader users easily fall into giving up or staying in this stage while failing to conquer those challenges. The primary goal in the Novice stage is to **know how to use the digital fundraising book**. It's not a big deal to the middle and high digital-skilled users since their computer-using experience. As regards the low digital-skilled users who have no computer-using experience, if the operation is not complicated, they still can complete the task by following the operation process. That is to said, if the ease of use of the digital tool is good, it does help the low digital-skilled users be familiar with it easily. The result is also proved by many studies that mentioned in **2-4-2 How Do Digital Immigrants Accept New Digital Technology**. As a result, the **challenge: The Change of The Tool** can be resolved by improving the ease of use of the digital tool.

The other **challenge: The Bad Performance of The Digital Tool** is the main factor causes the low digital-skilled users to give up. When it comes to something unexpected caused by the bad performance of the digital tool, the low digital-skilled users as novices do not have enough ability to resolve it even if the operation seems easy and clear. As a result, their confidence has been affected, which causes them to give up or stay in the Novice stage. If the performance of the digital tool maintains a certain level, it will reduce the threshold of learning the digital tool as well as increase their confidence to use it; therefore, it does reduce the possibility of giving up in the Novice stage.

5-3 Competent

5-3-1 Challenge & Skill

It upgrades to the Competent stage as the Tzu Chi e-reader users are familiar with the operation of the digital fundraising book. The challenges in this stage are **The Change of Tool** and **The Bad Performance of Tool** as well. The users are more familiar with the Tzu Chi e-reader and accommodate its speed than in the Novice stage; moreover, they

develop other functions of the Tzu Chi e-reader.

Challenge1 : The Change of The Tool

The middle and low digital-skilled users are able to operate the digital fundraising book without operation notes in this stage. According to **4-3-2 Auxiliary Recording Tools**, most users still record with paper while fundraising, and then key in the data into the Tzu Chi e-reader while uploading the digital fundraising book. When they encounter the recording error, they know how to check the fundraising data with index. In this stage, the high digital-skilled user C1 tries to record the fundraising data directly via the Tzu Chi e-reader while fundraising.

Challenge 2 : The Bad Performance of The Tool

Most users have found the way to deal with the Tzu Chi e-reader in spite of its bad performance. For example, the high digital-skilled user C1 prepares paper inside the e-reader's case in case it is too slow to record while fundraising. But they are still affected when the Tzu Chi e-reader broke down without warning.

In the Competent stage, the users have developed other skills since they have used the Tzu Chi e-reader for a while. In addition to do the fundraising tasks, they begin to read digital books as well as listen to the sutra. Some users set up Wi-Fi at home in order to update the fundraising data easily, and they can remit online at home as well.

Skill 1 : Reading Digital Books and Listening to The Sutra

According to **4-2 Consolidated Sequence Model**, the committee members are very busy at fundraising tasks every month. In order to preach the philosophy of Tzu Chi, they have to study the sutra and read the Tzu Chi magazines in their leisure time. According to **4-3-6 Studying Tools**, users have developed their own pattern of studying. Take the high digital-skilled users for example, they download the digital sutra in the computer, and then save those files in the Tzu Chi e-reader; therefore, they can read it anytime and everywhere. In generally, the middle and low digital-skilled users ask the seeded teacher for those files while going to the Tzu Chi temple on weekends. Since they are too old to read for a long time, they will use the audio function of the Tzu Chi e-reader to listen to the sutra.

Skill 2 : Remit Online

As **4-1-2 The Relationship of Roles in The Period of Digital Work** indicates that there is free Wi-Fi in the Tzu Chi temple, so the middle and low digital-skilled users who do not have the internet at home update their fundraising data while attending the activities in the Tzu Chi temple. In order to update the fundraising data and remit online without going out, the middle digital-skilled user B2 decided to set up Wi-Fi at home.

5-3-2 The Consequence of The Competent Stage

There are two consequences in the Competent stage: (1) **Develop other functions**, and (2) **Only record**. It is possible to go to the Proficient stage when it comes to the first consequence. Most users figure out the advantages of the Tzu Chi e-reader after they accept the fact of the bad performance of the Tzu Chi e-reader. For example, they find that they can read the digital sutra instead of the heavy sutra books; the e-ink screen is more comfortable for reading than the colorful screen; and they can listen to the digital sutra via the audio functions while being tired or busy.

The users will stay in this stage when it comes to the second consequence. According to the results, the high digital-skilled user C2 and the low digital-skilled user A1 are belonging to the second consequence for different reasons. Since the high digital-skilled user C2 has owned other digital tools with better performance, she cannot stand the Tzu Chi e-reader's slow speed. On the other hand, she does not want to use the traditional fundraising book again. As a result, it falls into the Tzu Chi e-reader only used for the fundraising tasks once a month. As regards the low digital-skilled user A1, as **4-4-3 The Relationship between Positive and Negative Culture** said, she decided to use the Tzu Chi e-reader for supporting Dharma Master Cheng Yen's eco-friendly ideal. But on the contrary, she executes the ideal too much because she thinks it will waste the energy while using other functions of the Tzu Chi e-reader except the fundraising tasks. Finally, it falls into the same consequence as the high digital-skilled user C2.

5-3-3 The Recommendations for The Competent Stage

Upgrade Condition : Be familiar with the digital fundraising book

Goal : Develop other functions of the Tzu Chi e-reader

Key Point :

1. Ease of use of the digital tool
2. The performance of the digital tool maintains a certain level
3. Connect the function of the digital tool with the organization

It upgrades to the Competent stage when the users are familiar with the operation of the digital fundraising book without operation notes. In this stage, most users have been used to the low speed of the Tzu Chi e-reader, so that they do not give up as easily as novices in the Novice stage. But some of them still cannot stand the bad performance of the Tzu Chi e-reader, they may fall into only updating the fundraising data once a month and not using other functions of the Tzu Chi e-reader.

If the performance of the Tzu Chi e-reader maintains a certain level, it will reduce the time of getting used to the low speed for the middle and high digital-skilled users; moreover, they do not need to convince themselves to view it as a kind of training. Therefore, they are willing to use the Tzu Chi e-reader often and develop its other functions. It is inevitable that the users will compare the Tzu Chi e-reader with other digital tools. If the ease of use of the Tzu Chi e-reader's functions is good, they are willing to use it instead of ordinary digital tools. As a result, the Tzu Chi e-reader is not only used to do the fundraising tasks but also help the users acquire the Tzu Chi information to improve the connection with Tzu Chi.

5-4 Proficient

5-4-1 Challenge & Skill

It upgrades to the Proficient stage as the users are familiar with the Tzu Chi e-reader and develop other functions of the Tzu Chi e-reader. According to the results, only high digital-skilled users arrive in this stage. They encounter the **challenge: The Bad Performance of The Digital Tool** as well; meanwhile, they develop more functions of the Tzu Chi e-reader which take the place of other digital tools they used before.

Skill 1 : Interacting with The Donors via The Tzu Chi e-reader

As **4-1-2 The Relationship of Roles in The Period of Digital Work** mentioned the interaction between the solicitors (the high digital-skilled users) and the donors, the donors are interest in the Tzu Chi e-reader while the high digital-skilled users operating the digital fundraising book in front of them. Therefore, the high digital-skilled users

introduce how the digital fundraising book works to the donors in order to get their trust in the purpose of fundraising. In addition, the high digital-skilled user C1 finds that the Jing Si aphorisms show up randomly at the button of the Tzu Chi e-reader's home page, so she tries to resolve the donors' doubts of life via the Jing Si aphorisms and then introduces the core value of Tzu Chi.

Skill 2 : Symchronizing The Calendar

As **4-3-7 Others** mentioned that the high digital-skilled user C1 used to check her google calendar via the smartphone. As she uses the Tzu Chi e-reader more often and the size of smartphone's screen becomes hard to read for her, she decided to synchronize the Tzu Chi e-reader's calendar with her google calendar so that she can check her schedule through the Tzu Chi e-reader's larger screen.

Skill 3 : Digitalizing The Documents of The Organization

4-3-7 Others also mentioned that the Tzu Chi foundation starts to use the digital documents instead of the paper documents for promoting the eco-friendly movement. The high digital-skilled user C1 would like to make it into practice; therefore, she stored the digital documents into the Tzu Chi e-reader so that she could read them during the Tzu Chi activities.
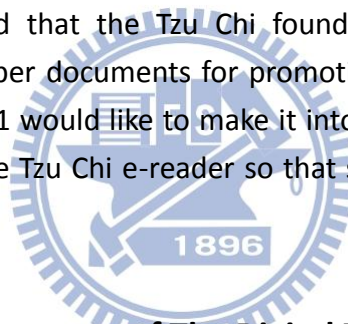
Challenge : The Bad Performance of The Digital Tool

It is not a big deal to the users when they encountered the challenge since they have developed certain ways to deal with it, on the other hand, they have adjusted their attitude toward it as a kind of training.

5-4-2 The Consequence of The Proficient Stage

The consequence in this stage is to **connect other functions of the Tzu Chi e-reader with the Tzu Chi activities** since the users have adjusted their attitude and gotten used to the Tzu Chi e-reader as well as had more understanding of it. Therefore, they tried to use other functions of the Tzu Chi e-reader to take the place of other digital tools which they used to do the tasks of Tzu Chi before. As a result, they are more dependent on the Tzu Chi e-reader to help them handle the tasks of Tzu Chi.

5-4-3 The Recommendations for The Proficient Stage

Upgrade Condition : Have holistic understanding of the Tzu Chi e-reader

Goal : Connect other functions of the Tzu Chi e-reader with the activities of the organization

Key Point : Continue the idea of the organization

Due to more understanding of the Tzu Chi e-reader, the users try to consider how to use other functions to connect with the Tzu Chi activities. According to the results, there is none of the middle and low digital-skilled users arrive in this stage. The reason might be that they do not have enough understanding of the Tzu Chi e-reader; as a result, it confines the possibilities of the Tzu Chi e-reader. If the purpose of the eco-friendliness which keeps the middle and low digital-skilled users using the Tzu Chi e-reader at the beginning can be continued, and the seeded teacher can guide them to use other functions of the Tzu Chi e-reader, it will encourage the users to find out the value of the Tzu Chi e-reader in connection with Tzu Chi.

5-5 Expert

5-5-1 Challenge & Skill

When the Tzu Chi e-reader user has more understanding of the Tzu Chi e-reader, there are more other users coming for help. In Expert stage, the user plays the roles of the Tzu Chi e-reader user as well as the Tzu Chi e-reader seeded teacher. According to the results, both the high digital-skilled users C1 and C3 in this stage are seeded teachers. The challenge they encounter is **the request from the Tzu Chi e-reader users**, and the skill they acquire is **offering the resource to the Tzu Chi e-reader Users**.

Challenge : The Request from The Tzu Chi e-reader Users

Most users do not know how to use the digital fundraising book since they are lack of computer-using experience as well as the half-day lecture on the digital fundraising book is not enough to them. According to **4-1-2 The Relationship of Roles in The Period of Digital Work**, they tend to ask other users who are familiar with the Tzu Chi e-book for help. The primary problem is that some users do not get it and keep requesting every month. Consequently, it becomes the attitude of dependence as well as the load of the Tzu Chi e-reader seeded teachers.

Skill : Offer The Resource to The Tzu Chi e-reader Users

In order to satisfy the middle and low digital-skilled users' needs and reduce their loads, the seeded teachers downloaded the digital books and music from websites and save into SD cards. Afterwards they help the middle and low digital-skilled users update files into their Tzu Chi e-readers on the occasion of the Tzu Chi activity on weekends.

5-5-2 The Consequence of The Expert Stage

According to the results, the consequence of the Expert stage is that the seeded teacher **became the servant for updating**. Even if the high digital-skilled users C1 and C3 tried different methods to teach the middle and low digital-skilled users the operation of the digital fundraising book, most users still ask them every month. Since most users are aged people, they cannot help but assist the users in the fundraising tasks again and again.

5-5-3 The Recommendations for The Expert Stage

Upgrade Condition : Have the intuition to resolve the problems

Goal : Help the Tzu Chi e-reader users keep growing

Key Point :
1. Discover the hidden needs of the users
2. Develop a variety of the solutions
3. Decide the proper solution to the users

In this stage, the users are not only the Tzu Chi e-reader users, but they are also responsible for resolving other users' problems depending on their intuition. In order to use their intuition well, they have to prepare a couple of solutions which are according to what they observe the hidden needs of a variety of the users in the ordinary, and they should decide a proper solution in consideration of each user's situation to help them.

5-6 Visionary

5-6-1 Challenge & Skill

In order to improve the Tzu Chi e-reader system, the seeded teacher should be expert in the Tzu Chi e-reader and have the vision of developing system in the Visionary stage. According to the results, there is only high digital-skilled user C1 with information engineering background in this stage. She is responsible for being a seeded teacher as well as reporting the users' problem to the Tzu Chi e-reader system developer. Therefore, the challenge she encountered is **indicating the area for improvement**.

Challenge : Indicating The Area for Improvement

According to **4-1-2 The Relationship of Roles in The Period of Digital Work**, the seeded teachers are responsible to report the problems of the Tzu Chi e-reader users. If they are unable to indicate users' main problems and hidden needs clearly, they may waste time and money on system developing, even make the whole Tzu Chi e-reader system do nothing.

5-6-2 The Consequence of The Visionary Stage

Although the Tzu Chi e-reader 2 has been released in 2013, and its performance is better than the origin one (http://tcit.tzuchi.net/Portal/index.php?option=com_content&view= article& id=91:e-book&catid=45:topstories&Itemid=90), we cannot compare the new Tzu Chi e-reader with the old one to prove whether the seeded teacher has improved the system or not, because the new Tzu Chi e-reader did not be released yet when we conducted the contextual inquiry with the seeded teacher. In consequence, we do not have enough resources to summarize the consequence in this stage.

5-6-3 The Recommendations for The Visionary Stage

Upgrade Condition : Have the vision of the system development

**Goal :** Improve the Tzu Chi e-reader system

Key Point : Indicate the area for improvement

According to the results, there is only one seeded teacher with information engineering background in this stage. As a matter of fact, the seeded teachers play the roles of the user and the developer at the same time. Therefore, they should consider both user's needs and developer's limitation to indicate the area which is worth improving.

5-7 The Brief Summary

The skill acquisition process proposed in this chapter was based on the case study of the Tzu Chi e-reader. According to the results mentioned above, we found that the primary problem in this case study was **the bad performance of the Tzu Chi e-reader**. Although all users in this case study did not give up using the Tzu Chi e-reader, it did not mean that they never considered giving up. The high and low digital-skilled users have ever considered giving up, but they still kept using the Tzu Chi e-reader and saw the challenge as a kind of training since their strong determination of supporting Dharma Master Cheng Yen's eco-friendly ideal. Only middle digital-skilled users seemed to get used to the bad performance of the Tzu Chi e-reader well.

In fact, the seeded teacher we interviewed in the pilot study said that there were only one-fifth Tzu Chi committee members using the Tzu Chi e-reader, and some Tzu Chi e-reader users gave up using it since the frustration from the bad performance. As a result, the basic requirement of the digital tool is its performance should maintain a certain level; therefore, the recommendations of each stage can be worked effectively.
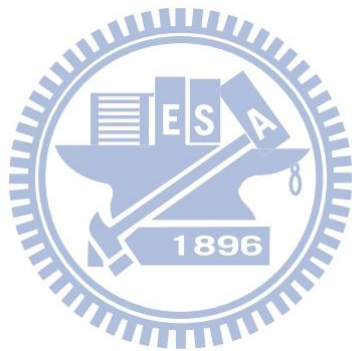
CH6 Conclusion

In order to help the digital immigrants adapt in this digital world, this study focused on the digitalization of the Buddhist organizations in Taiwan since over half members of the Buddhist organizations are digital immigrants as well as most Buddhist organizations start to become digitalized. We took the Tzu Chi e-reader's users as the case study and analyzed the contextual inquiry via four kinds of work models for investigating the digital immigrant's process of learning how to use the digital tool from a holistic perspective. Finally, we proposed the five stages of the digital immigrant's learning process and the recommendations in each stage. According to the results and the discussion, here is the implication of digitalization for the religious organizations.

6-1 The Implication

It is much possible to promote the digitalization in the religious organizations at the beginning since the influence of the religious leader, which is also called "the charisma." As **2-1 The Digitalization of The Buddhist Organizations in Taiwan** and the case study of Tzu Chi showed, the followers are easily inspired by the religious leader and are willing to support the religious leader's decision. That is to say, the digital immigrants in the religious organizations tend to accept the new digital tool or services at the start, but the following learning process determines whether the digital immigrants keep using the digital tool or services or not.

Create The Motive of Using The Digital Tool or Services

According to **2-1 The Digitalization of The Buddhist Organizations in Taiwan**, most digital immigrants do not use the digital resources even the organizations provide the digital services. The reason is that the digital immigrants do not have the idea to use this kind of new services; therefore, they are still used to the traditional way. In order to help them accept and get used to the new digital tool or services, the motive of using the digital tool or services should be created at the beginning. In the case study of the Tzu Chi e-reader, the motive is to do the fundraising tasks since every Tzu Chi committee member is responsible for doing the fundraising tasks every month. In other words, they have to use the Tzu Chi e-reader at least once a month, so that they will be familiar with operating a certain function of the Tzu Chi e-reader.
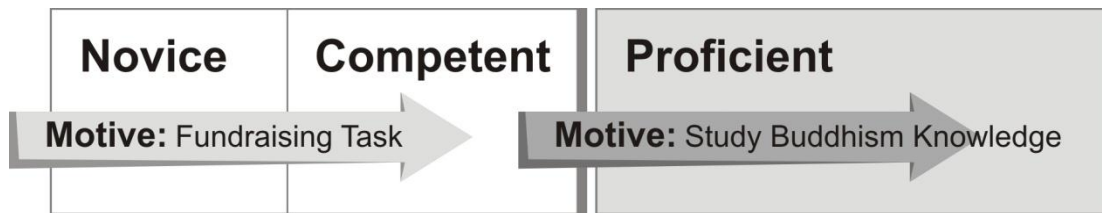
| Novice	Competent	Proficient
Motive: Fundraising Task		Motive: Study Buddhism Knowledge

Figure 6.1 The motive in each learning stage

From the perspective of the model of skill acquisition, the novice digital immigrants have more understanding of the new digital tool or services via learning and practicing a certain function of the new digital tool or services, and then they become the competent users. In the competent stage, it also needs the motive to keep the digital immigrants developing other functions of the digital tool or services. In the case study of the Tzu Chi e-reader, the motive is to study the Buddhist knowledge since it is the important homework for the followers. Most Tzu Chi members are busy in the Tzu Chi events and their jobs; therefore, they need a better way to study efficiently in the limited time. When they find that the Tzu Chi e-reader does help them study well and conveniently, they will use it more often instead of the way they used before. In consequence, the digital immigrants become the proficient and keep developing other functions of the digital tool or services.

In conclusion, the motive of using the digital tool or services plays a key role in each learning stage. The motive created at the beginning can help the novice digital immigrants accept and be familiar with the digital tool or services. When the novice digital immigrants become the competent users, the new motive is created to help them keep using the digital tool or services and developing other functions. Finally, most digital immigrants adapt the digital tool or services and keep using them in the proficient stage.

Develop The Digital Platform for The Different Digital Tools

The digital immigrants are divided into three groups according to their digital skills; therefore, the needs of the digital tool differ from the digital immigrants with different digital skills. In the case study of the Tzu Chi e-reader, the high digital-skilled digital immigrants already had their own digital tools to do the Tzu Chi events. When they used the Tzu Chi e-reader, they had to get used to the low speed of the Tzu Chi e-reader since the digital tools they used before performed better than the Tzu Chi e-reader. As a result, most high digital-skilled digital immigrants gave up the Tzu Chi e-reader and fell back on the digital tools they used before. The low digital-skilled digital immigrants got used to

the low speed of the Tzu Chi e-reader since they did not have computer-using experience. The middle digital-skilled digital immigrants also got used to the low speed of the Tzu Chi e-reader at the start. But when they were familiar with the Tzu Chi e-reader, they began to consider a better digital tool since they had a little computer-using experience before.

Figure 6.2 The platform for the different digital tools
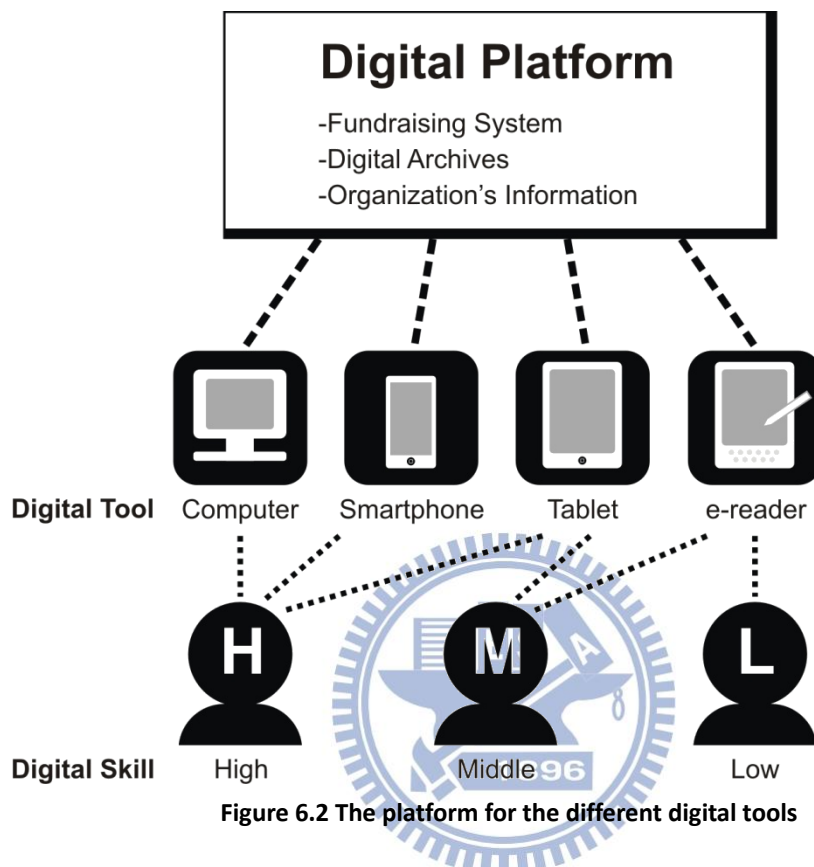
In conclusion, it is better to develop a digital platform instead of a customized digital tool, so that the digital immigrants can use the services of the platform via different digital tools which fulfill their needs. As regards the low digital-skilled digital immigrants, the organizations can choose the e-reader as the medium for them to use the services of the platform since the design of the e-reader suits with their digital skills and physical needs.

Build The Assistant Net

Although there are over half digital immigrants in the religious organizations, the organizations can build the assistant net to help the middle and low digital-skilled digital immigrants learn the digital tool or services by the high digital-skilled digital immigrants and the younger digital natives. In the case study of the Tzu Chi e-reader, a seeded teacher was assigned to an area to assist the middle and low digital-skilled digital immigrants in operating the Tzu Chi e-reader. In general, the high digital-skilled digital immigrants host the post of the seeded teacher mostly. According to the contextual

inquiry, the low digital-skilled digital immigrants preferred asking for help from the people around them. Therefore, the middle digital-skilled digital immigrants can also host the post of the seeded teacher due to their better learning ability than the low digital-skilled digital immigrants. On the other hand, they can share the load of the seeded teacher with the high digital-skilled digital immigrants.
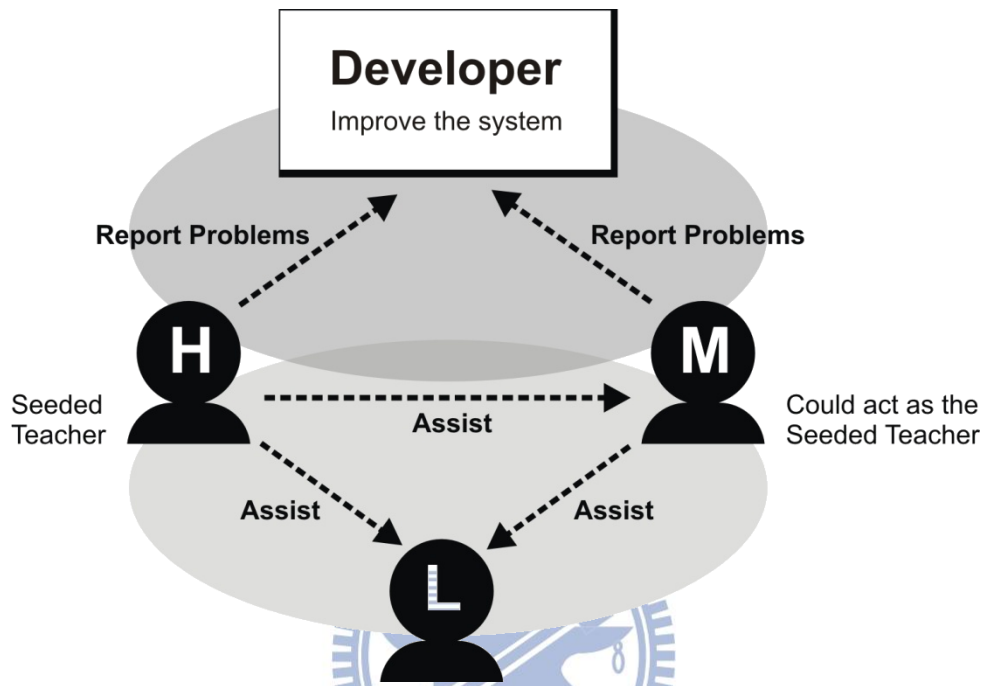

Figure 6.3 The assistant net among the users and the developer

In addition to the assistant net between the users, the organizations can build the assistant net between the users and the developer to improve the digital services. In the case study of the Tzu Chi e-reader, the seeded teachers not only assisted the users in operating the Tzu Chi e-reader but also reported users' problems to the developer. From the perspective of the model of skill acquisition, when the digital immigrants act as the seeded teacher, they are in the expert stage. Then, they need to move on the visionary stage by training the vision of system development, so that the digital services will keep improving and provide the better services to the users.

6-2 The Recommendation for The Future Work

In this study, we offer digital immigrants' activity process of the digital tool and compare with three kinds of digital immigrants with different digital skills. But there are still a couple of limitations among our research.

The Limitation of The Research Method

The results are based on the contextual inquiry with nine Tzu Chi regular committee members; therefore, it may exist biases caused by personal experiences. For instance, most committee members tended to avoid mentioning the disadvantages of the Tzu Chi e-reader since their respect to Tzu Chi. In addition, the elder committee members sometimes cannot remember the details of their learning process. The above-mentioned problems may cause something tiny but important clues which are hidden behind the fact.

The other bias may be caused by the limited demographic distribution. As most Tzu Chi members are females, the participants we recruited by the Tzu Chi seeded teacher are all females. Furthermore, confined to the area for where the Tzu Chi seeded teacher is responsible, all participants come from the Hsinchu area.

In addition, the data of the contextual inquiry was analyzed into five stages of learning process. Since most participants' learning process stayed in the competent stage and only high digital-skilled users' learning process includes all stages; therefore, it still needs more evidence to explain each learning stages of digital immigrants with different digital skills.

The Recommendation

In order to reduce the bias, we need to get more detailed evidence from different digital immigrants. We can use self-documentation tools such as Culture Probe or Working Diary to assist us in figuring out something hidden behind the user's behaviors and thoughts. Then, based on the results via the qualitative method, we need to balance the demographics and collect more data via quantitative method to support the results.

As the growing of the digital world nowadays is fast and dynamic, it seems inevitable that the digital gap will exist between generations. But there will be more and more organizations and digital immigrants fall into the digital world due to the convenience of the internet. In order to reduce the gap and help the digital immigrants be accepted in the digital world, we should keep focusing on this issue, or we will suffer the consequences again and again.
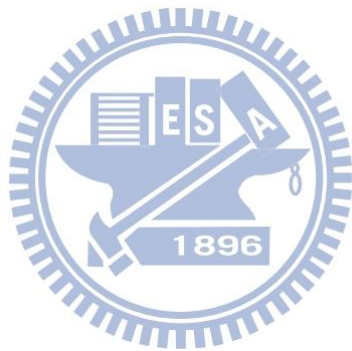
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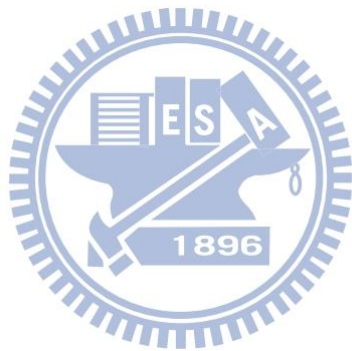李志強 (2008)。參看與分享--從 Web2.0 看佛教印經會發展的未來展望。**佛教圖書館館刊，48**，95-98

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Appendix A:
Affinity Diagram of Low-Skilled Digital Immigrants

背景資料	**A1 師姑**: 。69 歲，家庭主婦 。勸募經歷二十幾年 。電子書經歷一年半 。沒有使用相關電子產品的經驗	**A2 師姑**: 。50 歲，家庭主婦 。勸募經歷 3.4 年 。電子書經歷將近一年	**A3 師姑**: 。65 歲，之前擔任保母 。勸募經歷十年 。電子書經歷七個月 。戶數 70 幾戶 。用手機來聯絡事情，只會收簡訊來看；沒學過電腦
收款活動	過去為了讓本部的資料上傳作業不拖延到下次收款的時間，所以規定幕後們提早在月中的時候交錢，才能早點寄給本會進行作業			

過去為了讓本部的資料上傳作業不拖延到下次收款的時間，所以規定幕後們提早在月中的時候交錢，才能早點寄給本會進行作業

A1:
。月初就會親自去跟會員收錢
。有些人滿有心的會幫忙收錢，然後送過來給我，所以就讓他成為培訓的幕後
。規定幕後最慢每個月的 16 號前要交錢，因為早一點寄去的話本部那邊作業才不會塞車
。通常幕後都在 15 號就直接送錢到我家
。見習幕後因為戶數不多，所以通常月初或是十號之前很早就交錢

A2:
。滿常會有會員停止捐款的
。有時候看其他見習的戶數不夠，會把自己的一些戶數給他收

A3:
。大概 10 號開始收，就近在家附近收，有些會自動送來；20 號前寄回本會，差不多月底才會收到收據

忙碌的時候或是家人因工作環境或地理位置方便的話，會請家人幫忙收善款

A1:
。上班的幕後通常都等本子寄回來才會開始去收錢，因為平常也很忙
。有時候在外忙活動，就會請兒子在家幫忙收幕後的錢

A3:
。以前老家在台南，所以台南有一些會員，主要是由兒子幫忙收那邊的錢
。媳婦也是自己的會員，同時也幫忙收她上班公司的會員的錢

依據會員的經濟狀況，給予善款調整的建議或是暫時代墊

A1:
。有一兩戶的薪水二十幾號才發，趕不及在 17 號之前給，就會打電話請師姐幫忙代墊

A2:
。如果會員這個月手頭比較緊或還沒領到薪水，會建議他們是否將捐款降下來，負擔比較沒那麼大，然後會先幫忙墊錢，如果確認會員不繳的話再停掉

	配合會員工作的作息去收善款
	A1: 。住比較近的會員就自己收錢 。通常都是白天去收錢，因為附近菜市場白天做生意的比較多 。竹北有個飯店一家人共繳了一萬多塊，我就會親自去他們家收錢，因為他們生意滿忙的
互動溝通	**不是只有在收善款時才與會員見面，平時就會去關心；只是關心的機會受到距離遠近和繳款間隔的影響而減少**
	A1: 。去收錢時會跟會員問好，給他們祝福 。上人說年繳的會員最好不要一年才見一次，每個月或兩個月就該去關心一下 。住比較遠的會員通常是每個月收款才會遇到 。平常住附近的會員有時買菜遇到就會關心一下，不一定每個月收錢時才會見面 。我們是募心，不是募你的錢有多少 。年繳的收據年底才會出來，通常會在元月過年前拿收據給會員順便提醒下個年度的繳費 。住比較遠的收據就用信封寄，住附近的就直接拿過去 **A2:** 。很多會員都是年繳的，想說不用麻煩師姑每個月都跑，不過我還是會每個月都去見個面 **A3:** 。因為自己年紀比較大，所以互動的會員年紀都比自己輕 。收錢時會告知活動訊息，邀請會員來參加看看
	月刊送給幾位有在看的會員，其他會員則是自己看大愛台
	A3: 。月刊會送給四五位有在看的會員，其他會員就看大愛台
	收款前先用電話聯絡會員幾時收款
	A1: 。跟會員收款前會在家打電話連絡，不太喜歡用手機，在外則是用電話卡 。有另外一本電話簿來記會員的電話 **A3:** 。收款前先用電話知會幾點去收錢

記錄過程：資料記錄	收善款時先簡單地標記善款金額、捐款項目、捐款方式或會員的基本資訊在信封袋上或是另外準備的紙本，因為收久了也就記得會員的繳款習慣
	A1: 。見習幕後只要在信封袋上寫上會員的姓名跟金額就好了，除非是第一次繳的會員才需要住址等資料 。以家戶來分頁記錄 。以前用紙本時每個月等錢收齊了會放在信封裡，上頭標注幾月份繳多少錢 。以前幕後可以在紙本上標注是誰的錢，後來剛開始用電子書時還不熟悉，所以有時看到名字會認不出是誰，因為不是自己親自收的 。現在已經熟了就會認得會員的名字 。代墊的錢就先記在腦子裡，因為那麼多年也習慣了 **A2:** 。記每個項目的時候會簡寫，譬如「檀施」就記「檀」,「建設」就記「建」,「隨喜」的話就記「喜」 **A3:** 。另外準備一張整年份的紙記錄善款，年繳的用 Δ，月繳的用ˇ做記號，等到收齊後再輸入到電子書上
	幫忙收款的人因為收的人數少，為了方便起見，乾脆直接記在紙上或信封袋上，再交由委員記錄在紙本或電子書
	A1: 。見習幕後收的錢都還是在我這邊記錄 。見習幕後只有幾戶會員要收的話嫌麻煩，所以不會記在紙本上，而是直接寫在信封袋上 。兒子嫌電子書太慢用不習慣，所以收錢後不會直接把資料輸入進去，而是先記在紙上 。等到回家後看到兒子記誰送來多少錢，再把資料輸入進電子書裡 **A2:** 。一開始用電子勸募的時候，身旁還是會用咖啡本來記錄，然後對照資料輸入 。會從索引看所有會員的編號，再去名單用編號搜尋該會員
	紙本時需要花不少時間手抄資料，對眼睛負擔大也很累人；電子勸募本則是不用花太多時間就能完成
	A1: 。會分幾天有空的時候來抄寫紙本勸募本，這樣眼睛比較不會那麼累 。每到年底就要謄新的勸募本，現在年紀大了，眼睛也不好，這樣謄四五本也滿累的 **A3:** 。用電子書後收款的作息跟紙本差不多，只是不用花太多時間抄寫 。如果沒有人打擾的話，通常花一個晚上就能做完輸入電子書的作業

記錄過程：資料檢查	結算紙本記錄的金額總要花些時間用計算機或手算，並反覆檢查；但偶爾還是會出錯，要自己貼錢
	A1: 。過去紙本結帳錯誤一大堆，老是收到本部寄回來的本子上有紅色的「核」字 。以前紙本會拿計算機來算，時常按錯 。以前用計算機算起碼要半個鐘頭 。自己記錯錢的話，因為是自己的錯，也不好意思跟會員補回來，所以就會自己吸收 **A2:** 。以前紙本寄了 12 次，只有一次不小心算錯，因為要前後翻來算，所以要很小心 。紙本的時候都用手算，一邊翻本子一邊累加，一百、兩百這樣加到幾千後怕會忘記才寫下來，最後再把每個項目都加好 。紙本要算兩次以上才敢確定 **A3:** 。以前用手算錢偶爾會出錯就要重算，現在用電子書會自動幫忙算錢，比較不會出錯
	電子勸募本可以自動統計金額，省下計算的時間也較不容易出錯
	A1: 。電子勸募本對老人家的好處就是一按就知道統計捐款有多少錢 **A3:** 。以前用手算錢偶爾會出錯就要重算，現在用電子書會自動幫忙算錢，比較不會出錯
	由於一開始還不熟悉電子勸募本，所以複製上個月的名單時不像過去紙本可以前後翻頁檢查是否有重複的地方，有時候就會漏改重複的名單而出錯
	A1: 。現在用電子書會複製上個月的金額 。去年弄錯的錢比較多，可能是還不太熟悉電子書的操作 。過去紙本可以前後翻來檢查名字是否有重複，現在電子書還不太習慣，所以有時候重覆輸入也不知道 **A2:** 。電子勸募本的名單都混在一起，有些是因為捐不同項目所以名字會重複，有些則是隨喜的沒刪掉 。複製上個月的名單來一項一項檢查修改金額，要注意如果是年繳的就不能按複製，不然就多繳了
	有會員以祖先的名義在每年的特殊節日(清明、忌日、中元節、過年)捐款，所以每年更新名單時並不會刪掉
	A2: 。幫祖先捐的名單到新的年度也不會刪掉，因為有可能會再捐 。有會員幫自己的祖先捐錢，會以祖先的名義來捐，每年清明、忌日、中元節跟過年拜拜等特殊節日才會捐

記錄過程：資料寄送	因為家裡沒有無線網路，所以會利用去佛堂的機會或是到便利商店使用那邊的無線網路上傳勸募資料
	A3: 。因為家裡沒有網路，所以會先在家裡整理好資料，利用上手語課的時候到佛堂上傳電子勸募本，都是自己操作 。曾經到 7-11 上傳過電子勸募本
	為了替本會省下郵費以及替忙碌的委員省下麻煩，熟識的委員們會集合彼此的勸募本，統一由某一人寄送出去；本會寄回的收據也是交由該委員整理分類，該委員再以電話通知其他委員來領取
	A1: 。幕後收錢記錄的紙本會一起回收寄到本部，因為一本的郵資跟一起寄的郵資都一樣 。等紙本寄回來後再打電話給幕後，請他過來拿 。培訓幕後已經可以獨立作業自己記錄了，自己會比較輕鬆，不過還有四個培訓幕後的咖啡色本子會幫他們寄 。每年等本會收據寄來的時候就要花很多時間去分是哪一區的，最怕這個時候 **A2:** 。有個幕後的師姐平時要上班，所以會來我家寫好本子再幫她一起寄，這樣也可以省郵資 。跟另一組的幕後師姐很熟，即使現在用電子勸募本不用寄，我還是會幫她寄 **A3:** 。請本會將收據統一寄到佛堂，再跑去拿
	委託做生意的親朋好友幫忙開支票或是自己去銀行匯款，再去郵局寄勸募本跟匯款單或支票給本會
	A1: 。以前用紙本時每個月等錢收齊了會放在信封裡，上頭標注幾月份繳多少錢，然後請隔壁開理髮店的師兄開支票，因為他們有做生意會用到支票 。現在都是直接到土地銀行去匯款 **A2:** 。先去銀行匯款，再去郵局寄本子跟匯款單回本部

使用習慣	即使身邊有不少對電子書抱持觀望態度的委員，但看到年紀比自己大的上人親自推行無紙化的電子書政策，並且上過組織安排的課程後，決定要親自使用電子書來響應
	A1: 。電子書一推出的時候，組內說有課程可以上，便去上了，然後也買下來 。想說響應電子書無紙化，所以就試試看 **A2:** 。因為組織推動無紙化，然後有開放每組至少兩個名額去上課，所以就想說試試看 。在組裡算年輕的，所以被叫去上電子勸募的課，回來再分享給其他人好不好用 **A3:** 。看到上人年紀比自己大都在提倡無紙化使用電子書，於是上過一堂電子書的課就決定買 。期間故障了兩次，心裡會想說新買的電子書，感覺故障頻率有點高 。身邊一些還沒使用電子書的師姑們會抱持觀望的態度，想說等到電子書故障率沒那麼高比較好用時再買；但自己想說既然要用了就投入去做吧
	上過電子書的教學課程後還是不太會用，遇到問題時就去請教其他委員或是麻煩家人幫忙操作，一方面透過夾在電子書旁的筆記慢慢學習操作步驟，花了近一年的時間才熟悉如何使用
	A1: 。第一次去上電子書的教學課，聽到霧煞煞，上課的時候也沒有特別去記下來，所以回去就一直請教琪瑛師姐 。平常有電子書的問題會麻煩琪瑛師姐跟附近的一個師姐，隨傳隨到 。請教到後來也覺得不好意思，所以就自己去摸索，後來按起來還不錯 。有時候電子書不是很順的時候會用琪瑛師姐教的方法，按兩個鍵來調整 。下載勸募資料比較簡單，上傳的話比較麻煩，兒子常說怎麼繳款日期都打錯了 。上傳的話就請兒子幫忙輸入繳款日期，其他就自己打 。上次從抽屜拿出電子書不小心掉到地上，結果螢幕裂了一角就壞掉了，後來委託琪瑛師姐送修大概十幾天才好 。電子書的速度對我們老人家剛剛好 。要有耐心一步一步的學就會上手，所以大概花了一年才熟悉電子書的用法 。電子書旁有夾帶琪瑛師姐抄的電子書操作步驟的筆記 。以前有空的時候才會看一下操作的筆記，現在比較不需要了 **A2:** 。一開始也不太會用電子書，都跟另一位一起上課的師姐互相學習 。只上過一次課，剩下的就回家跟另一個師姐互相摸索 。那時候會跟另一個師姐打電話請教講師 **A3:** 。一開始跟老師學電子書時會自己作筆記，後來就慢慢學會

老師一開始交代用手寫辨識，但是電子書的辨識速度有點慢且容易辨識錯誤；後來用注音輸入覺得比較方便，於是改用注音輸入，只有在新增用戶名稱時才會用手寫辨識

A1:

。有時候手寫出來的字，電子書會辨識錯誤，很好笑

。上傳時的「繳款方式」的選項都跑很快，老人家有時都跟不上，選單就消失了

A3:

。由於老師一開始交代用手寫輸入，所以才用手寫；後來覺得手寫的辨識速度有點慢，改用注音輸入發現比較方便，所以現在大多只有新增戶時才會用手寫輸入

電子書平常都放在家裡關機省電，每個月只有在上傳下載資料時才會使用

A1:

。其他電子書的功能都不會用，目前只用電子勸募的功能

。其他人跟我說電子書只用電子勸募的功能太浪費了

。一個月就只有上傳下載時才會用到電子書，平常都放在抽屜

。錢匯出去後才會下載勸募本來修改，那幾天就比較會用到電子書

。因為要有網路的地方才能上傳下載，所以通常都是兒子有在家時才開網路來用，平常就關掉省電

。示範電子書沒幾分鐘覺得太久了，會趕著關機省電

。一開始都不知道關機的程序，所以乾脆直接關掉電源，就浪費電了

平時用電子書聽音樂，有空時看才電子月刊；因為看電子月刊較慢，看累的話改用語音導讀

A3:

。平常會用電子書聽音樂，有空才會看電子月刊；看電子月刊比較慢，累的時候改用聽的，會專心聽，不會做其他事

Appendix B:
Affinity Diagram of Middle-Skilled Digital Immigrants

背景資料	**B1 師姑**: 。64 歲，退休人員 。勸募經歷 25 年 。電子書經歷一年半 。每天會收 mail 。退休前是在中華電信服務，因工作需要有學電腦用 Excel 跟其他作業軟體	**B2 師姑**: 。59 歲，銀行人員 。勸募經歷近 20 年 。電子書經歷 2 年 。因銀行的工作需求才學電腦，不過都是用工作上的軟體而已 。不太會用網路，大多只用 email 收收信；有時會上網找一些自然療法的文章跟影片	**B3 師姑**: 。63 歲， 擔任社服組做訪視個案的工作 。勸募經歷 17 年 。電子書經歷十個月 。47 歲考上土地代書，因工作需要 50 歲開始學電腦，透過一直不斷問親朋好友女兒來學；開始使用電子書後才學會收 email
收款活動	**有些會員希望繳款時能拿到收據，所以規定幕後們提早在月中的時候交錢，才能早點寄給本會進行作業；使用電子本後，收款的作息還是一樣**			
	B1: 。月中下載勸募本，然後 20 幾號上傳，所以幕後也差不多這個時候就會交錢過來 **B2:** 。有個幕後收錢速度比較慢，為了讓會員能在收錢時拿到收據，所以規定幕後在 15 號前要收齊，這樣本會大概可以在 25 號前寄回收據 。有些會員希望拿到收據再給下個月的錢，所以都會等收到本會寄回的收據才去收錢 **B3:** 。以前規定月初寄錢，所以上個月底就先收錢，大概集中在一個禮拜內把事情做完；因為上人說拿人家錢要快點寄出去，人生無常，不要一直把錢押在身邊 。有電子書後，收錢的時間還是跟以前一樣			
	幕後因工作關係沒時間作業，於是親自去找幕後收錢並幫忙寄勸募本回本會			
	B1: 。如果幕後要上班沒空的話，會自己去跟幕後收 。自己的資料用電子書上傳就好了，不過還有咖啡本的幕後，所以會幫他們寄			
	B3: 。因為家住鬧區，所以大部分是會員送錢到自己家			

互動溝通	收善款時會帶月刊跟會員分享最近的活動，看到不錯的地方會用藍筆標記，也會介紹組織研發的健康食品來關心對方的身體健康
	B1: 。去收善款時會帶月刊，跟會員說最近有什麼活動，或是分享上人開釋的話，最重要的是做關懷的動作，關心對方的身體健康，所以會介紹香積麵飯、小餅乾 **B2:** 。紙本時會帶月刊跟會員對談，看到不錯的話會用藍筆標記分享給會員
	因應組織推行無紙化，每個委員過去能領二十本月刊到現在減少至三、四本，所以月刊大多留給做生意的店家或是真的有在看的會員；其他會員則改用電子月刊來分享，只是無法像過去紙本月刊較能留給會員東西
	B2: 。現在因為講求環保，所以過去一、二十本月刊降到現在兩三本可以拿，因此改用電子書來介紹月刊內容，只是現在感覺只能給會員聽聽而已，沒有留下什麼 。現在月刊大多留給做生意的店家 (像是麵攤、茶葉行、服飾店、美容院)，讓客人在等待的空檔可以翻翻 **B3:** 。以前都可以領 20 本月刊，拜訪會員時就會送給對方；現在因為無紙化的關係，最多只能領 4 本，所以會員要的話才給 。現在越來越少人看月刊，因為打開電視就能看大愛台，打開電腦就能上網看
	有會員因健康狀況不佳而無法繳善款，自己反而支助對方醫療費；但住較遠的會員就比較無法關心到
	B3: 。有會員後來身體狀況不好，因為洗腎而沒有善款可以捐，反而支助他的醫療費 。就近的會員比較能夠關心到，住比較遠的就沒辦法了
記錄過程：	過去紙本時會空一段時間專心把金額輸入進 Excel 結算，基本上會員的善款不太會變動，所以輸入很快；換成電子書後速度相較之下慢上許多，尤其為會員建檔時輸入注音符號需要花點時間，但會把它當作修煉
	B1: 。過去紙本時結算金額要花上一整天，所以會空一個早上或是一整天什麼事都不做，也不讓人打擾，專心 key 資料進電腦裡 。基本上會員金額沒變動的話在電腦上輸入很快，如果有變動的話才要去更正金額；換成電子書後會覺得速度慢很多，但是會把它當成是修行磨練 **B2:** 。為新會員建檔時會比較花時間，因為年紀大了，用注音符號輸入會比較慢，有時遇到不會的字又會拖一點時間

資料記錄	因為跟會員收久了大概都知道繳多少錢，所以只會把會員名字先記在信封袋、記事本或是捲錢的紙條上，回去再輸入進電子勸募本
	B1: 。去收款會準備一個信封，在上頭記錄是哪些會員繳錢；至於多少錢，因為收久了大概都知道誰繳多少錢 **B2:** 。有時出去收錢會忘記帶電子書，所以就先寄在小記事本上，回去再輸入 **B3:** 。會把收到的錢用紙條捲成一捲，上頭寫上會員名字，回去再輸入到電子書裡
	曾被會員誤會收過錢，為了避免類似情況再發生便另外準備記錄本放在對方家裡
	B2: 。曾經被上年紀的會員誤會收過錢，即使秀出收據對方也不承認，後來便準備一個小本子放在對方家裡，每次收完前便在現場記錄日期金額；因此之後都在會員面前登記款項，避免對方誤會沒收到錢
	等到 20 幾號要上傳資料時再把自己的信封袋、家人幫忙收款紀錄的小本子以及幕後的勸募本拿出來，以幕後名字做索引分類來核對會員名字看金額是否有變動
	B1: 。等到 20 幾號時再把自己的信封、老公女兒的小本子、幕後的勸募本拿出來，從索引核對名字看資料有沒有變動 。老公跟女兒幫忙收款時是他們自己準備小本子記錄 。有十幾個幕後，所以預先在電子書的索引以幕後的名字分類，需要核對金額時再叫出來
資料檢查	因為紙本要抄的戶數很多，所以通常只檢查幕後本子最後面的金額是否正確
	B1: 。因為戶數很多，有很多紙本要抄 。通常只會檢查幕後本子最後面的總金額是否正確

記錄過程：資料寄送	用電子勸募本後可以等到月底再利用上班前一個小時在家進行上傳作業；家裡架設無線網路前曾到慈濟共修處或是便利商店利用該處的無線網路進行上傳作業
	B1: 。自己的資料用電子書上傳就好了，不過還有咖啡本的幕後，所以會幫他們寄 **B2:** 。用電子書後可以等到月底，利用上班前的一個小時下載勸募本再上傳，然後月初就可以拿到收據 。家裡有架設無線網路，所以可以在家裡做下載上傳的作業；還沒架設前就到慈濟共修處用無線網路，也曾經在 7-11 裡用無線網路下載，但是上傳卻不行
	委託做生意的家人幫忙開支票或是透過讀卡機在網路上轉帳，再將支票跟幕後的勸募本一起寄回本會；雖然一開始會怕網路轉帳，因為電腦會自動紀錄帳號而覺得很方便
	B1: 。因為老公有開福利社，所以都是透過支票跟著幕後的本子一起寄回本部 **B2:** 。匯錢給本會有時會透過網路用讀卡機轉帳，有時透過金融卡轉帳 。讀卡機是在自己服務的銀行買的 。一開始會怕網路，不過後來要透過網路轉帳，使用後覺得很方便，像是帳號會自動記錄，不用一直打
使用習慣	使用電子書前本會有提供過磁碟片跟隨身碟來取代紙本，並安排委員學習電腦輸入，輸入完資料後再寄回本會；基本上是按表操課的作業，感覺很好用；後來壞掉了，便順應潮流換成電子書
	B1: 。用電子書前有用過磁碟片跟隨身碟 。之前剛接觸隨身碟時，總部有安排到國小去學習輸入資料到電腦上，基本上就是按表操課的作業 **B2:** 。在使用電子書前也有用過磁碟片，感覺很好用 。有用過女兒的 iPad 備忘錄的功能，對於上年紀的自己來說記事情很方便 **B3:** 。在使用電子書前兩年有試過本會提供的磁碟片來取代紙本，隔年換成隨身碟，每個月再寄回本會 。到去年底隨身碟裡的資料壞掉了，所以就順應潮流換成電子本

上過電子書的課程後，邊用邊請教其他委員；除了勸募本，委員們也教過如何從書庫下載文章

B2:
。師兄姐教過怎麼下載文章到電子書裡頭，所以就自己從書庫裡下載免費的電子書
B3:
。一開始先去上電子書的課，之後就邊用邊問其他師姑伯來學習

平時很忙，所以電子書的其他功能比較沒時間去用，大概只有利用空閒時候把下載好的免費慈濟歌曲跟書籍來閱聽

B1:
。盡量把電子書帶在身邊，因為在空檔的時候 (像是去醫院候診的等候時間) 可以把下載好的佛經拿出來看，聽上人的早會開釋做重點；書不離身，上人的法不離心
B2:
。需要付費的有聲書就不會下載
。覺得自己比較適合靜思電子書只提供慈濟的資訊功能，不像 iPad 什麼資訊功能都提供，所以會鼓勵其他人用靜思電子書
B3:
。電子書除了使用勸募功能，還有用音樂功能，平常有更新的免費慈濟歌曲就會下載來聽
。因為很忙，所以沒時間看電子書的月刊；紙本的月刊會翻一下看標題
。電子書的其他功能都沒時間去用，因為很忙；像是筆記本功能太慢了，手寫還比較快
。因為婆婆在家臥病在床，所以請外勞照顧婆婆，買時間來做慈濟事，分秒必爭

一開始覺得電子書的速度有點慢，手寫辨識的反應速度也不習慣；起初只求結果正確沒出差錯就好，後來慢慢跟它建立默契，習慣它的速度

B1:
。一開始手寫的速度跟辨識反應的時間會不習慣，後來跟書建立默契，慢慢習慣它的速度
B3:
。一開始適應電子書時會覺得速度有點慢，只要結果是正確不要出錯就可以了

Appendix C:

Affinity Diagram of High-Skilled Digital Immigrants

背景資料	C1 師姑：	C2 師姑：	C3 師姑+師伯：
	｡44 歲，電子書的種子教師 ｡勸募經歷年兩年 ｡電子書經歷一年多 ｡過去是企業軟體資訊顧問，目前是家庭主婦 ｡使用電子產品很頻繁	｡48 歲，人事管理的工作 ｡勸募經歷十年 ｡電子書經歷七個月 ｡因工作需求去學電腦，平時會用電腦手機收發 mail 或是用平板電腦找資料	｡41 歲，家管 ／ 46 歲，園區工程師兼電子書的種子教師 ｡夫妻倆同修，共用一本電子書 ｡勸募經歷六年 ｡電子勸募經歷十個月 ｡會使用電腦處理事務
收款活動	平常也有自己的工作要忙，假日也有本會的活動，所以通常利用晚上的時間去收善款；在有限的時間內就無法與每位會員有較長時間的互動		
	C1: ｡大部分委員都有自己的工作，所以都是利用晚上的時間來做募款的事情，而且假日大概都有本會的活動 ｡幾乎所有委員都很忙，不管有無工作，就是抽時間來做，這也是自己收款老是 delay 的原因 ｡有時候沒有什麼特別的活動，幾乎七八成左右的會員是收了錢就離開 ｡一個禮拜去書軒值班的時候會看看是否有自己的會款，如果有的話再領回 ｡跟會員閒聊、長時間分享的機會不是那麼頻繁，因為每位委員至少都有四十戶要跑 **C2:** ｡自己都是挑晚上的時間親自去收錢 **C3:** ｡利用假日、晚上或中午去收款，因為白天要帶小孩子		
	等待本會處理完資料寄回收據總要花上一兩個禮拜，所以母雞會規定幕後在 20 號前收齊善款寄出；後來自己成為正式委員後也是照這個時間收齊善款		
	C1: ｡以前紙本的時候，往往趕在每個月 20 號或 25 號前要把東西寄出去 ｡在集合不同師姑的勸募本等待寄出的時間，跟本會寄回來讓師姑一一領回的時間，往往會花上一個多禮拜 **C2:** ｡過去紙本時大約在 5~15 號收款，母雞規定 20 號寄出 **C3:** ｡因為以前當小雞時規定 20 號前收齊，所以後來也習慣月中前就收齊 ｡錢收齊後親自拿去母雞家 ｡紙本時收據差不多要等兩個禮拜才會寄回來 ｡等收據寄回來，母雞會打電話通知來領		

用電子書後收款的時間跟過去差不多，但是透過網路上傳資料跟線上匯款省下不少郵資與油錢，以及省下的時間可以去補收還沒收齊的善款

C1:

。自從用電子書後，只有收款才需要出門，也不用再按計算機來對帳，等收完會款後直接在家裡用電腦線上匯款，同步用電子書上傳資料，整個過程不用花兩分鐘

。收款部份大概佔整個生活的百分之十，但是能夠省這百分之十的方便也是方便

。不用出門寄勸募本，省郵資又省油錢，節能減碳

。時常忙到忘記去收款，所以常常等到每個月 30 號、31 號才收完會錢，然後當天晚上趕在半夜十二點前線上匯款

C2:

。用電子書後收款時間跟過去差不多，只是比較快完成輸入的作業，所以如果有會員的錢還沒收齊的，有多一些彈性時間在寄回本會前去收

C3:

。上傳檔案後大概一週後才會再去收下個月的錢，有時會偷懶兩個禮拜後才去收

。覺得錢收得差不多了，才會記錄到電子書裡再上傳，時間跟紙本時一樣差不多是 20 號

收款前先以電話聯絡會員，主要以會員方便的時間地點去收款；較忙的會員會約在上班地點，通常收完錢就離開，不想被打擾的會員則是自己到慈濟書軒繳款並留下紙條告知

C1:

。收款前先用電話連絡會員約時間到家裡收，有些比較忙的會約在上班的地方收，主要是看會員方便

。有些會員很忙，通常是收了錢就走

。有些會員不希望被打擾，會自己到慈濟的書軒，寫紙條說明是某某會員給誰的，當場會有志工簽收再寄放在錢箱裡面

C3:

。通常會挑選會員在家的時間去收款，不過有時會闖空；有些會員會事前先用電話通知

不會因為較早拿到收據就提前去跟會員收錢，同時也會注意會員是否是固定每個月繳款，以避免提前收款而讓會員心裡覺得不舒服

C1:

。從年金額記錄可以推算不是固定每個月繳錢的會員下次繳錢的時間，避免提前催款的情形的發生，因為會員心裡會不舒服

C3:

。沒有因為本部開收據的作業比較快完成而提前去跟會員收錢，因為會員會覺得怎麼這個早就要收了

	如果會員是親友，會幫忙向周遭的人收款或是親自送錢到書軒或是佛堂
	C1: 。有會員怕師姑太忙，為了不增加麻煩，所以自己跑去書軒交錢 **C2:** 。由於會員大多是親朋好友，所以收款時主要是工作上的同事和媽媽的幫忙，自己則花個一兩天去收款 **C3:** 。月繳的會員比較少，雙月繳的比較多 。有個住比較遠的會員會自己送錢到佛堂來
	隨喜的人較少，如果遇到特殊狀況時(像是震災)才會比較多，有些則是因經濟因素不想固定按月繳錢，而從會員轉為隨喜；通常會給隨喜紙筒撲滿，等到錢存得差不多再自己送來
	C1: 。隨喜的情況比較少，有些隨喜會變成正式會員；有些則是正式會員因家裡經濟因素，不想每個月固定捐，於是轉成隨喜 。遇到特殊狀況時隨喜的機會才會比較多，像去年日本 311 大地震，就有一間公司共一百多人隨喜，那次資料敲到快昏頭 **C2:** 。每個月大概會出現一兩個隨喜 。會給隨喜紙筒撲滿，所以等到錢存得差不多了，隨喜會自己送來，時間比較不固定
互動溝通	藉由會員對於電子書的好奇心，當面解釋不同善款的用途，在這過程中讓對方知道自己的錢永遠是被用在最要緊的地方
	C1: 。大部分會員對慈濟感到信任，所以善款要分到哪一類就由收款的人決定就好了 。當著會員的面選擇善款的選項時，會員看到其他項目也會好奇它的作用，因此可以順便解釋一下善款的不同用途 。第一次在電子書上解釋不同的善款用途，會員會覺得很有道理，但是由於有點複雜所以很容易忘記；過幾個月後再次問起時，會對說明比較有印象 。在解釋後當會員了解不同善款的用途，有時會決定挪用一些善款到其他項目去 。當著會員的面在電子書上解釋不同善款的用途時，透過那種互動的過程中把我們在做的事跟他們分享，雖然付出的金額跟過去紙本時是一樣的，但是沒有多增加他們的壓力，這樣能夠讓他們知道自己的錢永遠都是用在最緊要的一件事情上 。會員願意透過我們來收會款是因為他們信任我們，所以不會介意到家裡來收款 **C2:** 。幫隨喜的撲滿算錢後會建議他們將款項捐給比較少的項目，像是賑災

覺得發月刊給會員很浪費紙，而當面翻月刊講感覺不夠貼近會員，所以通常會事先看月刊，到現場再看著對方的眼神用講的給會員聽

C1：

。有時候可以當著會員的面翻出電子書裡的月刊給他們看

。從來不會發給會員月刊，覺得很浪費紙

。會在家先把月刊看完，到現場再用講的給會員聽，因為給對方翻月刊不知道要翻到何時

。隨喜的時候不會拿出電子書裡的月刊出來講，都是事先看完直接用講的，然後要看著對方的眼神講，這樣感覺會跟一邊翻月刊一邊講差很多

收善款時主要是分享最近組織有什麼活動，但遇到較忙的會員就收完後直接離開

C1：

。跟會員收錢的時候主要是分享最近辦的活動

C2：

。收錢時會分享最近的活動或是大愛台的資訊，也會帶月刊去發

C3：

。收錢時會跟會員講最近有什麼活動；如果遇到比較忙的就直接收錢走人

。收錢時口頭邀約參加活動的訊息，如果要參加的話再回去回報人數

可以深談的會員就像朋友一般，自己會願意多花點時間去聊對方的生活瑣事，傾聽對方的心聲，再順道帶入組織推行的觀念

C1：

。跟會員收錢的時候如果對方可以深談的，會聊聊對方家裡的狀況，就像朋友關心一樣，再適時地帶入一些最近推行的觀念，像是素食、懺悔等，或是邀請對方來參加最近的活動

。通常會藉由跟會員聊生活的瑣事，來帶入慈濟的觀念

。我只有三四位會員，是希望留下來陪他們聊天

。在收錢的這個互動過程中，有花心思去跟對方做互動的時候，通常會變成朋友，有時對方家裡發生什麼事情不知如何處理，會打電話過來

C2：

。多是扮演傾聽者的角色

。由於自己收的戶數不多，所以有些會員會花比較多時間互動，有時一個晚上就這樣過了；有時為了留多一點時間給那位會員，會趕快收完其他家

自己花錢準備結緣品送給會員，透過「付出」的過程來宣揚組織的理念；像是會員打電話訴說最近遇到一些麻煩，會送一些適合的書籍給對方，或是送組織的健康食品給年長或身體不好的會員

C1：

。不會從「利」的角度去看收錢這件事，因為有時為了收個 100 塊的會錢，所花的油資跟時間就不只 100 塊，但是這個過程卻可以藉此宣揚上人的理念

C2：

。會員打電話訴說最近遇到什麼麻煩，就會送一些適合他的書籍

	C3: 。會自己花錢準備結緣品 (書刊、五穀粉、吊飾、靜思語卡片) 送給會員 。有些吊飾是慈濟的活動中做的，幾乎每位會員都會送 。五穀粉會送給比較年長或是身體不太好的會員
	跟會員解說出現在收據上或電子書開機畫面的靜思語，或是送對方在組織活動中拿到的靜思語卡片
	C1: 。最近電子書開機畫面底下會隨機出現靜思語跟行事曆，所以可以跟會員玩抽籤的遊戲，請他點一下看會出現哪一條靜思語 。收據上附有靜思語，有時會跟會員解釋 **C3:** 。在活動中拿到靜思語卡片的話會轉送給會員，如果看得懂上頭的靜思語會解釋給會員聽
記錄過程：資料記錄	**有些會員為了替家人植福而用每位家人的名字捐款，或遇到家庭人數較多的會員，勸募本就需要用到較多頁數，到了年初更新勸募本的作業時，會增加手抄的份量**
	C1: 。會員相信慈濟，因此將全家五人的捐款分到五個項目，所以勸募紙本就需要用到兩頁，但是其他地方卻是空白的 。有些家庭很大，會讓每個小孩都捐一百，幫他們植福的意思 。一家若超過五個人，勸募紙本就需要用到兩頁 。人越多，需要用到的勸募紙本頁數也越多，加上捐款用途不同的話，又需要其他頁數來區隔，會比較複雜 。勸募紙本前 30 頁是慈善跟建設，後 30 頁才是國際、人文跟檀施，所以有捐不同項目的話要前後翻 。如果最近有發生甚麼災況，會員會挪用款項到其他項目上 。每年一月要進行勸募本新年度作業，需要將會員的資料(地址、電話、人名)全部重抄一次到新的一本，如果遇到有家戶是捐到不同頁的選項，那麼就要抄兩頁
	不管是用勸募本還是電子書，收款時會當著會員的面記錄，讓對方感到較安心；沒有帶的話會另外記在紙條上，當天回家後再輸入進 Excel 並用計算機計算
	C1: 。通常收錢的時候就當場記在勸募本上，沒帶的話才會記在小紙條上 。過去用紙本記帳時，收到錢後除了紙本記錄外，通常當天回家會再另外用電腦 Excel 記一次，再加上用計算機計算 。有時會累積幾天才一起輸入到電腦，這時會寫小紙條跟錢釘在一起，這樣才知道是誰的 。因為自己對這本電子書比較熟悉，現在收錢只帶電子書出門就好了，可以當場在會員面前輸入 。當著會員的面輸入金額，他們會感到比較安心，也多了跟他們互動的機會

因應電子書的輸入反應速度不快，會在電子書套上夾紙，遇到隨喜或是輸入辨識來不及的話，再請對方直接把資料寫在紙上，回家再輸入進電子書

C1：

。因為電子書輸入的速度較慢，遇到隨喜時會請對方把資料寫在紙張上，等回家後再輸入

。通常會在電子書套上夾紙，輸入辨識來不及的話可以先寫在上面

C2：

。覺得電子書不像本子一樣，翻開來就可以記錄，還需要開機打字輸入

C3：

。電子書的感應太慢，寫字辨識不太好，後來就習慣等它的速度

收久了大概知道會員繳多少錢，所以回家後才會記到另外準備的筆記本，等到要交給本會資料時才會抄到勸募本或是輸入進電子書

C1：

。通常跟會員收個兩三次就是朋友關係了，所以看小紙條會認得他們的名字

C2：

。收的款項先記在腦子裡，回家後再記到小本子，之後找一天一起整理，再輸入進電子書

C3：

。收完錢後回去才把金額記到另外準備的筆記本，筆記本裡頭先分好 12 個月份，等到當月要寄回本部時再把資料抄到紙本上

。會員收久了大概都知道誰要收多少錢，所以不用當場記在筆記本裡

隨喜就系統的角度來看，是該月新增的一個會員，但並不會每個月都有善款紀錄；為了避免混淆，在會員名單時先做分類以區別正式會員與隨喜，就視覺上版面看起來也比較舒服

C1：

。遇到隨喜捐款就系統的角度來看，就是在電子書裡新增一位會員的資料，只是這位會員只有當月的紀錄，在其他月份都是空白的，等到隔年再把資料清掉

。自己在教委員分類時會請他們直接分成「本人」跟「暫停」，避免剛接觸電子書的委員搞不清楚

。即使是隨喜也會建檔，然後先以「暫停」來命名分類，因為未來可能某一天會再次遇到，可以把資料再調出來

。用「暫停」分類不會使資料混在一起，看了也不會不舒服，因為收錢時只看需要的會員就好了

。如果不是固定月繳的會員，會盡量分到其他類別，盡量讓「本人」那裡的數量越乾淨，看起來心裡比較舒服

C2：

。有時會困惑為何這個月電子本裡多了一些名單，結果是上個月的隨喜名單會自動出現在下個月，所以要很小心，不然金額出錯要去補

	年紀大了，盯著手機螢幕一段時間後視線會模糊，因此將智慧型手機的行事曆與電子書的行事曆同步連結，除了減輕眼睛負擔，也提醒自己跟會員另外約的收款時間 **C1:** 。跟會員收款另外約時間的話因為怕會忘掉，所以會記在智慧型手機的 google 行事曆，同時跟電子書的行事曆同步連結 。通常打電話當天就去收款，所以不用特別記下，只有一個會員每次打過去都不是當天收款，才需要記在行事曆 。雖然智慧型手機也能夠提供這些資訊傳達的服務，不過對於上年紀的人來說，只要盯著小小的螢幕一段時間後視線就會模糊，需要花一段時間來回復；另外彩色的螢幕其實滿傷眼睛的，電子書的感覺跟紙本差不多沒什麼顏色，就是書的感覺，滿保護眼睛的 。因為年紀大了，看小螢幕很明顯久了會吃力，所以還是會選擇看電子書上的書籍資料
資 料 檢 查	即使將勸募本的金額輸入進 **Excel** 由電腦計算出來，還是會親自用計算機確認一次；只是會花上一天的時間，且需要重算兩三次才會正確，累積不少壓力 **C1:** 。用計算機算的時候，沒有一次是一次算對的，總是需要重算兩三次才搞定 。結算的時候會拿計算機來算，如果金額跟電腦計算有出入的話會回頭檢查是紙本抄錯格或是電腦輸入錯 。按計算機對帳的時間大概就花了一天，對自己來說是積到一天的壓力 。自己只有四十幾戶要收錢算少了，但是光檢查捐款金額就要花半天 。即使電腦有算出來，還是會拿計算機對照紙本算一次，double check
資 料 寄 送	會員因為認同環保的觀念，所以會將收據改為年開 **C1:** 。隨喜的發票是月開，所以等到下個月會親自拿發票給本人，除非找不到人才會用寄的 **C2:** 。會員從一開始幾乎都是用年開的收據 **C3:** 。現在用電子本，會問原本月開收據的會員是否要改成年開的；會員大部分認同慈濟環保的觀念，所以會改成年開 。隨喜的資料上傳後，三天後就可以收到收據

	年紀大或是對電腦不熟的委員時常尋求上傳勸募資料的協助，即使每次口頭操作或是做筆記給對方，對方總會有「一個月只用一次，不如直接用問的比較快」的依賴心態
	C3: 。比較少在用電腦的師姑們，每個月要上傳下載資料時就會來尋求幫忙；會請師姑們先確認匯款的資料無誤後再幫忙上傳 。即使每次口頭教導師姑們如何操作，由於一個月也就用這麼一次，所以年紀大的師姑總是記不起來 。以前有做操作筆記給師姑看，但他們覺得直接用問得比較快 。會來尋求幫助的師姑大多是年紀大或是對於操作電腦不熟的人，還有對於比較少使用的功能(例:新增會員資料) 也會來問
使用習慣	電子勸募本的畫面、尺寸跟紙本差不多，所以很方便攜帶，加上省電，不用時常充電
	C1: 。電子勸募本的畫面跟紙本的很像，電子書上的一頁就等於紙本的一頁 。電子書跟筆記本差不多大，所以帶在身上出門並沒有不方便，加上很省電不用常常充電
	為了不受其他資訊的分心，平常會用電腦將經書轉成 PDF 檔存到記憶卡裡，然後用利用空閒時間專心用電子書閱讀；看累了或是在做別的事，會用語音導讀放在旁邊聽
	C1: 。電子書勸募部分省下的時間可以拿去讀其他的慈濟書，因為要傳達理念需要靠自己消化大量的書 。電子書到後來已經變成「書」的功能，專門把厚厚的證嚴法書的書籍電子檔下載進電子書裡，利用空閒的時間看 。因為年紀大了，看小螢幕很明顯久了會吃力，所以還是會選擇看電子書上的書籍資料 。後來會轉而接受電子書是因為看到它「書」的價值，它的內容才是最大的資產，可以讓自己試著定下心來專心去讀它，因為沒有像其他電子產品有那麼多額外會分心的事 **C3:** 。會把經書轉成 PDF 檔存到記憶卡，因為電子書只能讀 PDF 。電子書在書籍的部分取代比較多，因為轉換成電子檔比較方便 。看累了或是做別的事情時會用語音導讀，就放在那邊聽 。買電子書前都是在電腦上看經文，買了電子書後剛好有語音功能就用了

為了組織推動無紙化的理念與決心，即使認為電子書的速度太慢以及許多功能都用不太到，還是決定要投入，盡量去使用它，接受它

C1:

。為了組織的理念，從一開始的不喜歡會慢慢放棄不便利性，轉而去接受它環保概念

C2:

。在決定使用電子書前看別人使用時雖然覺得功能自己用不上，但是為了上人推行無紙化的決心，後來還是用了；中途雖然有過退還的念頭，但是想到如果沒人去試的話，那個目標就不可能達成，所以還是決定繼續用

C3:

。想說都買了，所以能用就盡量用

相較於其他電子產品，電子書的速度慢、畫面黑白，加上許多功能平常用的電腦跟手機就能達到了，所以電子書的角色只是多了一個吸收組織資訊的管道，還有勸募本的功能

C1:

。對於電子產品使用很多的人，比較不能接受電子書的速度慢、黑白畫面、功用不多、價格挺貴的，所以反彈比較大

。平常使用智慧型手機跟電腦就能夠做到許多事，所以根本不太會用到電子書裡其他功能

C2:

。因為平常用習慣其他電子產品，所以電子書的速度相對的慢上許多，會感到不習慣

。電子書只有在上傳下載資料時才會用到，因為其他功能平常用電腦跟手機就能夠做到了 (像是收發 mail 聯絡事務、上網查資料)

C3:

。電子書有 wifi 分享跟做筆記的功能，不過現階段沒有很認真去試這個功能

。平時透過看書、上課、看大愛台、上網的方式來吸取慈濟資訊，電子書只是多了一個吸收的管道

。一開始程式還不太好，中間有升級過兩三次，感覺字型有比較好一點

身為種子教師會準備幾張記憶卡從電腦下載新程式，幫委員的電子書做升級動作

C3:

。因為本身是種子老師，所以總部會傳達升級的消息，種子老師再請各區的小老師 (約五位) 幫助委員們做升級的動作

。許多委員不會下載新程式到記憶卡裡做升級，所以種子老師會先把程式從電腦下載到記憶卡，再幫委員插到電子書裡做升級

。由於記憶卡的容量不大，所以會多準備一些記憶卡儲存不同資料，用記憶卡做分類

。自己有三張記憶卡，因為要幫別人升級