

Addressing Information Poverty: An Australian Experience.

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Abstract

The move towards an information age has increased the importance of being able to access and utilise information from a variety of sources. As growing amounts of information are being published on-line it is increasingly important for people to be literate in the use of electronic information. The Skills.net program has been designed to address this need by providing free or low cost access to training in on-line services and the Internet for those in the community who are least likely to have access. (Cavill and Miller, 1998) This study evaluated Skills.net to determine if the program increased participants' information literacy. It was found that the Skills.net program did increase information literacy. However, it did not provide the degree of empowerment that it could have as the program did not adequately address accepted training needs of its participants.

Introduction

The global economy is currently being transformed from an industrial economy into an information driven economy where information is a major producer of capital. The utilisation and transformation of information is now a desirable way to produce capital, and there is a growing importance for individuals to be able to access and interpret information from a variety of sources. (Kling 1996)

As the shift towards an information society progresses, information impoverished individuals will be unable to compete in the information economy, and as a consequence the gap between information 'haves' and 'have nots' will widen. (d'Orville 1998) These have nots will be faced with information poverty.

Information poverty is a form of relative poverty that leads to people being unable to participate in the global information economy and society. (Fahey 1999) There are many factors that contribute to information poverty including language, culture, poor English literacy skills, lack of access to telecommunications, the inability to use software and the lack of a recognised need to access electronic information.

In an attempt to reduce information poverty many nations have pledged to develop a Global Information Infrastructure, which if achieved will enable universal access to telecommunications. Many programs around the world have implemented programs to improve general literacy skills in their communities such as reading, writing and mathematical skills.

Some governments and government agencies, such as the Victorian government, the Canadian National Literacy Secretariat, the UK established National Council for Educational Technology and the Singapore Ministry for Education have implemented

information literacy programs. (Miller 1997) These information literacy programs aim to increase a person's ability to use electronic means to extract and apply information.

The Victorian government and Multimedia Victoria's (MMV) designed Community Skills and Networking Program (Skills.net) aims "to provide free of charge or at a low cost access to training in on-line services and the Internet for those in the community who would otherwise not have access." (Cavill and Miller, 1998)

The Skills.net program is attempting to reduce the widening gap between information rich and poor individuals by providing participants with training and access to computing facilities, thus allowing them to develop some degree of information literacy. Information literacy is described by Charles McClure as "the ability to locate, process, and use information effectively regardless of delivery mechanisms and the type of format in which that information appears; that is, to be literate, one must be literate with both print and electronic formats." (McClure 1994) This definition of information literacy will be used throughout this paper as it encompasses many important aspects of information literacy.

This study aims to identify whether the training provided by the Skills.net program empowers participants by enabling them to develop a degree of information literacy.

Research on Information Literacy Training

Although information literacy is extensively discussed in information systems, education and librarianship literature there has been no specific definition of the exact skills required to achieve information literacy.

In their report titled, 'Essential Skills for Information Literacy' (WLMA 1996), the Washington Library Media Association (WLMA) outlined what they identified as essential skills for information literacy. These essential skills are particularly relevant to this study because WLMA's skills relate specifically to the development of information skills.

The WLMA guidelines on skills for information literacy were used to assess whether Skills.net addresses accepted training needs and provides participants with the skills required to become information literate.

The three WLMA information skills used in this assessment were chosen because they can be directly related to the Web searching and email skills taught by Skills.net. These skill areas are discussed below.

1. Construct strategies for locating information.

Skills.net attempt to enhance participants' strategies for locating information by providing them with knowledge of additional information resources including the Web and email.

2. Locate and access information.

Skills.net training aims to enable the location and accession of information via Internet searching and email.

3. Evaluate and extract information.

This skill relates to the participant's ability to identify whether information obtained is suitable to their need. Extraction of the information may simply be the ability to read and assimilate the information. However in this study extraction of information will relate to the participants ability to access information via electronic sources and locate

it again for future use. Some of the methods which may be used to extract information are downloading, bookmarking and printing.

Three of Kirk and Todd's (in Booker 1993) guidelines for underpinning information literacy programs, were used to evaluate the ability of Skills.net to meet user needs throughout the design, development and delivery stages of training.

1. Information literacy is relative to the individual, a particular need and the situation of the individual. Therefore Skills.net training should be sensitive to participants needs.
2. Planning and development of the information literacy programs will be based on needs as determined by the users, not defined by the organisation.
3. Program evaluation needs to be evaluated in terms of users' needs, and the benefit and satisfaction derived.

Research Objectives

The main objective of this research was to investigate the ability of Skills.net to increase the information literacy of program participants while decreasing their relative information poverty.

In order to determine the success of the Skills.net project and identify some underlying issues affecting its success it was necessary to develop a major research question as well as a set of sub questions to answer specific sub-issues. The formal research question is as follows:

Does Skills.net training empower users?

This question identifies whether Skills.net training meets participants' information literacy training needs by addressing a set of sub-questions.

The sub questions address specific issues that have arisen out of a literature examination of the Skills.net program, including:

Is Skills.net addressing accepted needs for training?

Do Skills.net trainers believe they are achieving their goals of training?

Do Skills.net participants think they are achieving their goals through Skills.net training? Are they satisfied with the skills they are taught?

This research attempts to contribute to the understanding of the effects of information literacy and information poverty. Also explored is the ability of access and training programs to counteract the effect of these phenomena.

Skills.net Overview

Skills.net was provided with five million dollars by MMV to be spent over three years in order to create a network of more than one hundred self-sustainable projects across Victoria. These projects originally aimed to provide forty thousand people with the skills and resources they need to understand and use the Internet. (Cavill and Miller 1998) The Skills.net network currently consists of two hundred and eighteen projects across Victoria, which have provided training to around forty five thousand participants. (Skills.net 2000)

The Skills.net participants are currently trained by Leader Projects, which are provided with one hundred thousand dollars to train one thousand participants, or General Projects, which receive ten thousand dollars to train one hundred participants. Both types of projects are meant to provide five hours of training in the use of on-line technology, as well as, ten hours of access to the Internet for each participant. Original Skills.net projects known as pilot projects were only required to provide two hours of on-line training and ten hours of Internet access.

All applicants for Skills.net training must complete a survey, which asks the following.

- Do you have access to Internet services?
- Did you have access to Internet for 5 hours or more over the last six months?
- Do you have a multimedia computer at home, which has at any stage been connected to the Internet?

If the applicant answers yes to any of the above questions they may not be eligible for Skills.net training.

Skills.net Training Goals

The training goals developed by MMV and VICNET suggest that all projects should provide training in Web browsing, email, downloading files and creating Web pages.

However, there is general agreement amongst the projects that they can not cover this amount of training in the time allowed. (CIRCIT 1998) Therefore some projects have altered the training time and / or the type of training delivered.

According to a prior evaluation of Skills.net the most common format for the five-hour training is an introduction to the Internet, surfing and browsing the Web, an introduction to email and sending and receiving email (CIRCIT 1998).

MMV has previously evaluated a number of pilot and general projects in terms of their ability to meet membership targets, training contact hours and access hours. This study differs from the MMV evaluation because it focuses on the quality of the training delivered and not the quantity.

Research Methods Used

Robson states that "the research strategy or strategies, and the methods or techniques employed, must be appropriate for the question that you want to answer." (Robson 1993)

In order to appropriately answer the main thesis question and its sub-questions, it was necessary to implement the multiple case study research method and two separate data collection techniques. The primary data collection technique used was the survey. The survey was used to collect necessary quantitative data about Skills.net participants in order to answer the thesis sub-questions relating to participants perceived goals and satisfaction with training. The survey also asked participants to rate their pre-training and post-training skill levels. These skills level ratings were then used to allow the researcher to determine if the training empowered them by improving their skill level. This evaluation of empowerment contributed to the findings of the main thesis question, "Does Skills.net training empower participants?"

The survey also asked participants to rate their perceived importance of and satisfaction with various areas of the training. The results obtained from these questions combined with the reasons participants gave for undertaking the training, answered the third thesis sub-question, "Do participants think they are achieving their goals through Skills.net training?" From the 412 surveys successfully mailed to respondents 140 useable surveys were returned. This gave the survey a total response rate of 33.98%.

The second data collection method used was a semi-structured interview. The interview technique was used to assess the perceived needs and goals of the Skills.net trainers. This method enabled the collection of qualitative data relating to the trainer-related sub-question, the main thesis question and whether Skills.net addresses accepted needs for information literacy training. This research method also allowed the researcher to gain insight into the background and culture of the organisation.

Results by Cases

Case One

Background of Organisation

Situated in a large rural community within the Central Victorian Skills.net region Case One was a well equipped and resourced learning centre largely focused on training teachers in IT skills before it received Skills.net funding. The Skills.net funding enabled them to bring forward by three years their long-term plan to extend training to the broader community. (CIRCIT 1998)

Case One was one of the pilot leader projects and as such was given funding to provide training for 1000 participants. The Skills.net training provided by this organisation consisted of an initial three-hour training session and nine hours of self guided access to Web and email technologies. The training session was an hour longer than Skills.net requirements to allow adequate coverage of the course requirements.

Background of Trainer

The primary trainer at this case had been a trainer for five years and had experience in teaching computer applications such as MS Word, MS Office and Internet applications. They did not undertake any teacher training provided by VICNET because it was not available at the time, however they had received some in-house training some time before Skills.net training began.

Demographics and Sample Size

Of the groups studied this Case had trained the largest number of participants and therefore was sent the largest amount of surveys. Of the 216 surveys successfully sent 79 useable responses were returned, with the response rate being 36.57%. This section explains the demographic composition of the people from this location that returned the survey.

Age

Fifty-four percent of the trainees surveyed at Case One were aged between 36-55 years. According to the Australian Bureau of Statistics (ABS) 29% of people aged between 40-54 years are likely to have had access to the Internet. (ABS 1998) Therefore it is probable that the participants trained at this location have only had

moderate access to the Internet in the past. Also because this training centre is located in a rural region it is likely that respondents have had less access to the Internet than people from a metropolitan area. (ABS 1998)

Gender

Over seventy percent of those surveyed at this location were women. As this location had a large proportion of female trainees their Internet accession rate and skill level may be lower than expected. This is due to women being less likely to access the Internet than men. In 1997/98 34% of men accessed the Internet access compared with 28% of women. (ABS 1998)

Summary

Overall this case felt that the Skills.net designed training areas were slightly less important than the other groups studied. This case was also less satisfied with delivery of Skills.net training than the other cases. They were significantly less satisfied than other groups with teaching support, reliability of equipment and course content. This lack of satisfaction with course content may have been a result of the shorter duration of this training course, although this group was the most satisfied with the ten hours of Internet access provided.

Case Two

Background of Organisation

Like Case One, Case Two is a pilot leader project required to provide training to 1000 participants. However, Case Two differs from the other cases studied because it was not established before Skills.net funding was granted. This case was funded as a 'start up project' to service a small rural community in the South Western Victorian Region and was the result of a joint partnership between local government and the local university.

Case Two's vision was "to facilitate the uptake and use of multimedia technology and the development of multimedia skills in the region by all sectors of the community and develop opportunities for establishing a multimedia industry through providing hands on experience, training and use of multimedia technology in a non-threatening, flexible and professional environment." (Case Two Interviewee 1999)

This case provides ten hours of training to its participants in the form of five two-hour sessions, which allows them to provide more training than other organisations adhering to Skills.net guidelines.

Background of Trainer

The primary trainer of this organisation had worked as a teacher for 13-14 years and had several formal qualifications in this area. Due to their knowledge of curriculum development and design they were employed as the Project Facilitator and as such played a large role in developing the curriculum taught at this venue.

Although this trainer had no previous specific information technology teaching experience they had experience at teaching music-related technology.

Demographics and Sample Size

Case Two was sent 132 surveys and returned 44 useable responses, giving a response rate of 33.33%. This section describes the demographic features of those from Case Two who returned the survey.

Age

Almost seventy percent of those surveyed at Case Two were between the ages of 56-75 years at the time they were surveyed. According to an ABS survey only 7% of people aged over 55 years accessed the Internet in the 12 month period ending in November 1998. (ABS 1998) As this training was located in a rural region their respondents were less likely to have access to the Internet. (ABS 1998) Due to the age, gender and location of Case Two participants they are likely to be the least skilled before undertaking training.

Gender

Like Case One, the majority of survey respondents were women. However, there was a slightly more even distribution with only 62.79% of respondents being female. Women in general were 4% less likely to have access to the Internet than men. (ABS 1998) This again may reduce the skill level found at this location.

Summary

Case Two respondents consistently reported lower skill levels than the other groups before and after training. The only exceptions were the areas of Internet searching, email, and Internet history, where the groups reported skill levels very similar to those of Case One. Apart from feeling less skilled than the other groups Case Two respondents were still satisfied with the training they received. In general the satisfaction levels reported by this group fell between those of Case One and Case Three. This case viewed the majority of training areas as moderately important. Although they perceived Internet searching, Internet history and downloading as less important than other groups.

Case Three

Case Three is a general project, which provides training from a community centre in the Melbourne metropolitan Skills.net region. This Case has been providing Skills.net training from early March 1998. However, since the community centre's inception in 1973 they have aimed to provide programs to enhance social justice, access and equity to its community. Case Three also aims to provide lifelong learning opportunities to all individuals regardless of age, gender, race or disability. (Anonymous 1999)

Case Three provides five hours of online training and ten hours of access to it's participants as outlined in the Skills.net guidelines. However, they are flexible and will alter the course content to suit participant needs.

Background of Trainer

The Skills.net trainer at this location is employed on a sessional basis to deliver Skills.net and Adult Literacy training. Like Case Two the trainer at this location had significant teaching experience in areas other than information technology. Although the trainer has no formal information technology training experience or qualifications

they have been incorporating the use of information technology into the literacy teaching for some time.

Demographics and Sample Size

Case Three had the smallest number of trained participants to survey, as it is a general project and was only required to train 100 Skills.net participants. Therefore only 64 surveys were sent to this location and only 17 useable responses were returned. The response rate from this case was lower than the other cases at 26.56%, and the trainer of this case suggested that this might be a result of the high Non-English Speaking Background (NESB) population at this venue. The section below explains the demographic features of the survey respondents from this case.

Age

Case Three had the youngest population of all the cases surveyed, with just over forty percent of respondent aged between 26-45 years. As 40% of Australian's aged between 25-39 years were likely to have had access to the Internet this group was the most likely to have access of the groups studied. The respondents at this case were also more likely to have access to the Internet as the course was located in a metropolitan area. (ABS 1998) This increased likelihood of access may result in the skill level of this group being higher than the other cases.

Gender

This case differed from the other two studied because the majority of survey respondents were male. As men are more likely to have access to the Internet the chances of this group to have access to the Internet are again increased.

Summary

In pre-training and post-training categories Case Three respondents considered themselves slightly more skilled in most areas than the other locations. These results are consistent with the ABS findings that this group should have had more access to Internet and information technology and therefore should be more skilled.

This group also placed higher importance on most of the training areas than the other groups, which may have been because they had more of an idea of what to expect from training because they were more experienced at using computers.

Case Three was also the most satisfied case studied. This high satisfaction was demonstrated with significantly higher perceived satisfaction with their teacher, the course content.

Summary of Findings

Is Skills.net Addressing Accepted Needs for Training?

To determine if Skills.net training addresses accepted training needs, information about the programs design, development and delivery was analysed and compared to the guidelines for successful information literacy training by WLMA and Kirk and Todd. To address the WLMA guidelines the training had to enable students to construct strategies for locating, accessing, evaluating and extracting information.

1. Constructing strategies for locating information.

Skills.net addresses this guideline by providing participants with knowledge of information resources including the Web and email. Once participants had knowledge

about how these information resources could help them locate information, they could include the use of these resources into their information gathering strategies.

2. Locate and access information.

The program addresses this area by providing training in skills, which enabled access to information by using the Web and email. The training also provided students with the ability to refine and narrow Web searches to allow them to locate the most relevant information for their needs.

3. Evaluate and extract information.

The training enables participants to evaluate and extract information. The ability to evaluate information was beyond the scope of this course, however Skills.net teaches participants how to extract suitable information for future use. Although the amount of training given on information extraction differs between Skills.net groups some methods taught included bookmarking, downloading / saving and printing.

In order to meet the guidelines established by Kirk and Todd Skills.net training had to demonstrate a user orientation to the design, development and delivery of their training.

Information literacy is relative to the individual, a particular need and the situation of the individual.

Therefore Skills.net training should be sensitive to participants needs. Skills.net training was designed to teach a standard set of skills to training participants and therefore did not allow a great deal of flexibility to enable trainers to meet individuals needs. Skills.net trainers often altered the skills taught in the Skills.net training to be more suitable to the skill level and needs of the group being instructed. For example Case One would provide extra training exercises for those who were unfamiliar with using a mouse, to provide them with the mouse skills necessary to navigate the Web.

Planning and development of information literacy programs will be based on needs as determined by the users, not defined by the organisation.

Skills.net is not successful in this area because the training program was designed on the basis of user needs determined by MMV and VICNET. The researcher was unable to locate any prior studies by these organisations that identified a set of user needs to be addressed. Therefore, it is likely that these organisations based the training, on needs of participants from other training courses or their own perceived needs. As a result of the training needs being defined by MMV and VICNET several proposed training areas such as creating Web pages were far too advanced for participants. Also, participants did not view some areas such as the history of the Internet as relevant. Therefore, trainers were forced to redesign the training to suit participants requirements, creating inconsistency in training between the projects.

Program evaluation needs to be evaluated in terms of users' needs, and the benefit and satisfaction derived.

Although a prior evaluation of Skills.net recommended investigation into the satisfaction of participants (CIRCIT 1998) until this study, no such evaluation of user needs, benefit or satisfaction has been undertaken. Therefore, Skills.net training has been unsuccessful in this area. Skills.net appears to be achieving mixed success in its ability to meet accepted needs of training. While the program is fairly successful in achieving relevant WLMA guidelines for teaching information literacy, the training

does not meet user needs adequately enough to be successful in terms of the Kirk and Todd guidelines.

Do Skills.net Trainers believe they are achieving Their Goals of Training?

The cases studied had different mission statements and slightly different training goals, however all trainers believe that their organisation is successful at achieving their goals through the provision of Skills.net training. It must be noted that this section measures the perceptions of the trainers in this regard, and these perceptions may differ from reality.

Case One believe they are successful because they seem to be meeting most of VICNET and MMV's training targets while providing training to the broader community. Case Two meet their goals by providing training to those in the broader community who are potentially disenfranchised by not having access to the Web and email. Case Three provide training to individuals regardless of age, gender, race or disability. This organisation has exceeded its aims of Skills.net training and is successful at achieving most of VICNET and MMV's training goals.

Do participants think they are achieving their goals through Skills.net training? Are they satisfied with the skills they are taught?

The most frequently chosen reasons for undertaking Skills.net training was to develop computer skills or explore a new area of interest. Again it is important to note that the findings in this area were based on the perceptions of users.

It appears that Skills.net training is successful at developing computer skills because most of the participants perceived themselves as more skilled after completing the training. Therefore, it is inferred that participants met their goals in this area.

The ability of Skills.net to enable participants to explore a new area of interest is somewhat more difficult to determine, due to a lack of specific questions relating to this area.

Overall, participants were satisfied with the skills they gained through Skills.net training, even when they did not view the training area as particularly relevant, as in the case of Internet history.

As the satisfaction findings were based on participants' perceptions and not skill level testing, it cannot be adequately determined if the skill levels achieved were of a satisfactory standard.

Does Skills.net training empower users?

The trainer at Case One saw Skills.net training empower users by providing them with the basic skills necessary to explore their areas of interest. They also believe that Skills.net training empowers users by allowing them to air their views publicly via the use of email.

Although feeling that empowerment is a difficult thing to quantify the primary trainer at Case Two believes that Skills.net training raises the awareness of participants which can be empowering. The trainer also feels that the degree of empowerment achieved by the training depends on "what people are expecting to get out of it".

The trainer at Case Three believes that Skills.net training empowers people by providing them "with a new set of information communication ... and information gathering possibilities."

The findings in relation to increases in skills and satisfaction with training suggest that Skills.net training does to some degree empower participants by providing them with skills to access a broader range of information resources.

However, as the course did not focus closely enough on the needs of its participants it did not provide the degree of empowerment in participants that it could have.

Conclusions

The Skills.net program is a well-meaning initiative designed to increase the information literacy of information poor individuals. However, the potential impact of the Skills.net program on increasing information literacy was limited due to the failure of the program to adequately address accepted training guidelines.

Skills.net did appear to meet the WLMA guidelines for constructing strategies to locate, assess, evaluate and extract information. However, the depth to which these areas were taught and the time spent teaching them varied greatly between the training venues. Therefore it may have not been Skills.net's original design that met user needs in this area, but instead the trainers modifications to the course structure. These discrepancies made evaluation of the program difficult.

The major failing of Skills.net was that during its development there was no consultation with potential Skills.net participants to determine what their needs were from the training. This meant that the course was developed on what MMV and VICNET believed to be the needs of potential participants and not the actual needs of participants.

However this study appears to demonstrate the effectiveness and applicability of the evaluation WLMA and Kirk and Todd guidelines to aid in the development, implementation and evaluation of information literacy training programs. Results from the study appear to indicate that Skills.net participants want strategies for locating, extracting and evaluating information concurring with the WLMA guidelines.

The findings of the study also imply that Skills.net would have been more effective if it had taken into account the Kirk and Todd guidelines and focussed on user needs during its design, development, implementation and evaluation. Although developing an effective information literacy course design was outside the scope of this evaluation it would be worthwhile for Skills.net (MMV and VICNET) to adhere to the accepted guidelines while developing future information literacy training courses. This would ensure that the course design is as effective as possible at meeting user needs while improving information literacy.

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