The Influence of Adult Learners’ Self-Directed Learning Readiness and Network Literacy on Online Learning Effectiveness: A Study of Civil Servants in Taiwan

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ABSTRACT
This study examined the effect of civil servants’ Self-Directed Learning Readiness (SDLR) and network literacy on their online learning effectiveness in a web-based training program. Participants were 283 civil servants enrolled in an asynchronous online learning program through an e-learning portal provided by the Regional Civil Service Development Institute in Taiwan. Data were collected via a questionnaire containing three parts: SDLR scale, network literacy scale, and online learning effectiveness scale. The findings indicated civil servants’ SDLR and network literacy were positive; however, participants’ involvement in online discussion was not appreciated according to the reported score of online learning effectiveness. Analysis of the data also revealed that three factors of SDLR (active learning, love of learning, and independent learning) and two constructs (Internet skill and information evaluation) of network literacy were significant predictors in predicting online learning effectiveness of civil servants. Additionally, civil servants’ SDLR appeared to be the most important element in determining their online learning success based on the research findings.

Keywords
Adult learning, Self-directed learning Readiness, Network Literacy, Online learning

Introduction
With the relentless advance of Internet technologies, online learning has gained greater attention not only from schools and private organizations, but also from the public sectors. Governments around the world realize that maintaining a dynamic and effective workforce is of extreme importance in facing increasing levels of global competition; thus, ensuring that civil servants’ skills and knowledge are continually updated and refreshed has become a serious and urgent issue (Bose, 2004). Online learning has become a favorite choice for providing training and development needs in government organizations because it provides a cost-effective and timely learning vehicle to meet the need of continuous education and training for the civil servants working at different locations (Combs, 2002; Shinkareva & Benson, 2006). Many developed countries have already established online learning portals specifically for training the large number of civil servants, such as the Virtual School at the United Kingdom’s National School of Government, the United States’ Federal Government’s GoLearn, the Canadian School of Public Service’s CampusDirect, and Singapore’s Civil Service College’s Open Academy. In Taiwan, the Civil Service Development Institute and Regional Civil Service Development Institute also launched online learning portals for civil servants at central and regional governments based on the framework of the National Science and Technology Program for e-Learning. All civil servants are required to take at least five hours of training courses through an online format each year (Taiwan Central Personnel Administration, 2007).

Online learning, in fact, is still in a relatively new domain of adult education practice, and its advanced and unique features require adult learners to have some preparations and skills beforehand. While a great volume of studies has focused on the technical aspects of online instruction, more pedagogical concerns should also be investigated. Factors such as adult learners’ fluency and perception in using Information and Communication Technology (ICT), particularly in network literacy, and their Self-Directed Learning Readiness (SDLR) can be critical elements in determining the effectiveness of online learning (Hiemstra, 2006; Lema & Agrusa, 2009; Song & Hill, 2007). Merriam, Caffarella, and Baumgartner (2007) articulate that exploring how technology relates and affects self-directed learning (SDL) can expand understanding of adult learning through SDL in formal and informal settings. With the increasing trend of utilizing online learning in public sectors, an investigation of the theoretical research of the variables that influence online learning effectiveness will enable government organizations to create more effective and efficient online learning programs to maximize the potential of their workforce.

Recent SDL studies (Hiemstra, 2006; Lowe & Holton, 2005; Lema & Agrusa, 2009; Song & Hill, 2007) on online learning context have focused primarily on the descriptions of influences and strategies with little support of
empirical evidence. As more professions recognize the importance of human resource development and developing their practitioners to be lifelong learners, research and theories building on SDL are in need of fresh questions, especially the impact of online instruction (Merriam et al., 2007). The present study explored the SDLR and network literacy of civil servants in an online training program in Taiwan. In particular, it examined the predictive ability of SDLR and network literacy on online learning effectiveness.

**Literature Review**

Research and concerns of SDL have substantially increased in the field of adult education since the seminal work of Tough in 1971 (Merriam et al., 2007). The research works of Tough (1971, 1979) illustrated that most adults engage in some form of learning project in a year, and his continuous studies in SDL provide valuable suggestions for promoting SDL from institutions to group learning. The most popular definition of SDL was proposed by Knowles (1975) which describes SDL as “a process in which individual take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating learning outcomes” (p.18). The initial SDL research of Tough (1971) and Knowles (1975) viewed SDL as a linear and continuum model, and later studies added two new approaches, the interactive and instructional models (Brockett & Hiemstra, 1991; Garrison, 1997; Grow, 1991; Hammond & Collins, 1991; Spear, 1988) to discuss the different aspects of SDL as a process of learning. The other focus of SDL research, according to Merriam (2001), described self-direction as a personal attribute of learners. Song and Hill (2007) suggested that resource use, strategy use, and motivation are the three main characteristics of personal attributes in which learners take responsibility for their own self-directed learning. Research instruments aiming to assess SDL as a personal trait were developed and have been evaluated at many learning settings and linked to other variables, such as learning style, level of education, and life satisfaction (Merriam et al., 2007). Two popular Likert-type instruments for evaluating SDLR are Guglielmino’s Self-Directed Learning Readiness Scale (SDLRS) and Oddi’s Continuing Learning Inventory (OCLI) (Litzinger, Wise, & Lee, 2005). These two instruments, according to Merriam et al. (2007), have been popularly used to evaluate aspects of self-directedness as a personal trait. The present study adopted the approach of self-directedness as a personal attribute because civil servants, as adult learners, were psychologically ready to be self-directing at certain levels. Thus, SDLR can be measured by quantifying their attitudes, values, and abilities.

In addition, many studies (Bell, 2007; Nicol, 2007; Shinkareva & Benson, 2007) have attempted to discover the effect of online learning related to SDL in a school setting, and that of higher education in particular. Recent research (Hiemstra, 2006; Lema & Agrusa, 2009) recognized that the Internet is a valuable resource for meeting the needs of self-directed learners and adopting online training has brought great influence to the human resource development in organizations. Some of the most important skills for today's rapidly changing workforce are skills in using ICT and the ability of learning. Howland and Moore (2002) indicated that learners’ ICT skills play an important role in helping them to learn independently. Also, learners who possessed high level experiences with online applications tended to engage more in SDL activities (Lema & Agrusa, 2009). Thus, the learners’ computer skills and experiences, particularly in network literacy, are crucial for developing their SDL capability. McClure (1994) used the term “network literacy” to portray one’s ability to identify, access, and use electronic information from the network. Knowledge and skills, according to McClure (1994), are the two major components that comprise network literacy for the general public. With the proliferation of the Internet, measurement of network literacy has shifted to focus on users’ skills and knowledge of navigating the Internet and formulating search queries through online search engines (Ngulube, Shezi, & Leach, 2009). An earlier study on developing students’ Internet literacy in an undergraduate engineering program confirmed that using the Internet as a learning tool requires sophisticated skills, knowledge and help from instructors (Blanchard & Carter, 1999). Another recent investigation conducted by Chen and Williams (2009) also discovered that college students with higher levels of technological competency, particularly in online learning environments, engaged and enjoyed more in learning online course modules. The same holds true for civil servants’ engagement in online learning that sufficient knowledge and skills in the web-based learning environment may generate to affect overall quality of online training effectiveness.

Evaluation of online learning can be approached from different aspects, such as learners, instructors, courses, technology, design, and environment (Sun, Tsai, Finger, Chen, & Yeh, 2008). Because learners are the primary participants, many research studies have been conducted to investigate factors affecting the learning effectiveness of online learners (Chou and Liu, 2005; Piccolilli, Ahmed, & Ives, 2001; Sun et al., 2008; Vogel, Davison, & Shroff,
100

2001). In particular, due to the difference between the online and traditional learning environments, Chou and Liu (2005) suggested that assessment of the use of technology and the shift of learners’ control and responsibility are two critical factors from the learners’ perspective. In their study, four dimensions, learning achievement, computer self-efficacy, satisfaction, and learning climate were investigated to compare students in the two different learning settings. One of the important findings, according to Chou and Liu (2005), was that online students tended to develop higher computer self-efficacy and skill than their counterparts. Another important aspect affecting online learning effectiveness related to learners’ control is their participation (Cashion & Palmieri, 2002; Richardson & Newby, 2006), that is, higher participation rates in online discussion, reading, and interaction with colleagues and instructors can produce better learning results and greater satisfaction. Hence, encouraging learners to participate and dedicate more in online learning activities would facilitate them to build up more responsibility in planning their own learning pace and strategies, and increase their technological proficiency in the online learning process.

**Design of the Study**

**Instrument Selection**

This purpose of the study was to explore the relationship between SDLR, network literacy, and online learning effectiveness of civil servants in Taiwan. The SDLR, an internal state of psychological readiness to undertake SDL, contains complex attitudes, values, and abilities that create the likelihood that an individual is capable of SDL (Guglielmino, 1977, 1997). The most adopted survey instrument, the SDLRS, was developed and modified by Guglielmino (1977, 1997), and it has been widely used to assess quantitative aspects of SDL as a personal trait (Merriam et al., 2007). There are eight factors identified during the development of SDLRS. These factors are openness to learning opportunities, self-concept as an effective learner, initiative and independence in learning, informed acceptance of responsibility for one’s own learning, a love to learn, creativity, future orientation, and the ability to use basic study and problem-solving skills (Candy, 1991). The prevalent use of SDLRS has shown stable reliability and validity. Thus, Guglielmino’s SDLRS has been translated into several languages. In Taiwan, Teng (1995) first translated SDLRS into Chinese, and the translated version has been modified by some experts. Also, the number of questions was reduced from 58 to 55 and the original eight factors were decreased to six aspects (effective learning, love of learning, learning motivation, active learning, independent learning, and creative learning) based on the considerations for cultural differences (Chang, 2006).

The SDLRS has been utilized to measure different adult students’ SDL attitudes in numerous studies. Also, some scholars have examined the relationship of SDLRS with other instruments, such as cross-cultural adaptability, learning style, and creativity (Merriam et al., 2007). In the study of technology learning settings, Chang (2006) employed the Chinese version’s SDLRS to measure college students’ competency-based web learning, and he discovered some correlations among the factors of SDLR and different stages of competency-based web learning. Mamary and Charles (2003) investigated the relationship of physicians’ SDLR and different types of computer training tools, and their findings suggested that the development of interactive media and Internet programs can be beneficial to continuing medical education. Based on the research settings and online teaching faculty’s suggestion, the instrument adopted in this study was the Chinese version of the SDLRS, and four factors were included to measure the degree of SDLR. The four dimensions were active learning, independence learning, love of learning, and creative learning.

In addition, a network literacy scale was developed based on the suggestion of McClure (1994) and characteristics of adult learners. Two dimensions, Internet skill and information evaluation, were used in this investigation. Users answered a set of questions on a self-reporting basis. Online learning effectiveness was also evaluated by a survey which contained four antecedents, 1) satisfaction, 2) participation, 3) learning achievement, and 4) self-efficacy in online courses, from the learners’ perception. The network literacy and online learning effectiveness scales were modified from the exiting instruments developed by Lin (2002) and Liang (2002). In order to ensure the content validity of the two scales, 10 university professors were invited to review the questions. Because the modified scales’ questions were carefully organized and designed to meet the needs of the research purpose and target population, a few revisions in the wording of some items were made based on the panel’s suggestions.

A pilot study was administered to test the reliability of the survey instrument, and 82 participants from the Nantou County government were invited to complete a preliminary form of the questionnaire. The instrument contained 50
Likert-type items of a 5-point rating scale corresponding to 4 dimensions of SDLR, 2 dimensions of network literacy, and 4 dimensions of online learning effectiveness. Table 1 lists the internal reliability of the 10 factors aspects, where Cronbach’s Alpha lies between 0.71 and 0.92 of which all reached the acceptance threshold of 0.7 recommended by Vogt (2001).

<table>
<thead>
<tr>
<th>Construct</th>
<th>Number of questions</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Directed Learning Readiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active learning</td>
<td>6</td>
<td>0.84</td>
</tr>
<tr>
<td>Independent learning</td>
<td>4</td>
<td>0.71</td>
</tr>
<tr>
<td>Love of learning</td>
<td>6</td>
<td>0.87</td>
</tr>
<tr>
<td>Creative learning</td>
<td>4</td>
<td>0.72</td>
</tr>
<tr>
<td>Network Literacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet skill</td>
<td>5</td>
<td>0.89</td>
</tr>
<tr>
<td>Information evaluation</td>
<td>5</td>
<td>0.91</td>
</tr>
<tr>
<td>Online Learning Effectiveness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>5</td>
<td>0.71</td>
</tr>
<tr>
<td>Participation</td>
<td>5</td>
<td>0.83</td>
</tr>
<tr>
<td>Learning achievement</td>
<td>5</td>
<td>0.92</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>5</td>
<td>0.90</td>
</tr>
</tbody>
</table>

**Participants and Setting**

A total of 283 regional civil servants voluntarily participated in this study, and they all enrolled in an online training program provided by the Regional Civil Service Development Institute located in Nantou County, Taiwan. The training program consisted of 180 courses, and most of the courses’ formats were either computer simulations or video-enhanced PowerPoint presentations. Learners who completed a course can get 1 or 2 credit-hours depending on the length of course materials, and each participant was asked to finish at least 5 credits. At the time of the study, the Regional Civil Service Development Institute’s e-learning portal offered courses at three categories—leadership, on-job training, and professional development, and the e-learning platform also contained sections of threaded discussion, course modules, and assessment.

One hundred thirty-eight participants were female (48.8%), and 145 respondents were male (51.2%); 30% were 30 years old or younger, 25.1% were between 31-40, 34.5% were between 41-50, 10.6% were 51 or older. Exactly 79.9% (N= 226) of participants were college graduates, 14.1% (N=40) of participants hold master (or above) degrees, and only 6.0 % (N = 14) of respondents had a high school diploma or lower. All participants had a varied background knowledge of computers and were from different regional government organizations, including the office of commerce, fire/police department, public libraries, tax bureaus, and others.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Mean (M)</th>
<th>Standard Deviation (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Directed Learning Readiness</td>
<td>3.87</td>
<td>0.55</td>
</tr>
<tr>
<td>Active learning</td>
<td>3.77</td>
<td>0.58</td>
</tr>
<tr>
<td>Independent learning</td>
<td>4.03</td>
<td>0.57</td>
</tr>
<tr>
<td>Creative learning</td>
<td>3.63</td>
<td>0.61</td>
</tr>
<tr>
<td>Network Literacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet skill</td>
<td>4.00</td>
<td>0.63</td>
</tr>
<tr>
<td>Information evaluation</td>
<td>3.76</td>
<td>0.67</td>
</tr>
<tr>
<td>Online Learning Effectiveness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>3.44</td>
<td>0.70</td>
</tr>
<tr>
<td>Participation</td>
<td>3.01</td>
<td>0.88</td>
</tr>
<tr>
<td>Learning achievement</td>
<td>3.50</td>
<td>0.66</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>3.99</td>
<td>0.66</td>
</tr>
</tbody>
</table>
Findings

Descriptive Analyses of Variables

The participants were asked to rate each survey question from 1 to 5 (1 = Extremely unlikely; 2 = Quite unlikely; 3 = Slightly likely; 4 = Quite Likely; and 5 = Extremely likely). The mean and standard deviation scores of each variable are displayed in Table 2. The love of learning (M = 4.03, SD = 0.57) was rated highest in the SDLRS. Internet skill received a better score (M = 4.00, SD = 0.63) than information evaluation (M = 3.76, SD = 0.67) in the network literacy scale. The analyses’ outcome also revealed that civil servants’ self-efficacy (M = 3.99, SD = 0.66) in online courses was favorable on the online learning effectiveness scale.

Age Differences on the SDLR and Network Literacy Scales

One-way analysis of variance (ANOVA) tests were conducted on the total scores and sub-scores of the SDLR and network literacy scales. A significant effect of age difference was found for love of learning scores, $F (3, 279) = 2.66, p < 0.05$. Post hoc comparisons (using Scheffe) revealed no significant differences among the four age groups. However, civil servants who were older tended to have better self-perceptions toward learning by spending more time and dedicating to the learning contents and activities according to their responses to the questions of love of learning dimension. The mean scores and standard deviations of these four age groups on the love of learning dimension are: 30 years old or younger (M= 3.87, SD =0.59), 31-40 (M = 4.04, SD = 0.54), 41-50 (M = 4.10, SD= 0.54), 51 or older (M = 4.12, SD = 0.65). There were no significant effects in civil servants’ network literacy total and sub-scores among the four age groups.

Linear Regression Models

Related literature (Hiemstra, 2006; Lema & Agrusa, 2009) suggests that adult learner’ SDLR and Internet competencies play significant roles in determining their online learning experiences. One of the research interests in the study was to understand the relationship between civil servants’ SDLR, network literacy, and online learning effectiveness and furthermore to identify how well the civil servants’ SDLR and network literacy could predict their online learning success. A linear regression analysis was performed on online learning effectiveness calculated by SDLR and network literacy of civil servants. Two multiple regression equations were examined to determine how well the participants’ SDLR and network literacy could predict the dependent variable: online learning effectiveness. The relationship between the four subscales of SDLR and the total score of online learning effectiveness was investigated using the Pearson product-moment correlation coefficient (Table 3). Results of the correlation analyses of two subscales of network literacy and online learning effectiveness score are presented in Table 4.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Correlation coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active learning</td>
<td>0.51**</td>
</tr>
<tr>
<td>Independent learning</td>
<td>0.40**</td>
</tr>
<tr>
<td>Love of learning</td>
<td>0.48**</td>
</tr>
<tr>
<td>Creative learning</td>
<td>0.46**</td>
</tr>
</tbody>
</table>

** $p < 0.01$

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Correlation coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet skill</td>
<td>0.48**</td>
</tr>
<tr>
<td>Information evaluation</td>
<td>0.54**</td>
</tr>
</tbody>
</table>

** $p < 0.01$

The total scores of online learning effectiveness were first regressed on the linear combination of variables of SDLR. Assumptions related regression including normality, homoscedasticity, and linearity were tested, and no violation was found. Homoscedasticity (homogeneity of variance) refers to equal variances in the dependent variable, online learning effectiveness, for the independent variables, dimensions of SDLR and network literacy. The linear
The combination of the independent variables of SDLR significantly predicts \( F = 32.13, p < 0.001 \) online learning effectiveness of civil servants. Three variables—active learning, love of learning, and independent learning, tend to be associated with online learning effectiveness scores. Approximately 32% of the variance in the online learning effectiveness scores was accounted for by the three predictors. The prediction equation for the standardized variables is as follows:

\[
\text{Online learning effectiveness} = 0.27 \text{active learning} - 0.01 \text{creative learning} + 0.20 \text{love of learning} + 0.19 \text{independent learning}
\]

Stepwise regression revealed that active learning was the strongest factor influencing respondents’ online learning effectiveness \( F = 98.20, p < .001 \), which accounted for 26% of the variance of the total score of the dependent variable. The combination factors of active learning and independent learning accounted for 29% of the variance in the dependent variable (significant at \( p < .001 \)). The third model, which added love of learning to active learning and independent learning, accounted for 31% of the variance (significant at \( p < .001 \)).

To obtain insight into the predictive ability of civil servants’ network literacy measures on their online learning effectiveness scores, a multiple regression analysis was also conducted. The result of the regression examination showed a significant statistic. The two variables of network literacy significantly predicted online learning effectiveness scores \( F = 61.25, p < .001 \) which explained 30% of the variance of the dependent variable. The predicted standardized regression equation can be written as follows:

\[
\text{Online learning effectiveness} = 0.20 \text{Internet skill} + 0.39 \text{information evaluation}
\]

Stepwise regression results showed that the information evaluation was the primary factor significantly predicting participants’ online learning effectiveness scores \( F = 112.96, p < .001 \). This model accounted for 28% of the variance in the significance of the dependent variable. The second predictor, Internet skill, explained a further 2% variance in the total score (significant at \( p < .001 \)).

**Discussion**

This study found that civil servants’ SDLR was positive which signified that civil servants valued the importance of being self-directed learners in online learning environments. One of the reasons that can explain this finding is that since February 2007 taking online training courses has become a requirement for all civil servants in Taiwan; thus, most civil servants might be aware of this new policy and were prepared for this change, and most of them already had the opportunity to participate in SDL using online formats. Another explanation, according to the descriptions of SDL theory (Knowles, 1975), is that adults are capable of self-directing their own learning when they identify their needs and then take action to achieve their learning goals. Civil servants, in this study, presented good SDLR scores which coincide with SDL theory. Moreover, a recent study (Nazim, 2008) suggested that self-instruction was the best method of learning Internet usage for adult students. It further implies that adult learners’ SDL ability might help them to get acquainted with new learning tools during the learning process. Among the four variables of SDLR, love of learning received the highest score, demonstrating that civil servants enjoyed learning new knowledge and the learning content might be useful for their work.

The results of the participants’ network literacy scores were also encouraging. Most civil servants were confident about their Internet skills, and confident of being able to tap into vast resources on the course web. This result corroborates the findings of a similar study (Hiemstra, 2006) indicating that the Internet has become an essential learning tool and indispensable information source for enhancing the lives of adults who use it. In addition, the analyses of respondents’ online learning effectiveness scores revealed an important fact that learners’ participation was still a critical issue in online learning. Although learning online enable adult learners to access education and training more easily and flexibly than traditional classrooms, interactions between learners were still low. Two survey questions obtained relatively low scores with regard to learners’ participation. The mean and standard deviation of the question “I often express my thoughts on the discussion board” were 2.72 and 0.91, respectively, and the other question “I often reply to others’ postings on the discussion board” had a mean and standard deviation of 2.82 and 0.88, respectively. A partial explanation for this may lie in the fact that participating on the discussion board was not required by the online course in this study. This result may also be explained by considering the participants’
expectations when they began to engage in online learning. In Conrad’s (2002) study, she found that adult learners tended to ignore the messages posting on the discussion board in the beginning of online learning class if instructors did not appropriately respond and conduct discussions.

This study also examined civil servants’ age differences on SDLR and network literacy scores and found that older learners showed more positive enjoyment toward learning than younger learners. This might be due to older civil servants’ who had more working experiences and had encountered more job-related challenges that might enable them to undertake SDL in order to solve problems. A workplace learning study conducted by Straka (2000) found that experienced work conditions affected employees’ interest to control their self-learning pace. Another qualitative study noted that older adults’ educational pursuits were motivated by the unique issues of their life, such as time and family (Roberson & Merriam, 2005). Most adults dedicate significant amount of time in their work, so mature and experienced workers might develop optimistic SDL attitudes. The above arguments imply that working environments are capable of triggering civil servants’ collective natures of SDL when they accumulate years of working experiences. Therefore, a key task for HRD practitioners at public sectors is to provide an SDL supportive environment for employees.

The results of regression analysis which examined SDLR factors as predictors of participants’ online learning effectiveness scores revealed that three elements—active learning, love of learning, and independent learning—were significantly related to the dependent variable. This finding is in accordance with the results of a previous study (Lee, Hong, & Ling, 2002) which discovered that certain aspects of SDL attributes were related to learners’ attitudes and achievements in online learning. The component of active learning was the strongest predictor in the regression model, indicating that active learning contributed most to the total score of civil servants’ online learning effectiveness. This finding implies that adult learners who can make appropriate arrangements of their own learning schedules and choose learning materials and activities they like on online training courses can generate better learning outcomes. It further suggests that adult educators or training coordinators can work more on the issue, which is, providing guidance, such as time management skills and offering relevant course content to meet the learners’ needs. In a related SDL study conducted by Lema and Agrusa (2009), they recommended that providing learning opportunities that have immediate impact on learners may increase their learning motivation in active learning. On the other hand, the results of the predictive model of network literacy and online learning effectiveness scores showed that learners’ information evaluation skills were a vital part in determining their online learning success. According to Rager (2003), the ability to critically evaluate Internet resources should be an area of concern to adults interested in SDL. Thus, adult education practitioners can and should play a role in focusing on the need to critically evaluate Internet information and in helping adult learners develop the ability to do so (Rager, 2003).

Another important finding based on the regression analyses was that the ability of adult learners’ SDLR was more important than their network literacy affecting the outcome of online learning effectiveness. This result suggests that, in addition to helping learners’ acquire technical skills utilized in online courses or programs, adult educators or training coordinators should note the great influence of SDL in facilitating adult learners to develop positive online learning experiences. Furthermore, Shinkareva and Benson (2006) explained in their research on adult students’ SDL and instructional technology competency that adult students who already possessed a relatively high level of SDL ability also performed better in learning ICT. In light of this information, online learning and training designs should be focused on developing learners’ SDL abilities to a great extent, and help from instructors, such as diagnosing learners’ learning needs and designating key tasks toward achieving learning goals, would be highly needed (Timmins, 2008).

Conclusions

This study investigated the current state and relationships of SDLR, network literacy, and the online learning effectiveness of civil servants participating in an online learning program in Taiwan. The resultant findings revealed that civil servants’ SDLR and network literacy were positive. However, civil servants’ participations in online learning, particularly in discussions, were unfavorable. Older civil servants tended to have more positive self-perception in SDLR, love of learning in particular, than younger employees. Additionally, based on the regression analyses, it suggested that civil servants’ SDLR was critical in determining their online learning success. The present study enhanced the previous SDL studies and understandings by providing a full examination of empirical data in an online learning context.
The key contribution of this study is that it is the first attempt to explore civil servants’ SDLR and network literacy towards online training programs in Taiwan. As more government organizations around the world gradually adopt online training for their employees, more online learning courses will be developed as well. This study could help human resource development professionals with the issues involving organizing online training and paying careful attention to provide the best conditions that promote SDL for the trainees. Future research should continue to focus on the impact of SDL in various online learning settings and different groups for the purpose of expanding our understandings of adult learning through SDL in using technology-enabled media.

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References


