

# Information Technology in Workplaces: Computer Learning Strategies by Elderly Workers

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## ABSTRACTS

*Changing workplace demands are calling for a wide range of skills and competences from the workforce. Previous studies have focused on the identification of knowledge and skills that individuals need to successfully adapt to changing work environment (Daley, 1997; Kozlowski, 1995). These changing technology in the office have resulted in many new learning strategies needed by elderly office workers. A relatively unexamined area of investigation concerns the nature of senior office workers adopting the technology in their office job. The questions to be answered in this research are: What were the learning strategies used by elderly workers towards computer technology? This research was carried out qualitatively. Selected seventh elderly office workers will be interviewed and their responses will be recorded, transcribed, interpreted, and analyzed based on the theme(s) of the research. Data are collected through an in-depth, open-ended interview method. The criteria for selecting the participants are their length of service in organization especially in the office, ages, and their gender. Participants were elderly office workers who work for at least 15 years from variety of departments in Universiti Teknologi MARA, Terengganu. This research also found that there are two methods or strategies that are used by the elderly office workers in learning the computer technology. The first strategy is to learn it informally and the second method is to learn it through formal training or courses.*

## 1.0 INTRODUCTION

Formal learning is defined as properly planned and structured courses decided by any organizational committee with a detailed preparation and budget analysis. Marton and Ramsden (1988) identified a number of teaching strategies around the idea that students have different ways of conceptualizing topics, which begs the conclusions that: (a) there must be continuing dialogue between teacher and student; (b) the teacher must analyze the relationship between the student and the target conception to determine the focus for the continuation of the dialogue; and (c) the dialogue must be conducted so that it addresses all aspects of the learning process.

On the other hand, informal learning is more towards unplanned events, unstructured and without a detailed preparation and budget analysis and with no committee set up. The demands on the individual at work now call for a sustained high level of maturity, responsibility, motivation and commitment. These require the continual ability to adapt to change in reference to what Handy describes as "the ability to seek out and pursue learning opportunities in order to fulfill their own learning needs and career

development requirements" in other words the ability to become self-directed, lifelong learners (Mary Landen, 1997).

Hence, the objective of this research is to determine the strategies has been used by the older office workers to learn computers. The strategies that use to learn a new skill or subject increasingly become an important issue. There are a host of scholars who have presented what have been salient themes in learning strategy research. These scholars have consistently found that distinctive groups of learners exist when they are identified by the pattern of learning strategies which they use (e.g. Conti and Kolody, 1998; Lockwood, 1997; Bighorn, 1997; Ungricht, 1997; Strakal, 1994; Moretti, 1994).

## 2.0 LITERATURE REVIEW

This part of paper discusses two aspects of computer learning strategies engaged by elderly workers in equipping themselves with the technologies to face the ever changing workplace demands. They are as follows:

### 2.1 Information Technology in the Workplace

Information technology is defined in this research as "all software and hardware applications in the computing and telecommunication field used to accomplish work." Furthermore, information technology is operationalized by breaking it down into two independent sub-variables: (1) Type of IT used (i.e. system type): there are different classifications of IT systems based on the organization hierarchical structure and the type of decisions that have to be made at each level. Some of the systems include office automation systems, management information systems and executive information systems, among others. (2) How individuals use IT (i.e. user type): there are three different user types, as described by Ryker and Nath (1995):

- *Primary users* are those who make decisions based on information from a computer system, but who do not personally interact with the computer.
- *Secondary users* are those who interact with the computer to obtain information but do not make decisions based on it. Their role is more of an information agent or intermediary.
- *End-users* are those who interact with the computer and make decisions based on the information obtained it.

Information technology innovation encouraged changes in the corporate world; these breakthroughs are having a profound impact on the development of collaborative computing technologies. Aimed at small and mid-sized businesses, these products perform a variety of tasks, from scheduling, project management, Web-based video conferencing to data storage, data sharing, and supply chain (Human Resource Management International Digest, 2003). However, cultural factors, as identified by Hofstede (1980), were proved to dissociate the perceived usefulness of IT from its usage or adoption by users. This dissociation was particularly significant for high power distance, high uncertainty avoidance, low individualistic cultures (Straub *et al.*, 1997; Robichaux and Cooper, 1998; Mejias *et al.*, 1997). The overall conclusion reached is that cultural factors are sustained within the context of IT introduction. However, the authors point out those soft subjective factors should be included in evaluating IT. These factors reflect process gains, including synergy, information richness, more learning and stimulation (Mejias *et al.*, 1997).

## 2.2 Adult Learning Theory's at the Workplace

Basically the adult workers do not have enough time to learn the computer technology at home. The only place for them to learn is at their workplace. Cross (1981) presents the Characteristics of Adults as Learners (CAL) model in the context of her analysis of lifelong learning programs. The model attempts to integrate other theoretical frameworks for adult learning such as andragogy, experiential learning, and lifespan psychology. The CAL model consists of two classes of variables: personal characteristics and situational characteristics. Personal characteristics include: aging, life phases, and developmental stages. These three dimensions have different characteristics as far as lifelong learning is concerned. Aging results in the deterioration of certain sensory-motor abilities (e.g., eyesight, hearing, reaction time) while intelligence abilities (e.g., decision-making skills, reasoning, and vocabulary) tend to improve. Life phases and developmental stages (e.g., marriage, job changes, and retirement) involve a series of plateaus and transitions, which may or may not be directly related to age.

Workplace learning involves the process of reasoned learning towards desirable outcomes for the individual and the organization. These outcomes should foster the sustained development of both the individual and the organization, within the present and future context of organizational goals and individual career development (Matthews, 1999). Workplace learning is extremely complex, and involves more than simple training and development issues. An understanding of the concept and application of workplace learning requires the integration of a range of diverse factors, such as: adult learning theory; learning paradigms; organizational needs; and individual interests; which

together can result in positive workplace learning. The nature of the work environment, the pace of change, the use of technology, the teaching and learning styles used, and the individual and organizational perception of learning in and for the workplace, all have an impact on how learning takes place and whether or not it is successful (Matthews, 1999).

Holliday and Retallick (1995) stated that workplace learning refers to the processes and outcomes of learning that individual employees and groups of employees undertake under the auspices of a particular workplace. Rylatt (1994) describes workplace learning as a sustained and high leverage development of employees in line with organizational business outcomes. Matthews, (1999) has identified the key issues of workplace learning as (1) the learning context, (2) the learning reason, (3) the learning process, (4) the learning outcomes, and (5) sustained development. Rylatt (1994) has identified the eight mindsets essential to the process of workplace learning transformation. They are (1) workplace learning must be greater than change. Learning processes must be of a higher or more sophisticated level, which helps to create an attitude of commitment and opportunity. Change is no longer seen as a threat. (2) Workplace learning must be systematic and interactive. Workplace learning must incorporate a wide range of inputs into its design, delivery, and assessment. Not only must the approach be systematic, but it must also be highly integrated. (3) Workplace learning must be geared to business outcomes. If the goal of workplace learning is "to bring about measurable improvements in performance, productivity, quality and potential" it must be linked to the short and long term needs of the organization. (4) Workplace learning must provide meaning, self-worth and contentment for all employees. Workplace learning activities should address the whole person, incorporating much more than a development of technical and functional skills. (5) Workplace learning must be learner driven. Workplace learning should be flexible enough to respond to the needs of the individual. (6) Workplace learning must be competency based. Organizations acquire the most benefit from workplace learning programs when it is tied closely to the achievement of particular competencies. (7) Workplace learning must be "just-in-time", meaning that a timely manner learning delivery is of significant. This makes workplaces more accountable as a learning provider (8) Workplace learning must be expanded into new frontiers of knowledge. Organizations must be prepared to seek information from internal and external sources to help them maintain a viable strategic intent. Conditions relating to the individual's view of themselves and their relationship to others within the workplace are viewed by Holliday (1994) to be particularly important for individual learning. The five conditions emphasized were: 1. *Self* - the individual's need for a positive feeling about him/her

self as a person. 2. *Personal meaning* - the individual's ability to reach an understanding of him/her own self and his/her learning. 3. *Action* - the ability of the individual to develop, apply, and measure the use of his own, and other people's ideas in the workplace; and to learn from the experience. 4. *Collegiality* - the individual's capacity to learn with and from colleagues in both a direct and indirect way and 5. *Empowerment* - the ability of the individual to "feel a sense of ownership, autonomy, self-control and self-direction over their decisions and actions, including over the processes and outcomes of their learning".

Knowles' theory of andragogy is an attempt to develop a theory specifically for adult learning. Knowles emphasizes that adults are self-directed and expect to take responsibility for decisions. Adult learning programs must accommodate this fundamental aspect. Andragogy makes the following assumptions about the design of learning: (1) Adults need to know why they need to learn something (2) Adults need to learn experientially, (3) Adults approach learning as problem-solving, and (4) Adults learn best when the topic is of immediate value. He also identified that adults are *autonomous* and *self-directed*. They need to be free to direct themselves. Their teachers must actively involve adult participants in the learning process and serve as facilitators for them. Adults have accumulated a foundation of *life experience* and *knowledge* that may include work-related activities, family responsibilities, and previous education. They need to connect learning to this knowledge/experience base. To help them do so, they should draw out participants' experience and knowledge, which is relevant to the topic. They must relate theories and concepts to the participants and recognize the value of experience in learning. Adults are *goal-oriented*. Upon enrolling in a course, they usually know what goal they want to attain. They, therefore, appreciate an educational program that is organized and has clearly defined elements. Instructors must show participants how this class will help them attain their goals. This classification of goals and course objectives must be done early in the course. Adults are *relevancy-oriented*. They must see a reason for learning something. Learning has to be applicable to their work or other responsibilities to be of value to them. Therefore, instructors must identify objectives for adult participants before the course begins. This means, also, that theories and concepts must be related to a setting familiar to participants. This need can be fulfilled by letting participants choose projects that reflect their own interests. Adults are *practical*, focusing on the aspects of a lesson most useful to them in their work. They may not be interested in knowledge for its own sake. Instructors must tell participants explicitly how the lesson will be useful to them on the job. As do all learners, adults need to be

shown *respect*. Instructors must acknowledge the wealth of experiences that adult participants bring to the classroom. These adults should be treated as equals in experience and knowledge and allowed to voice their opinions freely in class. Cross (1981) has suggested that adult learning is strongly affected by situational characteristics that consist of part-time versus full-time learning, and voluntary versus compulsory learning. The administration of learning (i.e., schedules, locations, procedures) is strongly affected by the first variable; the second pertains to the self-directed, problem-centered nature of most adult learning. Rogers (1994) has cited that in order for the learning to take place, personal involvement, self-initiative, evaluation by learner, and pervasive effects on learner should be available. This learning process can be considered as experiential learning. Weiner, (1974) has identified ability, effort, task difficulty, and luck as the most important factors affecting attributions for achievement. In the adult learning context the ability of learners, the effort that can be contributed, the level of task difficulty and luck play important roles to facilitate the learning process.

### 3.0 METHOD

The qualitative research design included a sampling of older office workers who were selected to represent diverse perspectives. Data collection was through qualitative interviews using a structured, open-ended approach incorporating an interview guide as well as observations in the office. Seven office workers from a variety of departments participated in this study. The participants included four females and three males. Four of the participants had certificate level of qualification, three had diplomas and one of them a degree. An appointment was made to interview each selected participant after working hours whereby they are freer to answer the question without forsaking their duties. A major question posed in each interview was: "How you manage to learn computer technology?"

An audio tape-recorder was used in each interview, which lasted for one to two hours. A transcription was done soon after each interview. The purpose was to get a rough idea of the participants' experience of their strategies in learning computer technology and the contextual factors influencing the learning. A total of seven participants were taken as informants as this number was considered to have reached the data saturation point. The general view of their feedback is as in Table 1. After all the transcriptions have been completed, the constant comparative method was used by the researcher for the formation of data categories pertaining to their strategies and contextual factors in learning computer technology.

### 4.0 FINDINGS AND DISCUSSION

Name	Gender	Age	Job Position	Main Strategies
Mazidah Yunos (Record Department)	Female	40	Executive	-Self-learning -read manual -hands-on -Trial and error
Kamariah Ahmad ( Library)	Female	43	Clerical	-Courses
Abd Halim Abdullah (Library)	Male	44	Officer	-Self-learning -Try and error -Courses
Talib Samad Jamil (Academic Unit)	Male	46	Executive	-Formal Education -Trial-and-error -Self-learning
Saari Mamat (Exam Unit)	Male	45	Executive	-Asking from friends
Khatijah Saleh (Administration Dept.)	Female	46	Executive	-Self-learning -Try and error
Daeng Fatimah Othman (Academic Unit)	Female	48	Clerical	- Asking from friends

**Table 1:** Demographical Background and Learning Strategies.

**4.1 Strategies in Adopting Office Technology**

From the findings of this study, there are two main strategies that have affected the learning of the computer technology by older office worker. These strategies are formal and informal learning methods. Formal is defined as properly planned and structured courses decided by any organizational committee with detailed preparation and budget analysis. Informal learning is more toward unplanned events, unstructured without any detailed preparation and budget analysis and with no committee set up for that purpose. Conti and Kolody (1998) defined learning strategies as those techniques or specialized skills that the learner has developed to use in both formal and informal learning situations. The manner in which adults learn and conceptualize a new task is quite different from learner to learner. Darkenwald and Merriam (1982) recognized that adults do indeed employ differing methods to learn a new subject or skill, hence, presenting a sharp contrast to the relatively uniform techniques used in the instruction of children. However, some contemporary authors maintain that adults learn differently when compared to children (Brookfield, 1986; Caffarella, 1993; Courtney, 1989; Cotton, 1995; Knowles, 1990; 1980; Merriam and Caffarella, 1991). Learning strategies research capitalizes on this by investigating those strategies adults use to learn.

**4.1.1 Informal Learning Strategy**

An informal learning strategy at workplaces covers self-directed or self-learning methods, co-workers reference and a trial and error learning basis. The following are the details:

***Self learning strategies***

The Self-learning strategies have become the most important type of strategies applied by four of the participants. The findings show that adults are more autonomous and self-directed in learning something especially in their work place. Pn. Mazidah learned the computer by reading the manual without help from others. She said that by using the manual she could try it on a step-by-step approach and this

learning process becomes more successful when some errors or mistakes are made. Besides using the manual as a guide, Pn. Mazidah also learned the computer by practising the knowledge she gained from the manual. She believes that hands-on or the actual application of the knowledge provided good experience and positive developments for her.

En. Abdul Halim also learned the computer through self-learning strategies, whereby since being appointed as the officer in charge of the Internet section of the library, he had deal with trouble-shooting in the computer lab. This experience had taught him to learn the basic programmes related to information searching through various websites. However, he still needed to get permission and guidance from the lab officer in downloading certain new programmes, as approved by the library officer. He added that his current position encourages him to learn many things independently, and to become a successful worker in his department. Furthermore, he tends to apply for any course related to his job besides learning the computer on a trial-and-error basis.

Pn Khatijah Salleh also learned the computer through self-learning strategies. Her husband is a technician in a telecommunication company. A strong support from her husband had motivated her not to be scared to switch on the computer at home. The number of years working in Universiti Teknologi MARA or Institut Teknologi MARA developed in her the belief that in order to be promoted to the highest position in the organization, she must be well-versed in her daily computer job. In 1999, she was lucky to be promoted to post of an executive from that of an administrative officer. She also learned many things about the computer through the trial-and-error method.

En. Talib Samad Jamil has a higher educational achievement level compared to the other sixth participants in this research. He completed his degree in 1996, and then was promoted to the position of Assistant Registrar at the Academic Unit, Universiti

Teknologi MARA Cawangan Terengganu. In his three-year degree course, he had taken a computer subject which needed strong computer knowledge. To ensure a pass in the subject, En. Talib Samad spent much of his time learning the computer skills besides attending the formal class. But he believes his own initiative or self-learning was the most efficient method in the success of computer learning.

Fellenz and Conti (1989) define learning strategies as external behaviors developed overtime by an individual through personal experiences with learning episodes which the learner elects to use in order to accomplish the task.

#### **Co-workers Reference**

Saari Mamat was promoted to the position of an executive officer in the Examination Unit in 1999. This department uses the special examination program called ISIS whereby the purpose of this program is to check the students' registration status. En. Saari said this program was easy to operate and he doesn't face any serious problem in completing the job. He believes that his younger staff will help him to solve any problem related to the software. Pn. Daeng Fatimah's idea is also similar to En Saari's. Both of them believe that their friends or co-workers play important roles in helping them to learn the computer. As a general clerk, Pn. Daeng said that her routine job is to prepare formal letters as needed by her superior officer and according to her most of the letters have already been saved in the folder. She needs to do some amendment to the content of the letter, and therefore this job has become easy to handle. That is one reason why she only refers to her co-workers if faced with a problem during the job. "Normally when I have a problem I will refer to my friends. Most of the time, they help me to deal with any difficulties in handling the job by computer," added Kamariah.

#### **Trial and error**

"... sometimes I learn how to install the new software into my computer alone on a trial-and-error basis." Mazidah's statement shows that she has managed to learn the computer on a trial-and-error basis. Halim is happy to be in-charge of the Internet section in the library which had 'forced' him to try it alone most of the time, "Most of the time I try by myself, especially when the situation is urgent. I'm responsible to provide a good service to the student. These situations make me feel more responsible to my job and encourage me to learn the computer." That is Hakim's statement when I asked him how he had learned the computer technology. "Since I was transferred here, my routine job is to help students when they have problems while surfing the Internet. Sometimes I also do simple maintenance job like installing the hard disk when it has been attacked by a virus," add Halim. According to Morgan (1986), the whole process of learning to learn hinges on the ability to remain open to changes occurring in the environment.

#### **4.1.2 Formal Learning**

Pn. Kamariah Ahmad has been working as a clerk in Universiti Teknologi MARA since 1986. She was attached to many departments before being transferred to the library in 1996. From this length of service and experience, she believes that by attending the formal courses together with hands-on exposure during the courses, all older office workers can successfully manage their job by using the computer. As a general clerk, the work condition does not expect her to become an expert in many things with regards to computer programmes.

Khatijah says this, "Since becoming in-charge of the training unit in the administration department, I always come up with proposals to organize computer courses for our staff, upon approval, and I look forward to joining the courses myself." Halim also makes use of the computer courses offered by his department, "I also always ask for the computer courses to make me more skillful in this job area."

Talib also believes that he started learning the computer intensively when he was doing his degree; he said "One of the sources is through the subject that I have taken during my degree study. And most of the assignments needed to be typed using the computer. Since that, I've been very interested to learn the computer whereby I decided to buy a computer." His degree course is categorized as a formal classroom strategy that is conducted in the computer lab.

#### **5.0 DISCUSSION AND CONCLUSION**

This research found that there are two methods or strategies that are used by the elderly office workers in learning the computer technology. The first strategy is to learn it informally and the second method is to learn it through formal training or courses. With regard to this finding, it is obvious that managers play an important role in providing enough time and creativity for their elderly employees to adapt themselves to the information technology in workplaces. Key features of managerial responses include restructuring and reshaping the organization and this is not only limited to the elderly office workers who work in the public higher institutions. It can be carried out at multiple-types of industries or institutions where we can get a broader scope of factors and strategies in learning the computer technology. The private sector, for example, possesses a more advanced computer technology compared to the government organizations. Therefore, I suggest that future research takes into account the multiple-types of companies and industries and use them as samples.

Besides the learning strategies, the research may also focus on other factors that influence elderly workers learning or adult learning. Karakowsky and Mcbey (1999) proposed that the degree to which individuals develop a psychological presence at work is

positively related to the level of potential for adult learning and development at the workplace. The level of reliance on routine work procedures is negatively related to the level of potential for adult learning and development at the workplace. Submission of an individual's personal identity to organizational role identities will reduce the level of potential for adult learning and development at the workplace. The level of individual adherence to institutionalized structures is negatively related to the level of potential for adult learning and development in the workplace.

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