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Facilitating transfer for adult learners through cross-cultural e-learning

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Abstract

Benefiting from globalization and technology advancement, e-learning is increasingly being used by work organizations for improving the skills of knowledge workers. However, most workplace e-learning is too theoretical to impact on-the-job and ultimately fails to serve the organizations' quest for success. The purpose of this literature review is to investigate the variables that affect transfer of learning, and to provide feasible strategies to enhance transfer of learning for international adult learners in cross-cultural online learning environments. By conducting a critical review of purposefully selected peer reviewed journal articles, this review highlights the relationship between cultural differences and learning style preferences of adult learners in e-learning environments.

The analysis of the literature review in this paper is presented as answers to questions which instructional designers, instructors and corporation managers might find relevant when working with cross-cultural learners in e-learning environments. The review suggests three steps to design cross-cultural online learning environments that enhance transfer: considering learners' characteristics in training design; creating supportive learner environments for transfer; and incorporating strategies that elicit transfer. These findings can influence the practice of instructional designers in designing online learning strategies for cross-cultural adults.

FACILITATING TRANSFER FOR ADULT LEARNERS
THROUGH CROSS-CULTURAL E-LEARNING

A Graduate Review

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Division of Instructional Technology

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Min Zhang

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Benefiting from globalization and technology advancement, e-learning is increasingly being used by work organizations for improving the skills of knowledge workers. However, most workplace e-learning is too theoretical to impact on-the-job and ultimately fails to serve the organizations' quest for success. The purpose of this literature review is to investigate the variables that affect transfer of learning, and to provide feasible strategies to enhance transfer of learning for international adult learners in cross-cultural online learning environments. By conducting a critical review of purposefully selected peer reviewed journal articles, this review highlights the relationship between cultural differences and learning style preferences of adult learners in e-learning environments.

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Introduction

The rapid growth in information and communications technology feeds the continuous expansion of global business and industry, consequently resulting in fierce market competition worldwide. Both individuals and corporations strive to improve their level of competence in order to combat with challenges in this ever-changing world. At the same time, with the prevalent use of the Internet and emergence of Web 2.0 technologies, e-learning is increasingly being used by work organizations for improving the skills of knowledge workers. Meanwhile, an increasing numbers of individuals jump into the online learning wave to seek professional improvement as well. Thus, e-learning is crowded with adult learners with different social and cultural backgrounds.

In the rapidly developing world in which individuals are faced with ongoing challenges in their job, life-long learning has become a necessity, and learning transfer provides the vehicle for this to occur (Leberman, McDonald & Doyle, 2006). As a result, transfer of learning becomes one of the major indicators to measure the success of learning in the workplace (Park & Wentling, 2007). However, education and training is often too theoretical to impact on-the-job performance (Haskell, 2001). In addition, participation of cross-cultural learners presents a new challenge for an effective instructional design for learning transfer.

Although literature reviews exist regarding transfer of learning for adult training, few articles address the impact of cross-cultural issues on transfer. In addition, online learning relies heavily on technology as a way for classroom interaction and knowledge delivery. Transfer strategies applied in traditional training environments might not have the same degree of influence in e-learning environments.

This literature review draws on and contributes to the field of online education for cross-cultural working adults. Through reviewing the studies on transfer of learning, andragogy and cross-cultural learner's learning styles, this article aim at providing feasible strategies to build cross-cultural online learning environments that facilitate learning transfer for international adult learners. To fulfill the purpose, the study investigated the following research questions:

RQ1: What variables affect transfer of learning?

RQ2: How do cultural differences affect the implementation of adult learning strategies?

RQ3: How can an online environment be designed to enhance learning transfer for adult learners cross-culturally?

Methodology

A comprehensive literature search was conducted to investigate the transfer of learning for multinational adult learners in online learning environments. There were three major steps in locating the resources.

The first step was to conduct a preliminary search by using Google Scholar to narrow my search. Based on the preliminary search, the second step was to expand the research by using electronic databases in education field such as ERIC, Education Full Text via EBSCO, Computer and Education. A keyword-searching method was used to identify the articles with the label or title of “learning transfer/knowledge transfer”, “e-learning”, “adult education” and “cross-cultural”. There were hundreds of articles generated in this step. Although keywords were used to identify the articles, there were many articles that did not focus on online learning transfer and few articles covered the research scope.

Therefore, in the third step, search was divided into three parallel steps to investigate the relationship between online adult learning and learning transfer, andragogy theory and learning transfer, cultural differences and learning transfer respectively. Keywords included in this step were: “online learning/e-learning”, “adult training”, “knowledge transfer/ learning transfer”, “andragogy”, “cross – cultural adults/multinational adults”, “cultural differences” and “learning style”. In order to ensure validity and reliability of results, only peer-reviewed articles were taken into account. Since e-learning has been developed less than 20 years and most universal learning theories were developed almost 20 years ago (Cercone, 2008), search parameters were limited to 1980 and forward to reflect the works that most likely would have been informed by previous research on transfer of learning.

The articles were evaluated for inclusion using the following criteria: type of adult education, research methodology, including the range of validity, data gathering and data analysis method. Articles were collected with a preference for studies conducted in transfer on workplace training and postgraduate education with both qualitative and quantitative measures. The empirical studies (quantitative, qualitative and mix-method) on transfer would be emphasized; non-empirical theoretical discussions were reviewed for providing theoretical basis to the literature.

Analysis and Discussion

E-learning is explained in different terminologies in literature. Terms that are commonly used include “online learning”, “distance learning”, “networked learning” and “Internet learning”. For many working adults, the flexibility of e-learning makes it possible to incorporate learning into their busy lives, maintaining balance among professional, learning, and family responsibilities. For organizations, economic savings, convenience, standardized delivery, self-paced learning, and variety of available content have made e-learning a high priority (Strother, 2002). According to Global Industry Analysts (GIA), the global e-learning market is projected to reach \$107.3 billion by the year 2015, driven by increasing user adoption across corporate as well as the academic sectors for its benefits in terms of flexibility of time and space, cost-effectiveness, and convenience. Such huge investment results in a high expectation of return on investment. In addition, unlike traditional college students, most adult learners expect the knowledge and skills they gain from training can be immediately used to solve organizational problems and enhance their on-the-job performance. Therefore, transfer of learning is considered the major indicator to measure the success of adult education.

Transfer of Learning

Transfer of learning is the application of skills and knowledge learned in one context being applied in another context (Cormier & Hagman, 1987). *Transfer of learning* is also identified in literature as *learning transfer*, *knowledge transfer* or simply *transfer*. The notion of transfer of learning was introduced by Thorndike and Woodworth in 1901. The interpretation of the concept varies from research study to research study. Broad (1997) defined transfer of learning as “the effective and continuing application by learners – to their

performance of jobs or other individual, organizational, or community responsibilities – of knowledge and skills gained in learning activities” (p.2). An example of this would involve a learner who has previous experience of learning painting which would facilitate learning photography.

Many studies address the importance of learning transfer. Huang, Huang, Wang and Hwang (2009) regard transfer of learning as a major criterion of learning efficacy. Perkins & Salomon (1992) also indicated that only when transfer of learning occurs can the ends of education be achieved. Leberman, McDonald and Doyle (2006) point out that transfer is a core concept in learning and related to both process and outcome. Because learning transfer is so intimately related to training and education and is also pivotal in promoting learning, it is important for instructional designers and educators to understand the concept in a holistic manner with reference to the learner and learning context.

Transfer of learning is not always positive. Conversely, negative transfer occurs when learning in one context undermines or interferes with related learning or performance in another context. For example, the pronunciation habit of a first language can interfere with learning a second language. However, negative transfer is of much less concern to education than positive transfer because it typically causes trouble only in the early stages of learning a new domain. The effects of negative transfer can be corrected as soon as learners become familiar with the knowledge content.

The desired result of adult training involves observed changes of behavior derived from new knowledge and skills (Ivergard and Hunt,2004). Within this context, transfer is the effective and continuing application by trainees to their jobs, of knowledge and skills gained in training- both on and off job (Leberman, McDonald & Doyle, 2006). Generally speaking,

for employers and employees, transfer of learning is an issue of organizational sustainability and personal survival; for adult learners of tertiary education levels, learning transfer is increasingly related to job proficiency, personal employability and well-being (Leberman, McDonald & Doyle, 2006). However, organizations spend billions of dollars each year on training and it is estimated that only about 10% of this expenditure results in performance improvement or positive transfer of training in workplace (Awoniyi, Griego & Morgan, 2002).

The huge amount of wasteful expenditure promoted a great deal of attention to investigating the factors that facilitate and hinder transfer. Being aware of factors that affect transfer enables instructional designers and educators to incorporate corresponding strategies into transfer intervention to make learning more effective as well as to foster life-long learners.

Transfer variables

Attracted by the flexibility and convenience of online learning, adult learners make up a growing segment of online education. Those working adults have higher requirements of transfer than traditional college students because they expect training will help improve their work performance immediately. Thus, the online educational environments targeted to adult learners should be designed based on the needs of adult learners.

Among the variety of transfer models in adult leaning territory, Baldwin and Ford's model (1988) is most well-known and frequently cited. It consists of three major transfer components: trainee characteristics, trainee environment and training design. To enhance learning transfer, training design must consider both trainee characteristics and trainee

environment (Curry, Caplan & Knuppel, 1994). Drawing from Baldwin and Ford's model (1988), we will look at transfer factors through the three categories.

Trainee Characteristics

Trainee characteristics include skill and motivation level; ability to learn and apply knowledge; personality; learning style; level of education; age; life experience; degree of burnout and training expectations (Curry et al., 1994). According to Moore and Kearsley (1996), most distance education students are adults between the ages of 25 and 50. Therefore, "adult learning must begin with a basic understanding of ways that adults learn... The more one understands the nature of adult learning, the better one can understand the nature of distance learning" (Galbraith & Fouch, 2007, p.153). One of the most well-known adult learning theories is Malcolm Knowles' learning theory of andragogy, which is based on the concept that adult learning characteristics are of significant different from children learning characteristics.

Andragogy

Andragogy is a learner-centered education theory. It emphasizes that adults are self-directed and should take responsibility for their own learning. Andragogy is often compared with pedagogy, which is teacher-led and content-centered learning theory. Knowles (1973, 1980, 1984, 1989) defined six assumptions of andragogy:

1. Adult learners are usually autonomous, independent, responsible and self-directed.

Adults are parents, spouses, friends, leaders or workers before they are students. As responsible individuals, adults naturally seek to direct their own learning (Forrest III & Peterson, 2006). Thus, adults need to be involved in the planning, implementing and

evaluating of their instruction. The role of instructor and learner has been changed. Learners become instruction partners rather than passive information receivers. Instructors no longer act as “sage on the stage” but “guide on the side”. The self-directed learning mirrors the world outside of classroom where learners must make basic ethical and moral choices that will impact themselves and the organization in which they work (Forrest III & Peterson, 2006).

On the other hand, not all adults are self-directed and would rather remain passive than to become actively involved in the learning process (Cerccone, 2008). “Adults’ dependence on the instructor is based on their previous levels of knowledge of the topic. If they have limited knowledge, they will depend on the instructor more” (Cerccone, 2008, p.146). To those students, scaffolding like short, directed, concrete online tasks that provide the most “learning for the experience” should be provided to promote their self-reliance (Fidishun, 2000). Since most adults are self-directed learners, they like to control their learning.

2. Adult learners bring a wealth of experience to the learning process.

They connect new knowledge to past events and experiences while seeking to fill the gaps of knowledge in their experience base. Instead of building something completely new, involving personal experiences into teaching would work better. This teaching method not only helps learners handle new information easier but also helps them cope with a dynamic world in which organizations demand quick adaption (Forrest III & Peterson, 2006). Therefore, experiential learning is an active process that can be a powerful method for teaching adult learners (Cerccone, 2008).

3. Adult learners come to the learning process ready to learn.

“Life roles determine an adult’s readiness to learn” (Forrest III & Peterson, 2006, p.119). Adults only respond to ideas that can better prepare them for their obligations (Forrest III & Peterson, 2006). Accordingly, readiness of adults to learn should be closely related to their changing social roles (Merriam, 2001). If no immediate reason to learn a subject exists, instructors must contextualize the subject in order to motivate adult learners (Forrest III & Peterson, 2006). Otherwise, without relevance, adult learners might have little interest in engaging in the learning process.

4. Adult learners are more oriented toward immediate application of learned knowledge and skills.

Adults learn because they need to address problems and issues in their lives (Forrest III & Peterson, 2006). They are problem-centered. In other words, adults are most interested in subjects that have immediate relevance to their current job or personal life. Thus, instructors must demonstrate the implementation of classroom precepts in a real-life situation. How the knowledge learned would help the gain and retain employment. Just-in-time teaching method that presents actual issues and problems organizations are faced with would be an effective way to engage students and enhance learning transfer. (Forrest III & Peterson, 2006)

5. Adult learners need to know why they should learn something and how it will benefit them .

Therefore, it is important to announce the purposes of the course and learning objectives at the initial phase of course and focus on the aspects of a lesson most useful to adult learners in their work. Otherwise, they may not be interested in knowledge that would not benefit them (Lieb, 1991).

6. Adult learners are motivated to learn by internal factors.

Learning design should interest adult learners in order to elicit their internal motivation. Adults need to be shown respect. Encouraging adult learners to share their experiences and allowing for freedom of expression are good ways to motivate them (Lieb, 1991).

On one hand, Andragogy discovers the nature of adult learning and explains some common adult learning preferences. In addition, it is very broad based and the principles can be implemented in a variety of educational situation (Conlan, Grabowski & Smith, 2003).

Galbraith and Fouth (2007) conducted an empirical study to evaluate the effectiveness of andragogical approach learning. The study involved 2 groups in total 73 participants from 20 different departments at Carnegie Mellon University for laboratory safety training. The result showed that the group training using andragogical self-directed goal-oriented approach had significantly better learning transfer than the group using traditional pedagogical instructor-led content-centered approach. The study suggested when adults participate in the content and understand the training, they are more likely to engage in the process and transfer the training concepts to their daily work routines (Galbraith & Fouth, 2007).

On the other hand, multiple critiques exist over Andragogy. Many adult education scholars argue that andragogy lacks empirical evidence to support the assumptions (Jarvis, 1984; Burge, 1988; Brookfield, 1995). The most often mentioned weakness of andragogy is that it is floating above the learning context. Hartree (1984) suggested that andragogy was not a proven theory but just a series of principles of good practice. Similarly, Merriam (2001) argued that rather than a theory, andragogy is more like a conceptual framework that serves

as a basis for an emergent theory. Besides, although andragogy provides valuable assumptions about adult learning, it does not address all aspects of how adults learn. Many variables influence how individuals develop as adults (Cercone, 2008). Adults' individualities are influenced by culture, cognitive style, physiology, and personality (Cercone, 2008). In an online learning environment constituted of multicultural learners, andragogy may not work well (Strang, 2009).

Ray and Chu's (2005) mixed methods study demonstrate the impact of culture on implementation of andragogical strategies. In their study, including 309 adult learners in Taiwan, teachers overwhelmingly had a strong tendency to use andragogical approach in their teaching and learners indicated a preference for andragogical teaching style. Despite the preference, however, the result showed many learners reluctant to become more involved in learning process. This study suggested that the Confucian culture environment, which instills a strong respect for authority, would cause a contradiction between student's expectations and their behaviors, interfering with the implementation of andragogical learning strategies.

Because cultures are different from one another in values, philosophy, behavior, network, and history, a training approach which is effective with learners from one culture is often not effective with trainees from another. Therefore, a culture plays a key role in adults' learning styles and ways of learning, in other words, cultures develop differing learning styles. (Chuang, 2009)

Cultural differences and learning style

With the growing extensity, intensity and velocity of global interconnectedness, it is not uncommon that an online course is filled with learners from many cultures. International learners present a new challenge for online education: multiculturalism (Strang, 2009).

Strang (2009) also concluded that learning style differences between learners and instructors may cause coping difficulties, social isolation and de-motivation. Failing to recognize cross-cultural impact in online learning environments may decrease the effectiveness of learning quality. Through a review of literature, Joy and Kolb (2009) concluded: "Culture acts as a strong socialization agent that influences information processing and cognition" (p.72). Thus, differences in cultural socialization influence learning preferences and have a great impact on the development of learning styles (Hayes & Allinson, 1988; Hofstede, 1999; Kolb, 2009). Recognizing learning style differences can help facilitate the learning and transfer process (Curry et al., 1994).

The definition of learning styles differs from researchers' study backgrounds and disciplines. The following definitions are cited from some research studies:

- Learning styles are related to the different ways people think and feel as they solve problems, create products and interact (Silver, Strong, and Perini, 1997)
- Learning styles are characteristic strengths and preferences in the way learners take in and process information. (Felder, 1996)
- Learning styles are "individual consistencies in perception, memory, thinking and judgment across any stimulus condition" (Curry, 2000, p. 239)
- Learning styles are individuals' specialized preferences of leaning activities that include feeling, reflecting, thinking and doing (Kolb, 1984).

There are a variety of conceptualizations used in research studies to analyze the relationship between cultures and learning styles. We only looked at research studies based on the three most often used conceptualizations: Kolb's learning model, collectivism-individualism, and Confucian culture-Western culture.

Kolb's learning model.

Kolb's learning style inventory is the most well-known taxonomy for measuring learning styles and has been widely applied in the fields of cross-cultural and international studies (Yamazaki, 2005). Kolb's (1984) theory describes four learning abilities: concrete experience (CE), abstract conceptualization (AC), reflective observation (RO), and active experimentation (AE). These four abilities are related to the two dimensions: "grasping" and "transformation". "Grasping" explains how people obtain information during the learning process. Individuals obtain information either through concrete experience or through abstract conceptualization. "Transformation" enlightens how people handle information. Individuals process information from either "observing" (reflective observation) or "doing" (active experimentation).

Specifically, people with the CE ability value interpersonal relations and care about others' feelings and values (Yamazaki, 2005). Thus, they prefer learning through case studies, application lectures and videos. (Randolph & Posner, 1979) In contrast, people with AC skills have a good sense of logic. Making systematic plans, manipulating abstract symbols, and using quantitative analysis would be their strength (Yamazaki, 2005). Theoretical lectures and readings in grasping experience might interest them (Randolph & Posner, 1979). People with RO abilities are good at listening and observing others and reflecting upon their observations (Yamazaki, 2005) might feel more comfortable with instructor-led pedagogy. In contrast, people with AE abilities are more creative and willing to take responsibility for their own learning (Yamazaki, 2005). Therefore, they might be intrigued by self-directed andragogy that gives them more control of their learning process.

Obviously, people do not have all the abilities in equal amounts. It is likely that they prefer and rely more on one of the respective abilities (Holtbrügge & Mohr, 2010). Based on their preferences for the activities, there are four distinct learning styles, which is combination of “grasping” and “transformation”. Specifically, AC and AE make up converging learning style; CE and RO constitute diverging leaning style; AC and RO frame assimilating learning style while CE and AE form accommodating learning style (Kolb, 1984).

Kolb’s learning model is often tied together with Hofstede’s cultural dimensions to investigate how learning style preferences vary with individual’s cultural backgrounds.

Collectivism-individualism

In terms of cultural influences on organizational behavior, Hofstede’s five cultural dimensions model based on research conducted across 40 countries is very influential. It is often cited as a theoretical framework in many scholarly studies to interpret the impact of cultural differences on learning preferences. The five cultural dimensions are collectivism vs. individualism; uncertainty avoidance; power distance (strength of social hierarchy) and femininity vs. masculinity (person-orientation versus task orientation); long-term orientation vs. short-term orientation (Hofstede,1980; Hofstede, 1991; Hofstede, 2001).

Of the cross-cultural studies that have been performed, collectivism-individualism is the broadest and most frequently used dimension to differentiate between cultures. (Triandis 1990; House, Hanges, Javidan, Dorfman&Gupta, 2004). Collectivism cultures emphasize interdependence, harmony, family security, group cooperation and low levels of competition. In other words, the “self” is affiliated to the group in collectivism cultures. At the opposite end, individualism cultures emphasize independence, achievement, freedom and high levels

of competition. Because self-reliance and individual achievement are highly valued, so the “self” is more autonomous and separate from the group in Individualism cultures (Auyeung & Sands, 1996). Hall’s (1976) cultural classification of high-context culture and low-context are generally classified as collectivist and individualist in Hofstede’s (Speece, 2012).

Through a review of the literature, Yamazaki (2005) suggested collectivism cultures are mostly found in Asia and South America, whereas individualism cultures are in Northern Europe, Western Europe, and North America.

Through an empirical study, McKee, Mock and Ruud’s (1992) found US students could be classified as accommodators. Auyeung and Sand (1996) confirmed these results in their empirical study involving 632 students from Hong Kong, Taiwan and Australia. They suggested students’ learning styles reflect their collectivistic or individualistic cultural orientations with their finding that students from collectivistic cultures (Hong Kong and Taiwan) were more abstract and reflective (assimilator), whereas students from individualistic cultures (Australia) were more concrete and active (accommodator).

However, Yamazaki and Kayes’s (2005) research reached a different result. Through examining cultural differences in learning styles between Japanese managers and American managers, the study found that Japanese managers were more concrete and reflective (diverger) while American managers were more abstract and active (converger). Mohr’s study (2010) involving 1044 students of business administration at universities in Germany, the UK, the USA, Russia, the Netherlands, Poland, China, and the United Arab Emirates (UAE) had conclusions similar to Yamazaki and Kayes’s (2005). The study found that students from individualistic cultures tended to be more abstract and active (converger). Similarly, Fridland’s (2002) study, which showed Chinese were more reflective and less

active while American's learning orientations were exactly the opposite. Joy and Kolb (2009) suggested a preference for reflective observation in collectivistic culture as well.

While existing studies provided some support for the influence of cultural differences on learning styles, those findings remain ambiguous. However, there is a common finding that people from collectivistic cultures have better reflective ability and people from individualistic cultures have better active ability. In other words, people from collectivistic cultures learn from observing. They may prefer instructor-led pedagogy that contains lecturing, reading, real-time feedback serves. Conversely, people from individualistic cultures may prefer learning from doing rather than observing. Learners from individualistic cultures would appreciate self-directed andragogy with project or problem-oriented learning.

In conclusion, although andragogy explains the nature of adult learning and provides a valuable reference for designing training for adult learners, mechanically implementation would not work for adult learners from collectivistic cultures. Through analysis of culture and andragogy studies, Ziegahn (2001) concluded that andragogy approaches might not be preferred by collectivistic cultures. Strang's study (2009) has a similar conclusion. In the study, 254 international doctoral students were sampled across three universities based in Australia. Strang (2009) found that compared to andragogical goal-driven teaching style, students preferred pedagogic structured-format teaching style.

It is clear that in a cross-cultural e-learning environment, culture is an important factor affecting international students' perception of learning, even though they were socialized into mainstream American culture to a large degree (Den Brok, Levy, Wubbels & Rodriguez, 2003).

In addition to Hofstede's cultural dimensions, many research studies selected Asia Confucian cultures and Western individualistic culture as representatives of cultures when examining the relationship between cultural differences and learning style. The selection of the two cultures attributes to two reasons: first, online education was developed under the influence of the Western individualistic culture. Therefore, much online distance education is oriented toward the Western individualistic culture (Speece, 2012). Second, Confucian culture appears to be highly contrasted with the Western individualistic culture. Through analyzing these two distinct cultures, it is easier for us to understand how cultural differences impact on learning preferences.

Confucian culture-western culture

Confucian philosophy, which aims at social harmony, moral standard, good-will, and cultivating spirituality, and which stress hardworking, moderate, humble and generous has deep and long-term effects on many East Asian countries, such as: China, Japan, South Korea, Taiwan, Thailand, and Vietnam (Chuang, 2011 & 2012).

Chuang (2012) conducted an empirical study with 93 American graduate students and 93 international students from China, Japan, South Korea, Taiwan, Thailand, and Vietnam. The study found that although Confucian philosophy emphasizes learning through observation and prefers a teacher-centered approach, when the learners from Confucian-influenced societies study abroad and are exposed to different cultures, they are likely to adjust their learning preferences to fit the new environment. They become more accepting of all types of instructional methods received in normal learning setting. Kennedy's study (2002) has a similar finding. According to Chuang (2012), strong self-adjustment ability is

due to the influence of the long tradition of Confucian philosophy that stresses harmony, hierarchy and long-term oriented self-cultivation in education.

Although instructors may not need to worry about which instructional method to adopt for those Asian learners, they still need to be aware of the cultural effects. Asian student's self-adjustment ability doesn't ensure that they are able to change all their learning preferences and habits that inherit from their cultures. In other words, their traditional cultural values are retained at different levels not matter how hard they strive to adapt to new learning environments and not matter how long they have been exposed to the acculturation experience (Chuang, 2011). This is also the reason why there is a conflict between Asian student's perception and their actual behaviors of andragogical teaching approach in the aforementioned Ray and Chu's study (2005). In other words, Asian students may be open to all kind of instructional methods but their learning preferences and behaviors may limit their performance in certain learning environments.

The following are some typical learning behaviors of students from Confucian-influenced societies during the learning process:

- Adult learners from Confucian-influenced cultures tend to avoid face-to-face conflict with the instructor by accepting all types of instructional method (Chuang, 2012).
- Younger Asian adults tend not to speak when older adults are present in a group meeting and Asian students tend not to argue or challenge any suggestion from a teacher (Marquardt, 1999; Chan,1999).
- Adult learners expect instructors to provide enough information regarding the subject with a wide scope of the knowledge via lecture. They also expect

instructors to provide specific and critical feedback in a timely manner (Pratt, Kelly & Wong, 1999).

- Asian learners expect formal behaviors and a formal relationship with the instructor. They believe an instructor's role is to teach and present course materials while the student's responsibility is to listen and study. They would appreciate instructors acting as role models (Burba, Petrosko & Boyle, 2001).

Trainee environment / transfer climate

The trainee environment encompasses a number of variables, including organizational climate, peer support, supervisory support, social support and opportunity to use newly-learned skills (Gunawardena, Linder-VanBerschot, LaPointe & Rao; 2010; Merriam & Leahy, 2005). Learners are more likely to participate in the learning and transfer process and get opportunities to apply newly-learned knowledge and skills within a positive organizational environment (Curry et al., 1994). There are many studies emphasizing the importance of the organizational climate. Ramayah, Ahmad and Hong's (2012) quantitative research revealed that management support and organization support were significant predictors of user satisfaction. This finding closely resembles Rouiller and Goldstein's (1993) study results. These studies claimed that a positive organizational climate and the encouragement by the supervisors and colleagues played a significant role in promoting transfer of learning. Gunawardena et al.'s (2010) study included 79 learners from a United States site and an international site of a corporation in one online course, result showed that higher perceived levels of collegial and organizational support for transfer resulted in higher perceived ability to transfer learning to the workplace as well.

In a brick-and-mortar learning environment, learners can interact with their instructor and peers through voice, body language, intonation, expressions, and gestures. However, physical presence in an online learning environment is reduced to emoticons. Thus, in an online learning environment, creating a sense of community that encourages meaningful and authentic interactions among learners and between instructor and learner is of significance. Boling, Hough, Krinsky, Saleem & Stevens (2012) study involving 6 online course instructors and 10 adult students suggested that student's engagement of online learning could be strongly affected by their social learning environments. Design of such environments can support learner motivation and learning transfer and needs to be taken into consideration.

The opportunity to apply what has been learned in a training program has a crucial impact on knowledge transfer (Merriam & Leahy, 2005). According to Lim and Johnson (2002), a key factor in learning transfer is the opportunity for trainees to apply what they have learned to their job. And this depends on two factors. First, organizations provide opportunities for trainees to apply their newly-learned knowledge and skills in their jobs. Second, there is a strong match between the training content and the trainees' work roles (Lim & Johnson, 2002). In conclusion, applying newly-learned knowledge and skills within the practice settings serves as a reinforcement of what has been learned in training. If trainees cannot use new skills in a timely manner, learning often is lost (Curry, Caplan & Knuppel, 1994). Other transfer elements regarding trainee environment such as timing, assigning individual roles, organization roles and organizational incitement all need to be taken into consideration in designing training (Curry et al., 1994).

Training design

Training design includes a strong transfer design and appropriate content (Park & Wentling, 2007). Training design is the only variable that can be directly intervened by instructional designers in the three transfer components. Thus many studies explore the factors affecting learning transfer through analysis of instructional design strategies. The following are two empirical studies that conclude both positive transfer elements and negative transfer elements in online learning environments for adult learners. It needs to be noticed that the positive transfer elements in the two studies are all follow andragogy principles.

The Everett qualitative study (2010) includes 223 graduate students with 95% full time employee at a regional university. Everett explored the factors that foster learning transfer in an online MBA master program. The results showed that the assignment, concepts, feedback, communication and the instructor had an impact on learning and transfer of learning. Specifically, factors like material-related and real-life assignments, real-life examples, variety of assignments, open-end questions, one-on-one feedback, helpful hints of assignments, instructor's encouragement to communication, instructor's quick and meaningful feedback, positive and safe online environments, clarification of learning objectives, student-centered teaching model, techniques and tactical tools and media for internal and external communication are all contribute a positive transfer of learning to the workplace.

Lee's mixed-method study (2010) of a 6-week mandatory management leadership development program in Korea generated a matrix that showed the facilitating factors and hindering factors of transfer. The facilitating factors included use of work-based cases,

activation of learned knowledge in the previous unit at the very beginning of teach unit, lecture delivered through dialogue with instructor and facilitator, use of case scenario at every step of coach, appropriate amount of presented information, teaching of principles, testing twice to confirm learning, offering printed material of the online module, accessibility to the online module after completing it for 90 days, Learner control of learning pace and time, and expertise and instructional skills of instructor. Hindering factors are: use of unrealistic scenarios, use of happy ending scenarios only, lack of understanding of how learning in the online module will be used in the off-line module, no opportunity to self-check learning, lack of presenting various cases, inappropriately huge amount of the presented information, inappropriateness of online mod for coaching skill learning, lecture-based passive learning module, lack of interaction with instructor, no channels of asking questions about the content to instructor during online learning.

Enhance transfer for adult learner through cross-cultural e-learning

Workplace training needs to be designed to address corporate interests, individual needs, and work context. However, training is often too theoretical to integrate the learning and for the training to impact on-the-job experiences (Haskell, 2011). Unlike traditional on-campus education, which is focused on fundamental and relatively stable knowledge, adult training usually contains more practical skills and is completed within a relatively short period because the training content might quickly become outdated (Wan, Compeau & Haggerty, 2012).

Under the pressure of fierce market competition, both individuals and corporations expect the training can improve people's on-the-job performance as well as the organizational trouble-shooting ability. Therefore, when designing online training for cross-

cultural adults, “instructional designers must address the issue of how to work cross-culturally, complete training design and development in less time, and ensure that training be delivered quickly while resulting in a positive impact on the profits of the corporation” (Tracy & Morrison, 2011, p.182).

Considering learners’ characteristics in training design

In order to develop reliable training that really solves the existing problems, instructional designers might need to work in a group to analyze human performance problems, identify root causes of those problems, consider a variety of solutions to address those problems, and determine and implement the appropriate solutions (Rothwell & Kazanas, 2008). It is meaningless to design instruction unless the root considerations are human factors and can be effectively improved through training. Ignoring the differential needs of human in various contexts often results in a one-size-fits-all method of instruction.

As the target of instruction, learners’ characteristics should be analyzed in instructional design. Unfortunately, the analysis phase is one of the most commonly skipped phases because of time constraints. Therefore, being aware of common characteristics of the target audience helps instructional designers choose appropriate instructional strategies.

Everyone is unique. Although there is not a learning theory specification that meets every individual’s learning needs, andragogy discovers the nature of adult learning and explains some common adult learning preferences. Carefully integrating andragogy theory into training design helps motivate adult learners. To satisfy learners from a range of cultures, instructional design also need to accommodate preferences in learning style, which can be related to cultural dimensions (Speece, 2012).

In addition, adult learners' biological situations should not be ignored in training design. According to Cercone (2008), memory efficiency decreases with age. This reduces a learner's ability to form links between new and old information. Chunking information into five to nine bits prevents adult learners from becoming overwhelmed and allows an opportunity for mastery because short-term memory or working memory is limited to approximately five to nine bits of new information at a time (Clark, 1999; Galbraith & Fouch, 2007).

Different from the face-to-face traditional learning environment, an online learning environment is a computer-mediated learning environment that requires learner's ability to manage the technologies and deal with e-learning program. Learners' technology skills significantly affect their perception of learning (Jonassen, 2000). However, most adults over 45 years of age have difficulty coping with the use of computers for training because of lacking information and communications technologies and computer literacy skills (McKay & Vilela, 2011).

Park and Wentling (2007) conducted research involving 47 learners from a large company who were assigned to one of two online training courses. The results demonstrated that learners' computer attitudes impacted their perception of the usability of the e-learning courses, and that this perception influenced the degree of their transfer of training. To help reduce the difficulties experienced by mature-age adults, universal design theory should be implemented to design a user-friendly interface as well as to select supporting technologies. Cercone (2008) provided some suggestions for designing an easy to follow interface: "Maintain large, easy to read fonts and clear, bold colors; use variety of graphics, images, and tables; ensure compliance with Americans with Disabilities Act and Federal 508

guidelines; use a clear menu structure; use a search and find function; provide record keeping among sessions; provide a context sensitive help function; ensure there is no cultural bias; use graphic organizers, Venn diagrams, concept maps, and flowcharts” (p.140)

In a qualitative study including twelve professionals who were involved with educational technologies and designing instruction cross-culturally, Rogers, Graham, and Mayes (2006) suggested language barriers could be a problem in a cross-cultural online learning environment:

(a) language structures can actually influence the way in which people think; (b) when the language of cross-cultural instruction was English, instructional designers tend to forget about the impact of other cultural issues and misunderstand the level of the English learners can handle; and (c) a misuse of other symbols, colors, and metaphors can unintentionally offend or alienate learners (p.204).

Gunawardena et al.’s study (2010) indicated that to learners who were not native speakers of English, use of technical jargon in an online learning environment impeded their learning and contributions to the learning community.

It is necessary for instructional designers to be aware of the differences between themselves and the cultural group for whom they are designing instruction since they are likely to assume that the learners is more like themselves than they actually are (Rogers et al., 2006). It is important that when designing training for multinational corporate, culture and language need to be a constant consideration during course design and development (Parrish and Linder-VanBerschot, 2010)

Creating a supportive learner environment for transfer

Many research studies have confirmed that learner environment affects learner's motivation to learn and apply the new knowledge (Ramayah et al., 2012; Boling et al., 2012; Gunawardena, et al., 2010; Tynjala, 2008; Merriam & Leahy, 2005; Rouiller & Goldstein, 1993). Basically, learner environment includes organizational environment and online learning environment.

Curry et al. (1994) indicated that transfer failure often attributes to a lack of clarity in the organization and its subdivisions' training goals, roles, and rules. "An assessment of an organization's environmental factors can be enhanced by examining the agency's goals, roles, rules and interpersonal expectations" (p.1). With analysis of reliable assessment of organization's environmental factors, transfer intervention can be tailored to fit into organization cultures and meet organizations' specific needs. As a result, learners would receive more organizational support and have more opportunities to apply newly-learned knowledge and skills into work settings.

In addition to the organizational environment, a safe online learning environment enables learners to express themselves, share their ideas, experiences, ask questions, and exchange information. Creating such a learning environment requires instructor to clearly communicate with learners at the start of course, helping them identify their specific learning goals and clarify the learning activates they want to use to fulfill their goals (Blondy, 2007). Besides, Encouraging learners to communicate with each other frequently with substantive, thoughtful conversation helps create a harmonious online learning environment as well (Blondy, 2007).

Stefanov, Stoyanov, and Nikolov (1998) noted that the quality of online learning was reflected in the nature and frequency of interaction. Garrison and Cleveland-Innes's (2005) investigated the relationship between online interaction and student's engagement. Through a study with 75 graduate students in online courses, they found that social interaction was necessary to establish relationships and to create a secure online climate that will provide the foundation for a deep and meaningful educational experience. Tim (2004) suggested that alternative communication channels like chat, threaded discussion and audio/video conferencing could be integrated into courses to facilitate instructor-student interaction, which was considered the weakest aspect of online instruction. In addition, checking learners' learning progress and sending frequent e-mails for feedback and encouragement help reinforce the interaction. To encourage communication between learners, icebreaker activities at the beginning of a course is an effective way (Conrad & Donaldson, 2012).

Incorporating strategies that elicit transfer

Lim (2004) claimed that one of the key priorities in developing a global learning environment is to identify effective instructional principles and strategies that promote higher learning motivation in cross cultural settings.

There are three learning theories aligned with andragogy that can be incorporated into instruction to enhance learning transfer: experiential learning, self-directed learning and transformative learning. Experiential learning is a concept central to andragogy; self-directed learning underlies andragogy; transformative learning is considered a constructivist theory of adult learning, (Cercone, 2008 & Merriam, 2001).

According to the first assumption of andragogy, adult learners are self-directed and highly motivated. Learner-centered and self-directed approach can be applied to encourage

learners actively participate in designing their own learning plans. To help learners actively involved in learning activities, “the facilitator must maintain ongoing communication with online learners in order to assess learner self-directedness and provide support and direction when needed on an individual basis” (Blondy, 2007, p.124). Taking into account that adult learners from collectivism cultures might feel unfamiliar and uncomfortable with learner-centered approach, the course can begin with a pedagogic structured-format approach in the early stages. Once learners have basic knowledge and get familiar with the online learning environment, instructor can blend andragogical strategies into instruction and move in incremental steps toward self-directed approach.

Lim (2004) identified the impact of cultural differences on online learner’s learning motivation through a study including 236 participants from Korean universities and from a US university. The study found that course relevancy was the most important motivational factor for both Korean learners and American learners. This finding aligns with andragogy principles 2, 3 and 4: adults connect new knowledge to past events and experience. They are goal-oriented and expect new knowledge can be applied immediate to fulfill their obligation. Therefore, experiential learning that provides ample opportunities helps encourage learners to apply their own experiences during learning process. It not only helps learners bridge the gap between new knowledge and prior experiences, but also helps them apply new knowledge to real-world situations. To achieve the learning goal, content design should be closely aligned with the context where the knowledge and skills are used and is expected to result in positive changes in workplace behavior and job performance.

In order to satisfy learners with different cultural background, Lim (2004) suggested two strategies for course relevancy design. One is to customize assignments and class

projects to incorporate learners' cultural examples and experiences. This helps expand the application opportunities into learner's cultural contexts. Another strategy is to stress relevance in learning content to cultural and personal occasions. This helps promote learner motivation and result in better learning transfer and learner satisfaction. In addition, encouraging discussion that promotes sharing of experiences and ideas in the online classroom is an excellent way to help learners look at the problem from a different perspective, gain insight into new information, expand their thinking on a particular topic, and identify and focus on their own learning needs (Blondy, 2007). Other proven transfer strategies that are suggested in empirical studies can also be used for teaching practice.

Adult learners are problem-centered and goal-oriented. They need to know what they will learn, why they should learn it, and how it will benefit them. Gunawardena et al.'s (2010) mix-method study of an online course using a problem-centered and case-based approach indicated that learners appreciated when the instructor developed a course with clear expectations and guidelines. Involving adult learners in the planning helps elicit their internal motivation. "Engaging participants in the planning of the program, even inquiring minimally as to their prior knowledge and experience with the proposed content and adjusting accordingly, should aid in predisposing participants to the learning and subsequent transfer" (Merriam & Leahy, 2005, p.15). Furthermore, enhancing learner self-esteem through acknowledgement of contributions helps motivate learners to succeed in their future coursework. There are two ways to help learners feel appreciated and respected: first, recognizing learner's contributions to course at least once a week; second, draw on learners' particular backgrounds during a course discussion (Blondy, 2007). Enhancing self-esteem is

especially important to motivate multinational learners who are from the cultures with strong uncertainty avoidance and power distance.

Online learning heavily depends on technology. Therefore, the instructional design of web-based content clearly has a significant technological component (Henneke & Mathee, 2012). Technologies are cognitive tools that help learners to elaborate on what they are thinking and to engage in meaningful learning (Jonassen, 2000). When selecting and integrating technology into an online learning environment, instructional designer should carefully exam their accessibility, reliability and usability. In addition, online learning interfaces should be designed using a user-friendly format. A poorly designed e-learning interface results in learners spending more time on learning the materials than on mastering the information and knowledge (Ardito, Costabile, De Marsico, Lanzilotti, Levialdi, Roselli & Rossano, 2006). Besides, several studies (Park & Wentling, 2007; Ho & Kuo, 2010) suggested that learners' computer attitudes impacted their perception of the usability of the online learning courses, and that this perception influenced the degree of their transfer of training. Therefore, sufficient technical support should be provided during the learning process.

Conclusions and Recommendations

The purpose of this study was to explore the factors that affect transfer of learning in online learning environment for cross-cultural adult learners, and to provide feasible strategies to enhance transfer of learning. In short, this study intended to assist instructors and instructional designers to apply appropriate instructional methods based on their learners' characteristics and learner environment.

This paper began by indicating several essential questions, thus, I conclude this paper by revisiting the original questions.

RQ1: What variables affect transfer of learning?

Drawing from Baldwin and Ford's model (1988), there are three variables:

1. Trainee characteristics:

Adult learners are self-directed, are aware of their self-concept, and are ready to learn. They use experiences in their learning and are motivated by performance-centered learning orientation. Therefore, instructional design for adult learners should meet their needs. Firstly, adults need to be involved in the planning, implementing, and evaluating of their instruction. Secondly, applying experimental learning strategies, which involves experiences into teaching, can better help adult learners process new information. In addition, learning content design should be closely related to their changing social roles. The purposes of the course and learning objectives should be announced at the initial phase of the course. If learning objectives do not immediately relate to their needs, instructors must contextualize the learning objectives in order to motivate learners. Moreover, instructors must demonstrate the implementation of classroom precepts in a real-life situation. Just-in-time teaching methods that present actual issues and problems organizations are faced with would appeal to them.

Finally, social interaction must be provided in online learning environment to encourage sharing experiences and free expression.

Besides, developing online learning environments should follow universal design principles. Because adult learners' memory decreases with age, the information presented to them should be chunked into five to nine bits to prevent them from becoming overwhelmed. A user-friendly course management system interface can help adult learners who are elder than 45 years old to manipulate course materials effectively.

Considering that adult learning strategies might not work equally well for adult learners from different cultures, the relationship between cultural differences and learning styles has been analyzed (refers to RQ2).

2. Trainee environment:

Variables like organizational climate, peer support, supervisory support, social support and opportunity to use newly-learned skills all have significant impact on learning transfer. An assessment of an organization and its subdivision's training goals, roles, and rules need to be conducted to help instructional designers tailor transfer intervention to fit organizations' specific needs. When training is supported by organizations, learners are more likely to receive support from the organization, their peers, and their supervisors. Also, they will have more opportunities to apply newly-learned knowledge and skills into work settings with organization support.

In addition, creating a safe online learning environment that enables learners to express themselves; share their ideas and experiences; ask questions; and exchange information helps learners perceive social support from their instructors and classmates. Consequently, they are more likely to engage in their learning.

3. Learning design:

Learning design needs to consider both trainee characteristics and trainee environment, and incorporate a strong transfer design that meets both learner's needs and organization's needs.

RQ2: How do cultural differences affect the implementation of adult learning strategies?

In a cross-cultural e-learning environment, culture is an important fact that affects international students' perception of learning. On one hand, learners from collectivistic cultures might prefer instructor-led pedagogy to student-centered andragogy. On the other hand, learners from collectivistic cultures that are influenced by Confucian philosophy have strong self-adjustment ability. They tend to adjust themselves to the dominant culture when they are exposed to different cultures. They are likely to accept all types of instructional methods that instructors provided after acculturation (Guy, 1999). However, their traditional cultural values are retained at different levels not matter how hard they strive to adapt to new learning environments and not matter how long they have been exposed to the acculturation experience (Chuang, 2011). Therefore, the learners for Confucian-influenced societies commonly have mixed cultural values and struggles between traditional and modern practices (Chuang, 2011). To help those students better adapt to new learning environments, instructors can start a course with pedagogical structured-format approach in the early stages, blending andragogical strategies into the instruction and move in incremental steps toward self-directed approach when learners have basic knowledge and get familiar with the online learning environment. In addition, respecting their cultural values and behaviors during learning process would be appreciated.

RQ3: How can an online environment be designed to enhance transfer for adult learners cross-culturally?

There are three steps in designing a cross-cultural online learning environment that enhance transfer: considering learner's characteristics in training design; creating a supportive learner environment for transfer, and incorporating strategies that elicit transfer.

Recommendations

Too much instructional design focuses purely on content development. It lacks needs assessment and evaluation in real-world application, especially in a cross-cultural context (Rogers et al., 2006). The majority of online learning settings are oriented toward individualistic cultures, mainly because that is where online education developed first (Speece, 2012). It is recommended that instructors and instructional designers use the findings from this literature review to better understand and manage cultural effects, develop appropriate training strategies that best meet the cross-cultural adult learners' needs.

Instructional designers and instructors need to be aware that adult learner's learning preferences at one particular state of life may not represent their learning preferences for all stage of one's life (Chuang, 2012). Their acculturation ability might vary as they grow older. Further research studies regarding the influence of age on cross-cultural adult learners' learning preferences are needed.

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