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As a refereed journal, the *International Journal of Vocational Education and Training* depends on qualified individuals to serve as manuscript reveiwers. We send feature article manuscripts to three reviewers. So as not to overwork our reviewers, we need some of you to join us for a one-year term.

If you have a record of publications, research experience, and an interest in gaining additional practice in the use of the Publication Manual of the American Psychological Association, please submit your vita to Dr. Davison M. Mupinga, Editor, International Journal of Vocational Education and Training, School of Teaching, Learning, and Curriculum Studies, College of Education, Health and Human Services, Kent State University, P.O. Box 5190, 316 White Hall, Kent, OH 44242-0001, USA, Email: dmupinga@kent.edu.

Message From the Editor

For the past 16 years, the *International Journal of Vocational Education* (*IJVET*) has been an avenue for sharing ideas and a repository for information on international technical and vocational education and training (TVET). Many thanks to all the people that make this happen; without them, publication of this journal would not be possible. On behalf of IVETA and all our readers, I wish to thank Dr. Ernest Brewer, the outgoing *IJVET* editor, for his service and dedication in producing the last ten *IJVET* volumes. Great job and thanks, Ernest!

Like past volumes, volume 17(1) comprises a wide range of excellent articles on learning, culture, diversity, and TVET policies and practices. The issues covered are current and affect TVET in one way or another and are therefore important. Here is a sneak preview of the articles in this issue. The first article revisits the theory of transformational learning, shares the transformational experiences of three generations of Chinese adult learners, and proposes an extension of the theory. Related to learning is the concept of limbical learning. The connection between emotion and successful learning as it applies to adult education and training is discussed.

As societies seize to be homogenous, issues of diversity in education and training are taking center stage. One article highlights the importance of cultural variables in determining appropriate instructional strategies and another looks at characteristics of disadvantaged immigrant learners, specifically, issues faced by adult immigrant learners enrolled in adult education programs.

What can we learn from TVET systems in other countries? A lot, I believe. Since TVET in most African countries is still supply-driven, one article proposes market-driven TVET as an option. Related to the supply of skilled workers is the development of human resources. One study assesses the informal sector training/retraining programs and how governments in developing countries can support them. Another study provides an overview of vocational education in Jordan and its implications to career and technical education in the United States. Lastly, the controversy on how we should treat our students, whether as customers, products, or employees is tackled. The authors propose treating students as partners. However, it would be interesting to see how this label can be applied to some students given the cultural, economic, and political conditions in their countries. Overall, all the articles are excellent reading material.

Because the articles published in this journal come from around the globe, it should be noted that some authors do not speak English as their primary language. Therefore, readers may notice some differences in syntax. Also, note that articles published in this journal do not necessarily reflect the position or policy of IVETA.

Davison M. Mupinga
Editor

Upcoming IVETA Meetings

2009 ACTE Convention
November 19-21, 2009
Nashville, TN
Information: http://www.acteonline.org/

2009 IVETA Annual Business and Conference Meeting
November 18, 2009
Information: http://www.iveta.org/members/index.php/Conference-Information/

IVETA South Asian Regional Conference
August 19-22, 2009
Colombo, Sri Lanka
Information: http://www.ivetasouthasia.org

How Training/Learning Perspectives of Three Generations of Chinese Adult Learners Have Transitioned in the Last Century in China in a Changing Social Environment

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Abstract

Drawing on the theory of transformational learning, its critique by other scholars and the transformational experiences of three generations of Chinese adult learners, this article proposes an extension of transformational learning theory: external forces may lead to collective transformation and emancipation in addition to individual transformation and emancipation (Marx 1890/1929). During the Great Leap Forward and the Great Cultural Revolution when political objectives took precedence over educational ones, adult learners were collectively and massively transformed in the same direction at the same pace on the same scale. While these collective transformations had devastating effects on China's education system, in the Post-Mao era when science and technology dominate China's academic world, positive expressions of collective transformation and emancipation are possible.

Introduction

Transformative learning encompasses one's training and it is defined as individuals' meaning perspectives being transformed through a process of construing and appropriating new or revised interpretations of the meaning of an experience as a guide to awareness, feeling and action (Jarvis, 2002, p. 188). Since its formal introduction into the adult education and training field in the early 1990s, the theory of transformative learning has been widely critiqued and analyzed from a variety of perspectives. For example, Will McWhinney, editor of Journal of Transformative Education, observed the following about the theory of transformative learning:

> In particular, I find that whereas the mourning phase has traditionally been a personal trauma, today the pain arises from social disadvantages, and whereas adult learning was primarily focused on cognitive and political aspects as Jack Mezirow emphasized, they are now recognized to call for response to socialemotional concerns (McWhinney, 2004, pp. 171-172).

Similarly, King (2004) argued that individual transformation and emancipation also may occur when the "trigger event" is external and originates "outside of the individuals to impact them and the larger society" (King, p. 312). Because Mezirow was primarily concerned with personal transformation, that is the emancipatory (self-knowledge and self-reflection), other scholars such as McWhinney (2004) and King (2004) pointed out that sociaoemotional concerns and the external environments greatly impact individual transformation and emancipation. The sum of individual transformation and emancipation should lead to collective transformation and emancipation in Marx's terms (1890/1929). Although Freire's (1970) emancipation and transformation is all about changes in society, transformation and emancipation in this article deals with how adult learners make sense or meaning of their own experiences via critical reflection. If transformation denotes change from stage to another, emancipation indicates a state where adult learners are in a position to exercise intellectual freedom to change the way they prefer. Without transformation, emancipation would not be possible. According to Cranton (1994), change can take place in both directions (p. 81). King (2004) further pointed out that transformative learning research and theory have moved in several directions (p. 309). Above all, Mezirow's theory of transformative learning is applied beyond the traditional focus of individual critical self reflection.

Other scholars such as Collard and Law (1989) criticized Mezirow's theory for emphasizing individual transformation and for failing to acknowledge the "social environment in which structural inequalities are entrenched" (p. 105). In a recent article, Boxler (2004) also criticized Mezirow's theory for its individualism—that is, the theory's focus on a set of individual skills and processes to teach.

One source of this focus on the individual may be reflection, a key concept in transformative learning theory as articulated by Mezirow (1991, 2000). Mezirow identified three types of reflection: content reflection (i.e., an examination of the content or description of a problem), process reflection (i.e., checking on the problem-solving strategies), and premise reflection (i.e., questioning the problem). None of Mezirow's three types of reflection entertains the possibility that external forces may lead to collective transformation and emancipation of adult learners in a given social environment.

Although Mezirow did address "systemic" critical reflection in his theory of transformative learning which concerns examining sociocultural distortions, his chief concern was personal transformation (Cranton, 1994). In contrast, Freire's (1970) concept of "critical reflection" was all about changes in society. It was Marx who emphasized the impact of external social forces on collective transformation and emancipation in addition to individual transformation and emancipation. Mao Zedong in a particular Chinese culture applied Marx's theory to practice.

While no empirical research has yet investigated the process of adult learners' collective transformation and emancipation, the theoretical origins of the term are clear. Collective transformation and emancipation applies to the process by which adult learners become transformed and emancipated in the same direction at the same pace on the same scale. The notion of emancipation in the context of adult learning can be traced directly to Freire's (1970) interpretation of Marxist socialism and ultimately to Habermasian critical theory.

Arguably, collective transformation and emancipation are possible in response to sweeping social change as, for example, when radical renovations in national education policy produce universal, national learning movements. While such broad-scale movements may not be common in Western educational experience, China's recent history offers a dramatic, concrete example. As a first step in clarifying the processes by which collective transformation and emancipation may occur, the experiences of Chinese adult learners were examined to demonstrate how nation-wide learning movements supported by specific educational policies brought about collective transformation and emancipation. This is not to say that nation-wide learning movements and specific educational policies necessarily result in collective change and emancipation in all cultures. For example, South Africa's Apartheid Bantu Education system has not produced the same result. However, this examination of Chinese adult learners does illuminate the extension of transformational learning theory in a new direction proposed by several scholars (Cranton, 1994; King, 2004; Wang & King, 2006, 2007) in the field of adult education and training and offers evidence of causal connections between social forces and collective transformation and emancipation (Marx 1890/1929).

Theoretical Framework

To examine the relationship between social forces and the direction of collective transformation and emancipation, the present study drew on the work of two theorists in the area of transformative learning: Paulo Freire (1970) and Jack Mezirow (1991, 2000). Mezirow defined transformative learning as a process of examining, questioning, validating, and revising our perceptions

of our experiences and the things we encounter in our own way (as cited in Cranton, 1994, p. 26). Further, Mezirow described this theory as having ten stages that progress from a characteristic "disorienting dilemma" that uses an experience of imbalance in one's life as an opportunity for considering new perspectives. As noted by Cranton (1994, p. 23), Mezirow's personal transformation included the following ten phases:

1. Experiencing a disorienting dilemma
2. Undergoing self-examination
3. Conducting a critical assessment of internalized role assumptions and feeling a sense of alienation from traditional social expectations
4. Relating one's discontent to similar experiences of others or to public issues—recognizing that one's problem is shared and not exclusively a private matter
5. Exploring options for new ways of acting
6. Building competence and self-confidence in new roles
7. Planning a course of action
8. Acquiring knowledge and skills for implementing one's plans
9. Making provisional efforts to try new roles and to assess feedback
10. Reintegrating into society on the basis of conditions dictated by the new perspective

While Mezirow explained how adult learners make sense or meaning of their own experiences via critical reflection, a closer look at his theory reveals that he focused on personal transformation, that is perspective change. On the other hand, Paulo Freire (1970) focused on political, social transformation (Cahn, 1997). Through problem-posing education, Freire (1970) posited that the people subjected to domination must fight for their emancipation (as cited in Cahn, 1997, p. 470). Indeed, both China's programs and popular education movements in Latin America are illustrative of social transformation. However, neither theorist has taken up nation-wide learning movements to illustrate the relationship between social forces and the direction of collective transformation and emancipation as proposed by Marx (1890/1929). Mao Zedong was not fond of the Western idea of individualism. Instead, he emphasized collectivism in the Chinese society. In an attempt to apply Marx's theory to practice, Mao launched nation-wide learning movements in China and made educational policies that were geared to transform China's adult learners collectively. The present study sought to extend our understanding of transformative learning theory in a new direction that is grounded in related literature (Strauss & Corbin, 1998). The experiences of adult learners

in China are indicative of the fact that the theory of transformative learning can be applied beyond the traditional focus of individual critical reflection, although this may not be true in all cultures.

Methodology

Relying on Marx, Freire , Mezirow's theory and McWhinney and Boxler's recent critiques as a critical theoretical framework, this study examined pertinent literature related to the adult learning movements for three generations of adult learners in China. The adult learning movements were examined in three historical periods: The Great Leap Forward (1949-1965), The Cultural Revolution (1966-1976) and the current post-Mao era (1977-present). Literature for each historical era was reviewed and analyzed for indications of the relationship between social forces and the direction of collective transformation and emancipation. Particular attention was given to shifts in educational policies and the nation-wide learning movements that resulted from these shifts during these three eras.

To establish the context for an analysis of this pertinent literature, the broader, ongoing dialogue in the literature regarding the theory of transformative learning was reviewed, filling in gaps and extending prior studies (Cooper, 1984; Marshall & Rossman, 1999). This review provided a framework for establishing the importance of the present study, as well as a benchmark for comparing the results of this study with other findings regarding the transformational learning. The constant comparative method in all kinds of qualitative research was emphasized by Merriam (1998). The experiences of Chinese adult learners during three different eras were constantly compared in reference to Mezirow's (1991, 2000) theory of transformative learning. To complement and supplement this comparative method, the author also used content analysis to search relevant text for recurring words or themes (Patton, 2002, p. 453).

For the purpose of this study, first, books and journal articles were gathered, organized categorically according to the three different eras, reviewed repeatedly, and continually coded. Second, patterns and themes in the case of this article, "massive transformation and emancipation in contrast with individual transformation and emancipation" were identified and described in reference to Mezirow's (1991, 2000) theory of transformative learning. Third, these patterns and themes from the literature review were analyzed and compared to the theory of transformative learning presented in the section of theoretical framework. Creswell (2003) considered identifying patterns a major task in qualitative study. Without any numerical analysis, this study is qualitative research.

The Great Leap Forward (1949-1965) and adult learners' collective transformation and emancipation

For the past 5 decades, many of the fluctuations in China's adult education and training policies and practices can be understood as pendulum swings between two competing socio-political goals: Revolution (Socialism and Communism) and development (modernization and nation building) (Chen, 1981). During the early stages of the Great Leap Forward (Great Leap), the greatest emphasis was placed on the goal of producing zealous revolutionaries who were ideologically "Red" to carry out the myriad tasks of revolution in China. Adult education and training policy was politicized in the sense that all educational values were expressed as an ideology based upon the ideas of Mao Tse-tung (Montaperto, 1979). Discipline-specific education for "expert" adult learners received less attention. Adult learners were asked to join the Chinese Communist Party (CCP) and to "think of the past, look at the present, and understand the meaning of class, class exploitation, class oppression and struggle" (Kaplan, Sobin & Andors, 1979, p. 222). The goal of this nation-wide learning movement during the Great Leap was to raise the political awareness and increase the activism of the cadres, workers and peasants (Yu & Xu, 1988, p. 5). Adult learners were expected to apply Mao's teaching in all aspects of their lives. According to Mao, "the ultimate aim of education and training, is to transform the ideology of the students. Ideological transformation is more than a rational process; it must be bolstered by emotional accompaniments" (Chen, 1981. p. 6).

As the result of this excessive emphasis on socio-political activism during the Great Leap, various types of schools for the cadres and for remedial education for workers and peasants were established throughout the country. Noteworthy among schools for adults established during this period were the "short-course" schools for workers and peasants, spare time schools and vocational middle schools (consisting of technical and teacher-training divisions) (Kaplan, et al., 1979, p. 220). It has been estimated that between 1949 and 1951 over 60 million rural peasants enrolled in literacy-oriented winter schools (Kaplan, et al., 1979).

In the area of curriculum, the Ministry of Education prescribed lists of authorized texts. Centralization and uniformity were required at all levels of education, with political-ideological education firmly imbedded in every niche of the system (Kaplan, et al., 1979, p. 220). Mao's mission during this period was to turn adult learners into laborers and revolutionaries. In response, thousands of educated youths moved to rural and underdeveloped areas to take up production work. Alternate views of adult education and training were considered capitalist, and capitalist "roaders" were removed from their

positions (Fu, 2005). When other state leaders articulated the need for discipline-specific, advanced level education, Mao eliminated the traditional system of rigid entry examinations and the authoritarian hierarchy of teachers and administrators.

Although the possibility of reinstating a plan for the half-work, half-study program was debated, the greatest emphasis remained on political education. Consequently, during the Great Leap, adult learners in China were transformed by the sweeping changes in national education practice, and their transformation was consistent with Western theory of transformational learning. Their transformation also exemplified the causal connections between social forces and collective transformation and emancipation. These Chinese adult learners were transformed in the same direction at the same pace and on the same scale: they became "red." In other words, the forces of political change were so powerful and so universally expressed that they brought about a dramatic renovation in national education policy, which in turn produced a collective transformation on a generation of Chinese adult learners.

In the terms of Mao's political ideology (Bernstein, 2006), the collective effects were emancipative as well as transformative. Millions of Chinese adults gained access to basic literacy and vocational/technical education for the first time. Certainly, literacy carries with it at least the promise of personal emancipation, regardless of the immediate social and political circumstances. At the same time, the suppression of advanced education and the dismantling of traditional competency standards damaged China's higher education system for many years to come (Kaplan, et al., 1979).

The Cultural Revolution (1966-1976) and adult learners' collective transformation and emancipation

During the period from 1966 to 1976, Mao launched the Cultural Revolution, and the Maoist revolution in education gained momentum. Mao's educational policies represented socially radical, revolutionary departures from the traditions of Eastern contemplative scholarship and Western liberal arts education. As Chen (1981) explained, "The whole society educates. Learning takes place on the farm, in the factory, on the streets. The 'mass campaigns' are extolled for their educational value" (p. 4). During this period, Mao threw the considerable weight of his political power behind support for the Chinese adult learners known as the "Red Guard." It must be pointed out that these red guards were bone fide adult learners at the time because most of them were between 18 and 25 years of age. At this age group, they should have considered going to universities to get a college degree. However, they volunteered to follow Mao Zedong's thought by destroying the four olds. Mao established the

Red Guard as the vanguard of a movement to "destroy the old and establish the new" (Kaplan, et al., 1979, p. 223). As a result of this movement, the "four olds" (i.e., old ideas, customs, culture and habits), including the thoughts of Confucius were vigorously attacked. Sects of Confucianism suffered a severe political blow (Zhu, 1992, p. 3).

As a result of the Cultural Revolution, political agendas dictated school operations, and almost all types of schools for adults were politicized. Even the schools' names were changed to incorporate the term "political." For example, adult schools were designated as "political evening schools." In a series of reforms carried out during this period, all systems of examinations for school entrance were abolished; special emphasis was placed on committing to memory "Mao Tse-tung thought."

According to Kaplan, Sobin and Andors (1979), during the last half of 1966, literally millions of Red Guards and other student groups traveled throughout the country inciting movements for "struggle-criticism-transformation" (p. 223). The intent of this Maoist policy was to subvert education in the service of politics and to combine education with productive labor. In conformance with this policy, the following educational reforms were implemented on a large scale throughout China:

> Students and faculty were sent to farms and factories; curricula were formulated based on immediate agricultural and industrial needs; schools, factories, and farms shared management; classroom-centered schooling was replaced by work-study programs; workers and farmers were dispatched to take up teaching and school-management positions; and full-time and institutional facilities were increasingly replaced by part-time and noninstitutional programs. (Cheng & Manning, 2003, p. 359)

To carry out the task of "struggle-criticism-transformation," the People's Liberation Army (PLA) was ordered into the schools to provide political and military training for adult learners. Since Mao devalued formal schooling and academic education, schools of all kinds were directed to shorten their courses of study.

The Great Cultural Revolution lasted for ten years, and its consequences were devastating to the Chinese educational system (Walder & Yang, 2003). Chinese adult learners of this generation were transformed into political instruments of Maoist doctrine. For this generation, education represented not an opportunity to gain literacy, master vocational skills or acquire technical expertise, but rather a tour of duty in the political arm of Mao's army. This is to say that adult learners in China during this era were massively turned into ideologically driven people. As in the Great Leap, social forces, expressed as

a radical and universal renovation of national educational policy, again led to the collective transformation of adult learners (Marx 1890/1929).

As the political fervor of Great Cultural Revolution subsided, the pendulum of change drifted from revolutionary objectives toward economic, scientific and technological development. The generation of adult learners who had been transformed by Mao's Cultural Revolution found themselves undereducated and ill prepared to meet the demands of these new challenges. As the country emerged from the Maoist era, an entire generation of adult learners awoke to the realization that they had sacrificed formal education to take part in revolutionary struggle. They realized they may have lost their opportunity to participate fully in the Post-Mao Era when science and technology dominated the academic world in China.

The current post-Mao era (1977-present) and adult learners' collective transformation and emancipation

Even in 1949 immediately following the founding of modern China, the country suffered from an acute shortage of trained scientists. Although the government took steps to begin training a new generation of professionals, this "love of science" movement was disrupted by political upheavals such as the Great Leap Forward and the Great Cultural Revolution when political agendas took precedence. Scientific education initiatives were further challenged when the Soviets abruptly cut off their program of technological assistance to China in the mid-1960s.

Not until late 1977, when the pendulum shifted to the development model of education, did the Chinese government make the advancement of science and technology a keynote in its educational policies. To achieve its development objectives, China set out to realize the four modernizations (i.e., industry, agriculture, national defense and science and technology) by the end of the 20th century. "The crux of the four modernizations," according to Teng Hsiao-ping speaking at the National Science Conference in 1978, "is the mastery of modern science and technology… Without a high-speed development of science and technology it is impossible to develop the national economy at high speed" (as cited in Chen, 1981, p. 210).

As a result of this shift in emphasis and the articulation of these goals, the Chinese Academy of Science was established to promote study and research in various areas of science and technology. The mission of this new organization was to focus development efforts on fields of study that had been either ignored or severely compromised by revolutionary education during the Great Leap and the Cultural Revolution (Chen, 1981). Educational and cultural exchange between China and the United States was given impetus by the visit to China of an

American Science and Technology Delegation led by Dr. Frank Press, science and technology adviser to President Carter and Director of the Office of Science and Technology Policy, in July 1978 (Chen, 1981, pp. 186-187).

The most conspicuous reform in Post-Maoist education was the reinstatement of college entrance examinations in 1977. Rigorous standards were re-established to ensure that only the most talented students were admitted to Chinese colleges and universities (Bai, 2006). Political education, which remained an element in all schools' curricula, had lost much of its emotional fervor. Contemporary students studied politics in order to pass entrance exams to be admitted into higher level of schools. Some state leaders even argued publicly that it was no longer appropriate to demand that adult learners study political theory, participate in numerous political party social activities and attend meetings not related to their work.

Since the shift in educational policy during the current Post-Mao era, science and technology have become popular among the adult learners in China. In virtually all high schools, 80% of students are hard science majors. In adult schools, learners are also taking more science courses. Those who are unable to take science classes are looked down upon and are viewed as inferior citizens. Professionals are encouraged to study abroad and to take sabbaticals for basic research every three years (Kaplan, et al., 1979, p. 232).

Discussion

In view of the experiences of Chinese adult learners, and in particular their collective transformation and emancipation in response to social forces, Mezirow's (1991, 2000) theory of transformative learning and King's critique can be extended in a new direction. A careful analysis of pertinent literature offers clear evidence that external forces in a given social context may produce the direction of collective transformation and emancipation in addition to the individual transformation and emancipation described by Jack Mezirow (1991, 2000). China's structure of authority and social control produced special educational policies for adult learners during the three periods under study. Chinese adult education and training during the Great Leap Forward and the Great Cultural Revolution was fueled by enthusiastic mobilization and mass participation from below (Muhlhahn, 2004). The direction of adult learners' collective transformation and emancipation was shaped by directives from above.

Clearly, China's national educational policies led to adult learners' collective change. As the historical evidence suggests, the effects of these transformational changes, both collectively and individually, were and continue to be

massive. Under a policy that subverted education to political objectives, adult learners during the Great Leap and the Cultural Revolution were transformed from illiterate peasants and laborers into political activists and from adult students into radical revolutionaries. Mao used adult education and training to promote desired changes in political ideology (Wang & Colletta, 1991). At the same time, during these two eras, adult education and training in China was characterized by dogmatism and rigid indoctrination. Adult learners who became enthusiastic revolutionaries holding aloft the red banner of Mao Tse-tung thought later found that they were ill prepared for life in the post-Mao era when science and technology dominated the academic world.

In the Post-Mao era, China's adult learners again experienced collective transformation and emancipation. For the first time in many decades, political education was de-emphasized. Current educational policies focus on practical results, real efficiency, actual speed, quality or cost (Kaplan et al., 1979, p. 232). Adult learners have been collectively transformed because, in response to another shift in national policy, the majority has become engaged in studying hard sciences.

Westerners may argue that the entire nation was forced into behavior change as a result of coercion, violence, and brainwashing. However, the external behaviors may not reflect the transformation of internal worldview. This is true in the case of a small number of adult learners and some other intellectuals who dared to go against the principles of Mao Zedong during the Great Leap Forward and the Cultural Revolution. And they were severely punished one way or the other. However, these adult learners did not represent the vast majority of adult learners who "volunteered" to follow Mao's policies to the letter. They were the ones that were transformed massively in one direction. At the time, they did not realize that they were transformed collectively in a wrong direction. It was not until the Post-Mao era that they realized that their youth was wasted. Who is to say that the experiences of Chinese adult learners' collective transformation and emancipation did not confirm the steps of transformation as described by Mezirow (1991, 2000)? The chief concern of Mezirow (1991, 2000) was adult learners' new perspective. If we examine the experiences of Chinese adult learners during the three different eras, we can easily come to the conclusion that adult learners in China reintegrated into the Chinese society on the basis of conditions dictated by the new perspective, which is the last phase of Mezirow's (1991, 2000) ten phases of his theory of transformative learning. Even though adult learners during the Great Leap Forward and the Cultural Revolution were collectively transformed in a wrong direction, they still acquired a "new perspective" as compared to the perspective they had before. "Carrying out Mao's policies to the end" was their

new perspective during the then circumstances. The current love for science and technology is their "new perspective" in the Post-Mao era. This study did not attempt to defy the well established theory of transformative learning by Mezirow (1991, 2000). Rather, an extension of the theory was added in order to explain social phenomena that Mezirow's (1991, 2000) theory can not possibly provide a theoretical basis.

The extent of the collective transformation experienced by China's adult learners is far reaching. For example, during the Great Leap when the Soviet influence was at its height, most adult learners were compelled to learn to speak Russian. Those who could speak Russian gained an advantage when seeking Soviet technological assistance. In the Post-Mao era, most adult learners are compelled to learn English. Today, learning English is as popular as learning science and technology in China. In addition to public schools that offer English courses, in a large city like Dalian more than 1000 private schools offer English courses. This collective transformation, which tends to align adult education and training with the West and with technological assistance from the United States, offers opportunities for the kind of personal development that ultimately results in individual emancipation. Although this article proposes an extension of transformational learning theory, it also confirms Mezirow's (1991, 2000) theory from a different social context in that Mezirow (1991, 2000) was primarily concerned with personal transformation, that is the emancipatory (self-knowledge and self-reflection). It goes without arguing that without personal transformation, collective transformation and emancipation will not be possible even in an authoritarian country like China.

From our historical perspective, a causal connection can be seen between external forces, such as universally adopted national educational policies, and adult learners' collective transformation and emancipation. China's experience illustrates the application of transformational learning carried out as nationwide educational movements in support of the Great Leap and the Cultural Revolution. Although the character of Chinese adult education and training in the Post-Mao era is not as highly politicized as in the previous decades, transformational learning for China's adult learners remains a formidable force for collective change. Visitors from outside the country cannot help but conclude that adult learning in China is tantamount to collective transformation and emancipation as proposed by Marx (1890/1929) in addition to individual transformation and emancipation in Mezirow's (1991, 2000) terms. Indeed, adult learners during the Great Leap and the Cultural Revolution were massively transformed. They became victims of political movements. They were brainwashed and volunteered to hold aloft the red banner of Mao Zedong thought. Even in the Post-Mao era, it is safe to say that adult learners in China were massively transformed. The love for science and technology is so strong that those

adult learners who study hard sciences are very much revered and that those who are engaged in soft sciences are frowned upon throughout the nation.

From this study, models have emerged, which contribute to Mezirow's theory of transformative learning rather than defy this popular theory in adult education and training. The models below illustrate how external forces such as nation-wide learning movements and educational policies can lead to collective transformation and emancipation in addition to Mezirow's personal transformation.

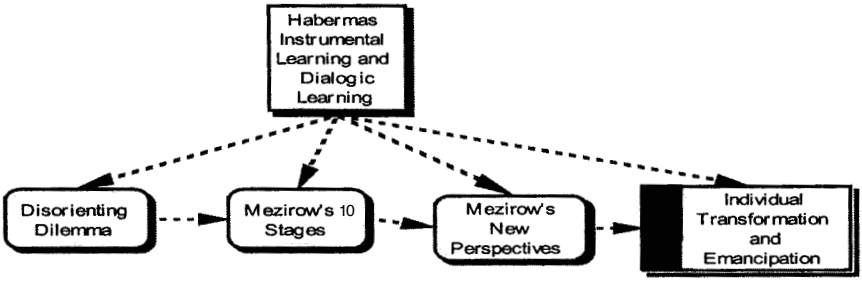

Figure 1. Original Theory of Transformative Learning by Mezirow

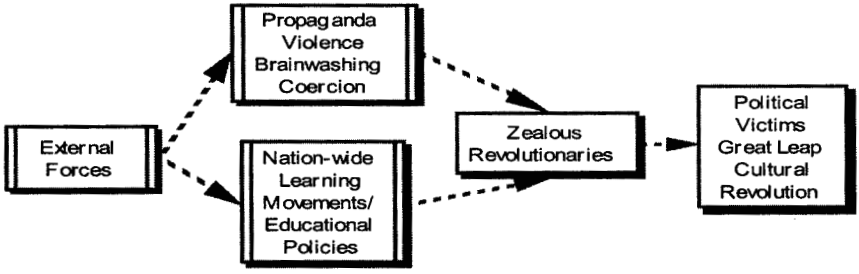

Figure 2. Extension 1 of Theory of Transformative Learning

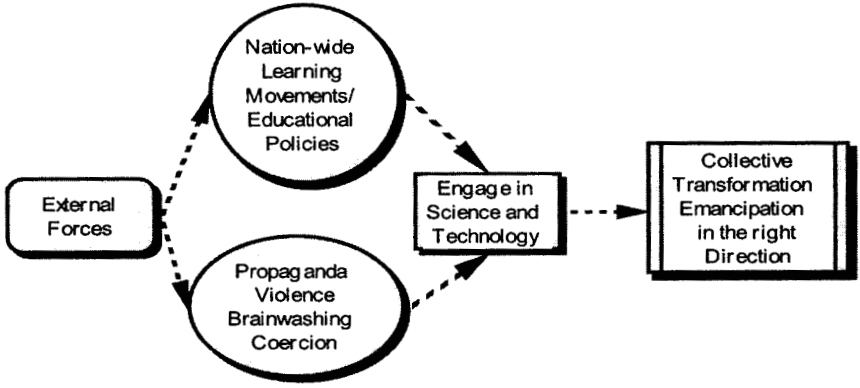

Figure 3. Extension 2 of Theory of Transformative Learning

Conclusions and Suggestion for Further Study

General themes and patterns of adult learners' collective transformation and emancipation were derived from a review and analysis of pertinent literature related to three eras that defined distinct social contexts in China. However, this finding does not contradict Mezirow's (1991, 2000) articulation of individual transformation and emancipation that is well established in the literature of adult education and training. Rather, Mezirow's (1991, 2000) seminal scholarship in transformational learning has established a sound theoretical framework for further study.

For example, scholars might reexamine the three eras of China's history from an individual perspective in order to confirm Mezirow's (1991, 2000) theory of individual transformative learning. Certainly, evidence is available to suggest that exceptions exist to the general themes and patterns drawn from this study's review of related literature. Even in the dark eras of the Great Leap Forward and the Great Cultural Revolution, numerous adult learners in China did not embrace Mao's educational policies. To other scholars such as Merriam, the current fixation on science and technology in China, is just another wave of oppression, which may lead to hegemony, oppression and propaganda—all of which seem to counter to both Mezirow (1991, 2000) and Freire's (1970) theories.

It would be of great interest if longitudinal and cross-sectional studies could be conducted, together with in-depth interviews with cohorts of adult learners who have experienced the three eras in China. Certainly, these studies could provide much needed insight regarding adult learners' collective transformation and emancipation in addition to their individual transformation and emancipation in Mezirow's (1991, 2000) terms.

One avenue of scholarship offers particular promise. In the current Post-Mao era, there is a tremendous drive to attract foreign investment and foreign technology to China. This interest has risen to the level of a national movement. If this movement persists, could it precipitate the same form of collective transformation and emancipation as in those previous movements and how might this transformation affect China's place in the global community? Further research is definitely needed in this area.

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Moving From Supply-Driven to Market Driven TVET: Some Challenges for African Countries

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Abstract

Technical and vocational education and training (TVET) in most African countries is essentially supply-driven (i.e., producing skilled manpower needed for economic development). In most developed economies, large companies are replacing the Taylor's methods and considering market-driven TVET as a method of developing high-skilled workers who can adapt to the market demands. Globalisation and technological changes in the world of work is forcing many countries in Africa to adopt market driven policies for TVET, however there are some challenges. This paper discusses some of the major challenges faced by African countries in adopting market driven policies in technical and vocational education and training due to globalization and the World Bank's policy agenda for vocational education and training in both developing and transitional economies.

Introduction

The provision of technical and vocational education and training in most countries in sub-Saharan African is still considered essentially supply-driven and to a major extend demand-driven. As a result, it is linked to the production of skilled manpower needed for economic development and job creation and employment in public and private sectors of the economy. More recently, many African countries have started introducing training programmes that are linked to market-driven demands. This paper provide some background of the driving force behind market-driven training programmes and discusses some recent policies on TVET in some African countries and some

challenges associated with the new paradigm shift, that is, from supply-driven to market driven technical and vocational education and training.

Supply-Driven Policies on TVET

It is a common knowledge that the aims of education and training in most African countries are still supply-driven and demand-driven. This is evidenced by policies on TVET. The guiding principles are to equip every citizen with knowledge, skills, attitudes and values so as to enable the students to derive maximum benefits from their membership in society, lead a fulfilling life and contribute to the development and welfare of their community. Thus, the national policies on TVET in most African countries are said to be based on three main motivating factors namely: *Social, Economic and Political and Ideological justifications.*

Most people seem to believe that it is the social responsibility of any government to ensure that all its citizens have access to education and training so that they can become useful members of the society. Proponents of supply-driven training programs argue that TVET is not only a means of preparing an individual for a productive life but also a fundamental human right that must be enjoyed by all.

The economic factor can be viewed as another reason which supports supply-driven TVET policy in most African countries. This factor revolves around the role technical and vocational education plays in producing skilled manpower needed for economic development of any country. This last factor is linked to the adoption of three main approaches to training provision in most African countries, namely: TVET within general education system, TVET outside the general education system and private sector training and private sector training.

The political motivation for the provision of TVET is based on the assumption that providing TVET programs can reduce youth unemployment which is seen by many politicians as a threat to social stability. Linked to this motivation is the issue of access and equity of educational opportunities to all citizens. Until fairly recently such ideology was directed towards "increasing the opportunities for the rural population to be schooled, while avoiding an overly 'academic' curricula considered irrelevant to rural life" (Benavot, 1983, p.73).

TVET Within the Formal Education System

Historically, vocationalization of secondary school curriculum in most African countries started a long time back and today many of the countries have embraced it as a means of providing a "well-rounded individual." Thus the inclusion of vocational or practical subjects such as woodwork, metalwork,

technical drawing, art and craft, commerce, agriculture, home economics and more recently design and technology and computer studies into secondary school curriculum is meant to provide survival skills to some students who might not go beyond secondary education and career path to others who may aspire to further their education.

Critics have argued that vocationalization of the secondary school curriculum is not the best option for preparing young people for transition to the world of work, especially in countries of sub-Saharan Africa. Such criticisms are based on a number of empirical studies and case studies conducted in countries like Botswana, Ghana and Kenya by Louglo, Akyempong, Mwiria and Weeks (2002). The case studies found no evidence to prove that students who study practical subjects in secondary schools have an advantage in finding work, let alone for self-employment in the already "depressed labour markets" for the youth. The case studies also did not find any evidence to suggest that exposure to vocational subjects at secondary school level may enhance interest in the type of work for which these subjects are broadly preparatory. Earlier tracer studies on transition from school to work by Lillis and Hogan (1983), have failed to show a positive impact on the actual access to work after students have left school, and neither have they found any strong effect on access to relevant further technical training. Thus, Louglo et al., (2002) have suggested that instead of vocationalizing the secondary school curriculum for the purpose of transition from school to work, "it is better to use training centres that all specialised for such purposes and that are set up to respond to the labour market, with strong institutional links to that market" (p.26).

TVET Outside the General Education System

Technical and vocational schools as separate entities are probably the most widespread forms of institutionalised provision of technical and vocational education in most African countries. Two common features of TVET outside general education are their role in training and their curriculum content. While technical schools are responsible for training technicians, the role of vocational schools is to provide an exposure to technical trades and train craftsmen. A curriculum option approach to TVE is also widespread and continues to be adopted in many countries. The traditional offerings like carpentry and joinery, motor vehicle engineering, building construction and painting and decoration are also common in many African countries. Recently, a more market-driven TVET programmes such as computer studies, entrepreneurial skills and interpersonal and communication skills have begun to appear in the TVET curriculum. The aim of such training outside the formal education system is to meet the "perceived" demands by the local labour market for people with practical skills.

Market-Driven Reforms on TVET

Globalisation, marketization and quality/efficiency driven reforms around the world since the 1980's have resulted in structural and qualitative changes in education and policies including an increasing focus on the "lifelong learning for all," "the knowledge economy" and the global culture. In most developed economies for example, large companies are replacing the Taylor's methods characterized by bureaucracy, mass production and automation with just-in-time training and high-tech performance teams. Thus, market-driven TVET in most developed countries is considered as an important method of cultivating high-skilled workers who can adapt to the market demands.

The International Labour Organization (2004) defined "market-driven" strategy as a strategy which promotes strengthened linkages between educational/training institutions and industry to ensure that appropriate skills and knowledge are provided by the educational system. The driving force behind market-driven enterprise in the developed economies is competition, which, in a free market system, is supposed to result in efficiency and quality. When applied to technical and vocational education and training, market driven reforms seek to create education programmes that are more responsive to market demands. King (1997) asserts that demand is often stimulated and requires investing in marketing. Furthermore, it requires demonstrating the benefits and opportunities that the training will help to gain and access and maintaining proximity to the clients in order to respond to their emerging needs. Above all, it should link training to tangible benefits. In this regard, Nelson (1997) has urged African governments to work together with social partners in order to formulate a coherent but flexible policy, avoid duplication of activities and achieve a common understanding of the goals and means of training.

Although the concept of market-driven TVET is still less attractive in many developing economies, particularly in sub-Saharan Africa, the impact of globalisation and technological changes in the world of work is forcing many of the countries to realign their training programmes to market forces. Thus the voices coming from commerce and industry are demanding for competitive and responsive approaches to different market demands is a clear indication of the need to move with the world trends.

Assessing Market-Driven Training in Africa

Assessment of market-driven training reform in Africa is important if we have to understand the trend of education and training policies across the African continent over the past two decades and how far the continent have gone in embracing market-driven training. Available studies show that the World Bank

has for a long time been advocating for reforms in TVET policies in sub-Saharan Africa. More specifically since late 1980's, the World Bank has consistently advocated the adoption of a package of market-driven TVET reforms (Bennell & Segerstrom, 1998). Thus the number of policy changes in TVET that have occurred in Africa were based on the World Bank's agenda of market-driven education and training which is linked to quality, efficiency and cost effectiveness. The World Bank (1995a) argued that "by comparison, government delivery in most countries has proved expensive and provided trainees with few marketable skills" (p.40). The World Bank's (1995b) Education Sector Review presents this argument in its simplest form, "vocational and technical skills are best imparted in the workplace, following general education" (p.80).

There is a shift away from off-the-job, publicly provided TVET to on-the-job enterprise training as the most emphasized policy recommendation. Other components of the World Bank's vocational education and training reform package include: closely linking TVET to labor market needs and enhancing labor productivity through the restructuring of labor markets, a greater emphasis on improvements in training quality rather than quantity and a much enlarged role for the private sector and generally much greater diversity of training provision.

Against the backdrop of World Bank policy on TVET sector, many African governments have since made or are making some efforts to restructure the entire education system. There is evidence of governments passing and implementing various policies and acts, increasing funding, shifting from a supply-driven to a market-driven technical and vocational education and training system and attempting to implement more efficient quality assurance systems. The case studies discussed below provide an overview of the progress made so far in moving from predominantly supply-driven to market oriented education and training system.

In South Africa, according to Geonella (1999), there have been a number of reforms in the FET (Further Education and Training) sector since the demise of apartheid in 1994 The passing of policy documents and acts (e.g., the South African Qualification Act 58 of 1995), The Skills Development Act 97 of 1998; The Further Education and Training Act 98 0f 1998 and The Skills Development Act 9 of 1999) are all aimed at dislodging the FET sector from the economies of the past and to establish "a need-driven, market-related and life-long FET system which is meant to assist the country in providing many more employable qualified learners to the world of work" (Geonella,1999, p.16).

Another example of reform in the TVET sector is the Botswana Technical and Education Programs (BTEP) in Botswana (Odora, 2006). The main aims of BTEP program is to improve access to, and the quality of, vocational education and training; to prepare young people for formal employment, for

self-employment and to offer opportunities for further training. Developed in consultation with employers, BTEP does not only seek to produce employees who are more flexible, all-rounded and who can easily adjust in all areas within the work organization, but also emphasizes the development of generic skills like good communication skills, good numerical skills, interpersonal skills and problem-solving skills which make them marketable both locally and abroad.

Vocational education and training in Tanzania and Zimbabwe as reported by Nelson (1997) focuses on training programs that are linked to manufacturing and tourism sectors. These sectors cover a wide range of skilled occupations and both produce tradable goals and services. Nelson (1997) also reported two vocational training programs in Kenya that are based on the principles of demand-driven services. These are AKILI (Advancing Kenyan Industry through Local Innovation) and SDP (Skill Development in Kenya).

Some Major Challenges

Today, the global economy offers Africa new opportunities. It also presents the continent with challenges that cannot be ignored. The demands of globalisation on the one hand, workforce mobility and advances in information communication technologies (ICT) on the other hand, are having great impact on TVET policies for developing countries. As a result, most African countries may find it difficult to strike a balance between providing TVET for the local needs and the increasing international market demands.

Technical and vocational education and training is considered by most governments within the more comprehensive concept of human resources development. To ensure that both the human and the professional aspects of technical and vocational education and training are addressed, two major dimensions should always guide the design of training and human resource development: education and work. The education dimension caters to individual needs and human aspects, whereas the work or economic dimension caters to societal needs and labour market requirements. Integrating these two dimensions still remains a major challenge to technical and vocational education practitioners.

Another challenge faced by most countries in Africa is the heavy reliance on foreign donors to fund technical and vocational training. Currently training goals in some countries are linked to donor conditions which advocate only for market-driven TVET reforms. Such imposed policy reforms undermine the capacity of the governments to formulate and implement key reforms in the national interests and or provide skills training in critically important areas.

The adoption of market-driven TVET in the developing countries is largely influenced by the economics of education and training. Thus, four major fac-

tors are involved in the economics of technical and vocational education systems: i) value for money, ii) quality of outputs, iii) efficiency, and iv) effectiveness. To produce graduates who are marketable requires the provision of quality education and training. Quality education and training is linked to quality resources which unfortunately many African countries do not have. A market-driven TVET reform will require investing more financial resources into this sector at the expense of more pressing social problems such as poverty and HIV and AIDS pandemic. This may be the biggest challenge for some sub-Saharan African countries.

Conclusion

From the foregone discussion it may be stated that market-driven reforms in TVET sector in most developed countries are largely driven by globalisation and the advances in technology. In view of the changing demands around the world, TVET in Africa will need radical reform to face increasing globalisation (economical, industrial and even political) and impact from information and communication technologies. It is also clear from the discussion that the World Bank policy on education and training has been a major driving force towards the market-driven policy on TVET in most countries in Africa. However, there is perhaps a need to revisit the World Bank policy on education and training with the aim of realigning the national policies to the realities in the developing African countries.

Finally, the intent of this article has been to give an overview of the current paradigm swift from supply-driven to market-driven training approach and also to provide a platform for further debate on the benefit and limitations of such policy reforms on TVET. The question we should ask ourselves is: How should African countries embrace the market-driven policy on technical and vocational education and training?

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Cultural Competencies in Training: Africa, Middle East/North Africa, and South Asia

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Abstract

The wealth of any nation is ultimately based on its human resource and technology. The inter-relationship between these factors is especially powerful in the transfer and management of technology in less developed countries. One of the most challenging transfer methods is from one culture to another. Education and training are the primary vehicles of developing a workforce capable of receiving, integrating, and operating new technology-based systems. Therefore, it is essential for transfer agents and trainers to understand cultural variables when designing and delivering training to support the transfer process. This study identified the most culturally accepted instructional strategies associated with training in technical, management, policy, and public relations content in Africa, Middle East/North Africa, and South Asia.

Introduction

Efforts to transfer and manage technology, promote innovation, and modernize economic and industrial policy in developing countries continue to be an important activity within the global community. Organizations, including the World Trade Organization, work to increase the flow of technology to developing countries. Fundamental aspects of these efforts are export/import restrictions, licensing, transfer costs, institution readiness, and know-how (Teece,

2003). Often, within a country's industrial and business sector, the most variability among these efforts occurs at the individual skill and knowledge level. As a part of strengthening institutions and developing know-how, education and training is paramount to the success of any effort to transfer and manage any technology. Implications for the transfer of know-how, especially technological knowledge necessary to accomplish goals associated with these development efforts, center around the cultural variables of the recipient country.

When it comes to education and training relevant to the transfer and management of technology, three main themes arise: (1) the globalization of higher education (2) training programs influenced by donor organizations and (3) the role of multinational corporations. Of course, each theme exists within the local context of the recipient country.

Traditional higher education training associated with the globalization of engineering and technology education occurred on campuses in countries such as the United States, Britain, and Germany where foreign students not only studied their subject matter but were immersed in western culture and professionalism. Many of these students returned home to work in government and private sector jobs and applied their new skill sets. Another way to deliver higher education with a western flavor to a student base is to create branch campuses of universities within target countries. In addition to these practices, the globalization of higher education emerged further as in-country schools in developing countries took on a curriculum of engineering and technology that reflected modern topics and methods. Finally, the creation and development of local training programs to increase local skills has been accomplished through technical vocational and training schools and polytechnics scattered throughout the developing world (Britton, 2005; Hailey and Sorgenfrei, 2004). These last examples increase the numbers of students trained in engineering and technical topics in their own country, but without the foreign culture experience (Lenn, 1997).

The African Virtual University (AVU), launched by the World Bank in 1997 in Kenya, is another example of the globalization of higher education. AVU has the mission to serve the universities of countries in Africa to supplement existing engineering and science curriculums through distance education offerings of academic courses and training programs. Examples of courses developed in the US and Europe include Electric Circuits, Calculus III, Physics I & II, and Introduction to Statistics. Videotapes and live lectures are broadcast from facilities in the US and live sessions are originated from US and Irish universities. According to Marquardt et al., (2004), "In 2002, nearly two hundred students from eight sub-Saharan countries took a Massachusetts Institute of Technology course without leaving their countries." p. 214.

Donor and aid organizations have long provided education and training in engineering and technology in conjunction with development and technology transfer projects. The use of subject matter experts, print and non-print training materials, and the internet support development projects through engineering and technical workshops and a variety of institutional strengthening efforts (Archibugi & Pietrobelli, 2003; TYRO Team, 2005; UNESCO New Delhi Office, 2003).

Institutional strengthening projects promoted by donor organizations frequently pair a contractor from the donor country with a local contractor. These contractors are represented by numerous individuals depending on the scale of the project. When focusing on skill/knowledge transfer and development, the assumption is that in-country contractor personnel will help meld processes and training materials provided by subject matter specialists into practices and teaching/learning materials that are effective in the local culture. At times, subject matter personnel and project managers focus on big-picture aspects of the project. At best, the discussions about the preparation and development of training materials falters over issues associated with infrastructure discrepancies such as inconsistent power supply or the lack of multi-format video players. Of course, more fundamental issues associated with instructional design and traditional instructional techniques could be more productive.

Multinational corporations engage in knowledge transfer and training to support technology transfer and management for the purpose of increasing profit or market share. Although less frequent is their involvement in infrastructure development, some corporations do participate in agriculture, power and energy, and water projects. According to Miesing, Kriger & Slough (2006), knowledge transfer within multinational corporations provides "learning opportunities for both investing and host organizations" (p.109). The authors provide examples of success within transnational auto companies (US and China) and failure within transnational companies in the computer/software industry (US and China). The failures were primarily due to the existence or lack of the following cultural context dimensions: (1) flexible world views, (2) relationship bonds, and (3) absorptive capacity. These failures may be avoided according to Wederspahn (2002) by applying intercultural competence to all environment.

Today, the composite of these strategies facilitate the transfer of knowledge at a much faster pace than efforts in past decades and with a greater need to tailor the training to specific projects, instructional technologies, countries, skill sets, and learner preferences. Arias and Clark (2004) caution us with the following ". . . designing, developing and implementing instructional technology initiatives in a developing country is by no means a simple endeavor." (p. 52). They

go on to suggest the need to analyze and implement the results of a broader cultural context in designing and delivering instruction and training. If project success is tied to effective instructional design and delivery of training and acknowledged by project personnel, these managers will appreciate the trend of many aid organizations' requirement for more accountability (including outcome measures) associated with their projects. The evaluation of development projects and activities has been increasing.

Background

Aligning training to desired business results is a critical issue for every learning and performance specialist. However, the challenge is making sure the skills with the greatest organizational impact are the ones being learned (Steffey, 2005).

According to Steffey (2005), the Chicago Chapter of ASTD did its part to address that challenge. The Global Alliance for Africa (GAA) contacted the chapter to collaborate on the design and delivery of some business and train-the-trainer courses for their partner organizations in Africa. GAA is a not-for-profit organization dedicated to the care and education of HIV/AIDS widows and orphans in East Africa. It focuses on strengthening community and family capacities to provide education and care for children who have lost one or both of their parents to the disease.

> Twenty chapter members volunteered to design the training, and six delivered it in Tanzania this past June. It was an 18-day adventure, and the lessons we learned about respect, empathy, gratefulness, humility, and identifying desired results have already helped us become better trainers.
>
> (Steffey, 2005, p. 67)

For decades, the fast-moving, ever-changing global economy has called for a new world order (Gee, Hull, Lankshear, 1996). This is to argue that the era of globalization requires a flexible, multi-skilled, knowledgeable, interchangeable, and adaptable workforce not only at the macro level (management), but also at the micro level (on the shop floor). Restructuring work through value-based philosophies such as self-driven teams and total quality management (TQM) gives organizations a competitive advantage in the unpredictable global economy. For example, the South African gold mining industry deemed it necessary to relinquish the old, traditional, and obsolete and to adopt new and innovative forms of work that focus on participative schemes such as self-directed teamwork (Phakathi, 2002). The vision here was of training for a new globally defined workplace based on self-directed work teams. The implementation of

new information technologies, such as palm and lap-top computers, is central to this vision. The trainee would ideally be a willing "empty vessel," speak English, and have a high school education. The assumption is that the trainee is unencumbered by past "rule of thumb" experience and is capable of learning new techniques of mining. Importantly, the training is primarily top down and is a unidirectional process of knowledge transmission (Phakathi, 2002).

Regional Development

Paths to development and the extent of technology transfer, training, economic and industrial reform vary from region to region and country to country. Some countries work with large donor organizations such as UNESCO, the World Bank, or Regional Banks. Others partner with global corporations like Siemens or General Motors, or development organizations such as Citizens Development Corps, or universities such as the University of Maryland. Of course, some countries establish and fund internal development programs. To be successful, each of these approaches must be designed and implemented with a strong understanding of cultural context as well as a strong content/knowledge base and insight into instructional design and the development of training materials.

In sub-Saharan Africa, institutional, technical, and management skill building are very critical for economic development (Muya, Price, Edum-Fotwe, 2006; Oyeleran-Oyeyinka, 2004). Like most developing countries, sub-Saharan Africa has been faced with several training management problems including misuse of training, isolation of training enterprises, over reliance on singular training methods, and failure in integrating training into the development processes. Recognizing there is no single best training method for management development, an integrated response to management training and development was proposed (Bazemore & Thai, 1995).

The Middle East/North Africa (MENA) region typically includes countries from Morocco and Mauritania to Iran. An important context of this culture is language and religion. In the Middle East and North Africa region for example, Arabic is the mother language. Yet, the majority of workers may lack basic literacy in the Arabic language (reading and writing). Like all cultures, designing a training program to fit the culture of the learners requires a learning environment that is culturally appropriate. Significant cultural factors must be identified and incorporated as an important part of the design and the delivery of the training program (Holm & Strauss (1998). To minimize the impact of foreign language on the learning, many international organizations use a train-the-trainer model.

In Morocco, USAID implemented a regional development program in the Meknes-Tafilalet region, one of the poorest areas in the country. The 2004-

2008 program focused on three priority areas. In education and training for employment, USAID is aiming for a 30% decrease in drop-outs in a quarter of the region's middle schools, 500 women becoming literate, and multimedia centers established in four middle schools. Economic growth in the region will be achieved through a 25% increase in the demand for certified olive plants, a 25% growth in production, and an improvement of 15% in the productivity of targeted agricultural zones. In the governance area, USAID was to train 60 local development professionals.

Another example of a development project with a strong training component was implemented by the International Telecommunications Union (ITU). In 1997 ITU created Centers of Excellence for Human Resource Development. The mission of the centers is to develop the telecommunications marketplace in Africa, Asia, and Latin America, as well as to train policymakers in the development of national priorities and regulations. They are intended to provide senior-level, advanced training and professional development in the areas of telecommunications policies, regulatory matters, and the management of telecommunications networks and services.

In 2005, to strengthen African universities, $200 million was provided by six major American entities: the Carnegie Corporation, the Ford Foundation, the John D. and Catherine T. MacArthur Foundation, the Rockefeller Foundation, the William and Flora Hewlett Foundation, and the Andrew W. Mellon Foundation. The project concentrated on three areas: expanding Internet access, developing regional networks to share research and training capacity, and training senior administrators to strengthen university management. Pfizer and the Pfizer Foundation contributed more than $15 million in 2004 to support the construction of the Infectious Diseases Institute at Makerere University. The funds were used also for training, operational research and patient care.

A recent study on foreign ownership and clothing exports in Sri Lanka (Wignaraja, 2007) investigated a number of variables impacting the increase of product export. Among those variables having a positive impact, human capital was identified. More specifically, the number of university-level educated employees was found to positively influence technological capabilities and the increased percentage of expenditure on explicit employee training to use new production technology contributed to increased exports.

Power and Energy Initiatives in Developing Countries

Industrial and infrastructure development in emerging economies requires increasing amounts of electrical power (ADB Institute, 2007; Akaninwor, 2002; Khanna & Ziberman, 1999). The extraction of raw materials such as coal, oil and gas to fuel electrical generating plants as well as the expansion of

generating facilities and electric distribution networks requires large amounts of social and investment capital. In addition, new technologies resulting in energy production efficiency and emission control have long been an interest of many developing countries (Khanna, M. and Ziberman, 1999). Some (Akaninwor, 2002) have suggested that technology transfer of all kinds to Africa is a global imperative.

A critical impact of increasing energy needs and overall growth is the need for a changing and expanding workforce. In fact, Siddiqi (2008) reports that the Mid-East Gulf region alone will see a 4% increase in its workforce requiring new skills and simply more workers (March 2008). Electricity needs in South Asia are expected to grow tremendously in order to power the anticipated 5.5% economic growth through 2015. It appears that the increased availability of electricity in the region will be accomplished through a combination of government and private investments (ADBInstitute, 2007).

A number of organizations have promoted the transfer of technical and technology-related knowledge as a major part of the transfer of hardware, equipment, and complex processes. Agencies such as the Asian Development Bank, UNDP, USAID, the Indian Technology Transfer Commission and the Epina Technology Transfer Service have created programs to facilitate technology transfer and infrastructure development.

Research Purpose and Questions

Effective training is guided by the integration of several variables. These variables are derived from an analysis of the audiences (trainees), their skill/knowledge/ability needs, teaching-learning strategies, delivery medium, and culture and workplace context. Strategies are also influenced by the scope and sequence of the content to be delivered. Unfortunately, some trainers select approaches that fail to recognize these variables, resulting in a mismatch between the delivery approach and the learner. Such situations reduce the effectiveness of training programs, can be a waste of time and money, and can lead to unsuccessful expatriate assignments. Particularly on expatriate assignments, establishing appropriate training strategies for specific countries or regions becomes essential to assist the trainers and reduce their failures.

To assist curriculum development specialists, training material developers and trainers associated with training programs in developing countries, this study was intended to identify the most culturally accepted instructional strategies for technology transfer training in Africa, Middle East/North Africa (MENA), and South Asia. This study synthesized four major content topics (technical, management, policy, and public relations) associated with training focusing on electrical power generation and distribution. The specific research questions were:

1. What are the most accepted training strategies for the topics of management, policy, and public relations content associated with electrical power generation and distribution area for each target region?
2. What training skills/knowledge/abilities should trainers who develop and deliver electrical power training in developing countries possess?

Methods

Data were collected through a researcher designed print-based survey instrument that enabled subjects to identify the most appropriate training strategies for each content topic. Subjects representing the cultural context of each of the three target regions were asked to identify the most appropriate training strategies for each content area. The 65 respondents to the survey were university students from Africa (20), MENA (20) and South Asia (25). All the selected students had experience with electrical power systems content and or training. All the respondents and their parents were born in the country and culture they identified. In previous research, Maughan and Mupinga (2005) synthesized 4 categories from a list of 12 identified by the U.S. Agency for International Development (USAID) for South Asia (USAID & IIE Energy Group, 2003; USAID/New Delhi, 2004). The training topics were identified based on a USAID training needs assessment and through a review of USAID reports on projects in Asia (USAID & IIE Energy Group, 2003). Training strategies appropriate to technical and management training in developing countries were identified through a literature review. The instrument was pilot tested and revisions made before respondents completed the survey. The respondents rated the level of acceptance to each of 21 instructional strategies which could be used for training on the following topics: (a) technical, (b) managerial, (c) policy, and (d) public relations. For each instructional strategy a five-point Likert scale (with 1 being "low acceptance" and 5 being "high acceptance") was presented.

Findings

Appropriate Strategies for Africa

For Africa, the following instructional strategies were ranked highest/most appropriate for technical topics: written case studies (M=3.90); problem based learning (M=3.75); job aids, interactive presentations or discussions, and action research activities (M= 3.70). The mediated lecture and CD-ROM modules (M=2.95) instructional strategies were ranked lowest. On managerial topics, problem based learning (M= 4.20), job aids and lecture (M= 3.90), and video tapes (M=3.85) were the four highest rated instructional strategies while

internet /web modules was ranked lowest (M=3.05). On policy topics, action research activities (M=4.10), problem based learning (M=4.05), and training manuals (M=4.00) were ranked highest while games received the lowest ranking (M=2.75). Lastly, on public relations topics, the three highest ranked instructional strategies were: job aids (M=4.20), problem-based learning (M=4.15), and peer/small group learning (M=4.15). The internet/web modules received the lowest ranking (M=3.05). Overall, the job aids, problem-based learning, and written case studies were considered most appropriate for all content areas and none of the instructional strategies were least appropriate for all four content areas (see Table 1).

Table 1: Means and SD for Instructional Strategies for Africa

	Training Strategies	Technical		Managerial		Policy		Public Relation	
		Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
1	Job aids	3.70	1.26	3.90	1.07	3.75	0.97	4.20	0.95
2	Problem-based learning	3.75	1.41	4.20	0.95	4.05	0.97	4.15	1.14
3	Peer/small group learning	3.65	0.99	3.85	1.09	3.65	1.09	4.15	1.04
4	Lecture	3.60	1.60	3.90	1.07	3.68	1.20	3.50	1.50
5	Mediated lecture	2.95	1.28	3.65	1.09	3.80	1.20	3.85	1.23
6	Interactive presentation/ discussion	3.70	1.34	3.75	1.16	3.70	1.22	3.85	0.99
7	Mediated interactive presentation/ discussion	3.55	1.23	3.45	1.15	3.70	1.34	3.85	1.04
8	Hands-on laboratory activities	3.65	1.57	3.35	1.18	3.45	0.95	3.55	1.19
9	Worksheets/ pencil-paper activities	3.60	0.94	3.75	1.29	3.20	1.24	3.65	1.23
10	Field trips	3.55	1.85	3.45	1.43	3.75	1.60	3.60	1.31
11	Action-research activities	3.70	1.08	3.75	1.07	4.10	0.91	3.75	1.16
12	Training manuals	3.65	1.27	3.65	0.88	4.00	0.92	3.35	1.09
13	Storytelling	3.65	1.60	3.70	1.30	3.60	1.27	3.45	1.23
14	Role playing	3.30	1.66	3.45	1.36	3.15	1.50	3.75	1.12
15	Games	3.15	1.60	3.10	1.55	2.75	1.29	3.55	1.43
16	Simulations	3.55	1.15	3.50	0.95	3.30	1.30	3.55	1.15
17	Audio tapes	3.50	1.43	3.75	1.25	3.40	1.19	3.65	1.09
18	Video tapes	3.45	1.57	3.85	1.23	3.80	1.28	3.90	0.97
19	Written case studies	3.90	1.12	3.80	1.32	3.80	1.28	3.95	1.10

Training Strategies		Technical		Managerial		Policy		Public Relation	
		Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
20	Internet/web modules	3.00	1.59	3.05	1.15	3.25	1.33	3.05	1.36
21	CD-ROM modules	2.95	1.43	3.20	1.36	3.40	1.50	3.15	1.31

Appropriate instructional strategies for MENA

For MENA, the three highest rated instructional strategies for technical topics were: lecture (M=4.35), training manuals (M=3.95), and peer/small group learning (M=3.85). A number of instructional strategies were ranked below the group mean (M=xx) and these included: games (M=2.00) and role playing and simulations (M=2.35). On managerial topics, instructional strategies receiving the highest ratings include: lecture (M=4.30), peer/small group learning (M=4.10) and training manuals (M=4.05). Field trips and games were least rated (M=2.10 and M=2.15, respectively). Instructional strategies for policy topics that received the highest ratings were: lecture (M=4.40), peer/small group learning (M=3.95) and training manuals (M=3.75). Games (M=1.90), role playing (M=2.05), and field trips (M=2.15) were rated lowest. On public relations topics, lecture (M=4.40), peer/small group learning (M=4.10), and training manuals and video tapes (M=3.80) were highly rated while role playing and games (M=2.15) were lowest ranked. Overall, the lecture, training manuals, and peer/small group learning were considered most appropriate for all topics while games and role playing were lowest ranked for all the four content areas (see Table 2).

Appropriate instructional strategies for South Asia

For South Asia, instructional strategies ranked highest for technical topics include lecture, mediated lecture, and hands-on laboratory activities (M=3.84). Role playing (M=3.00) and storytelling (M=3.16) were lowest ranked. On managerial topics, lecture (M=3.88), interactive presentations and discussions (M=3.84), and written case studies were ranked highest while audio tapes (M=3.20) and hands-on laboratory activities received lowest ratings. For policy related topics, lecture (M=3.92), job-aids (M=3.80), and interactive presentations and discussions (M=3.68) were ranked highest while role playing (M=2.92) and games (M=3.04) received lowest rankings. On public relations topics, job aids (M=4.08), interactive presentations and discussions (M=4.00), and internet/web modules (M=3.80) received highest ratings while storytelling (M=3.32) was lowest rated.

Table 2: Means and SD for Instructional Strategies for MENA

	Training Strategies	Technical		Managerial		Policy		Public Relation	
		Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
1	Job aids	3.30	1.34	3.40	1.54	3.30	1.46	3.35	1.14
2	Problem-based learning	3.00	1.21	3.15	1.27	2.85	1.50	2.90	1.52
3	Peer/small group learning	3.85	1.23	4.10	0.97	3.95	1.23	4.10	1.25
4	Lecture	4.35	1.14	4.30	1.08	4.40	1.05	4.40	1.14
5	Mediated lecture	3.60	0.88	3.05	1.23	3.50	0.95	3.75	1.12
6	Interactive presentation/ discussion	3.25	1.37	3.65	1.14	3.30	1.13	3.60	1.05
7	Mediated interactive presentation/discussion	2.80	1.32	3.45	1.19	3.05	1.19	3.50	1.15
8	Hands-on laboratory activities	3.85	1.42	2.40	1.19	2.40	1.23	2.55	1.43
9	Worksheets/pencil-paper activities	3.65	1.42	3.55	1.19	3.65	1.09	3.65	0.93
10	Field trips	3.30	1.69	2.10	1.37	2.15	1.31	2.45	1.40
11	Action-research activities	2.60	1.27	2.70	1.17	2.95	1.50	2.80	1.40
12	Training manuals	3.95	1.10	4.05	1.15	3.75	1.45	3.80	1.32
13	Storytelling	2.80	1.20	3.35	1.27	2.60	1.23	2.40	1.14
14	Role playing	2.35	1.27	2.55	1.43	2.05	1.19	1.95	1.23
15	Games	2.00	1.38	2.15	1.09	1.90	1.21	2.15	1.23
16	Simulations	2.35	1.31	2.35	1.39	2.40	1.27	2.40	1.19
17	Audio tapes	2.85	1.31	3.05	1.23	3.30	1.34	3.25	1.16
18	Video tapes	3.30	1.46	3.70	1.13	3.75	1.07	3.80	1.32
19	Written case studies	2.65	1.23	3.15	1.42	3.45	1.43	3.20	1.24
20	Internet/web modules	3.10	1.29	3.60	1.43	3.25	1.37	3.35	1.31
21	CD-ROM modules	2.85	1.27	3.30	1.49	3.15	1.46	3.35	1.46

Table 3: Means and SD for Instructional Strategies for South Asia

	Training Strategies	Technical		Managerial		Policy		Public Relation	
		Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
1	Job aids	3.80	0.71	3.68	0.85	3.80	0.87	4.08	0.86
2	Problem-based learning	3.36	1.19	3.44	1.12	3.56	0.82	3.80	0.91
3	Peer/small group learning	3.32	1.18	3.64	1.15	3.40	0.91	3.64	1.15
4	Lecture	3.84	1.21	3.88	0.88	3.92	0.86	3.76	0.72
5	Mediated lecture	3.84	0.85	3.52	0.92	3.60	0.91	3.60	0.87
6	Interactive presentation/discussion	3.76	0.97	3.84	0.94	3.68	0.75	4.00	0.82
7	Mediated interactive presentation/ discussion	3.40	1.23	3.92	0.81	3.28	0.79	3.60	0.91
8	Hands-on laboratory activities	3.84	1.07	3.08	1.19	3.08	1.08	3.36	0.91
9	Worksheets/pencil-paper activities	3.56	1.00	3.64	1.00	3.56	1.16	3.52	1.16
10	Field trips	3.20	1.32	3.56	1.16	3.20	1.41	3.56	1.33
11	Action-research activities	3.28	1.31	3.60	0.96	3.32	1.11	3.68	1.18
12	Training manuals	3.72	1.02	3.60	1.00	3.56	1.29	3.40	1.04
13	Storytelling	3.16	1.25	3.12	1.13	3.12	1.13	3.32	1.15
14	Role playing	3.00	1.38	3.28	0.98	2.92	1.26	3.40	1.29
15	Games	3.40	1.26	3.24	1.23	3.04	1.37	3.40	1.08
16	Simulations	3.40	1.00	3.32	0.85	3.20	1.08	3.40	0.82
17	Audio tapes	3.32	1.07	3.20	1.08	3.12	1.30	3.44	1.04
18	Video tapes	3.56	1.12	3.56	1.00	3.52	1.30	3.72	1.17
19	Written case studies	3.28	0.94	3.80	0.96	3.44	1.04	3.48	1.12
20	Internet/web modules	3.36	1.32	3.64	0.95	3.56	1.00	3.80	0.82
21	CD-ROM modules	3.56	1.16	3.64	0.91	3.36	0.95	3.48	1.05

Overall, there was no instructional strategy ranked highest in all four content areas. Lecture and interactive presentations and discussions were ranked highest or among the highest rated instructional strategies in three content areas. The lowest rated instructional strategy overall was role playing (policy, M=2.92); no one instructional strategy was lowest rated in all four areas (see Table 3).

Conclusions

Training provided for the electrical power utility industry in the three geographic regions (Africa, MENA, and South Asia) covers numerous topics synthesized as technical, management, policy, and public relations training. Based on the results of this study, with the exception of Africa, the most culturally accepted instructional strategy in the two regions is the lecture method (except for public relations training in South Asia where job aids are considered most appropriate). For training in Africa, problem based learning is culturally appropriate for all four content areas; and job aids are appropriate in all content areas except policy. In South Asia, interactive presentations/discussions are also culturally appropriate for all content areas, except for technical content. Other instructional strategies found most suitable, but only in one or two areas, for Africa and South Asia were written case studies and action research activities.

There was no instructional strategy rated lowest in all four content areas for Africa and South Asia and games (M=2.75) had the lowest rating. While the mean for the instructional strategy of games was the lowest of all ratings for these two regions, this mean falls above the group means, and therefore, this training approach should be considered appropriate for the two regions. Therefore, for Africa and South Asia, none of the identified instructional strategies are culturally inappropriate for the four content areas.

Based on the mean ratings for MENA, lecture, peer/small group learning and training manuals are culturally appropriate for all four content areas. However, games should be considered culturally least acceptable for all four content areas. Furthermore, with the exception of training on managerial related content, role playing is another least favored instructional approach.

Implications for Practice

Interesting to note is that ratings for instructional strategies for MENA were very low. Much effort has been spent in determining priority training needs in the electrical power generation and distribution industry in Africa, MENA, and South Asia. Assuming these needs are valid, it is imperative that the development of training materials and the selection, or training, of trainers be accomplished within the cultural context of each targeted country. In many

situations however, training materials and strategies developed in one country are implemented in another without careful consideration or understanding of this context. Likewise, strategies used in delivering training for a specific content area can be ineffective when delivering training in a different content area.

The results of this study are important for the effective implementation of training for multinational businesses or not-for-profit organizations working across borders. The identification of instructional strategies most accepted within a cultural context for a specific content area provides training material developers and trainers with tools to facilitate effective training. Also, the skills/knowledge/abilities necessary for material developers and trainers to perform their tasks can be more easily identified. Additionally, overall research in the teaching/learning field shows that some instructional strategies not identified as highly acceptable in this study may, in fact, prove to be very useful if carefully tailored to targeted content and culture. For example, the use of simulations in training on technical content, the Internet in management content, storytelling in policy topic areas, and video and audio in training on public relations may effectively supplement more traditional training strategies. In a broader view, it is important to note that the research design and techniques of this study appear to have application for other inquiries into trans-border training efforts or can be adapted for application within specific countries when decision makers from inside and outside the country are planning training programs. Finally, additional research on applying cultural context to the design of training strategies should be conducted.

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Limbical Learning: The Emotional Facet of Adult Education

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Abstract

An area gaining extensive attention in education is the connection of emotion to more effective learning. As industry concentrates on providing training to its adult learners (employees), industrial educators need to be aware of the brain's emotion generating and processing structures (limbic system) and their relationship to information processing and memory construction. This knowledge facilitates application of teaching skills that take advantage of emotion's connection to effective learning. This article discusses how the limbic system can enhance or hinder the learning process and provides suggestions for creating an emotionally friendly learning environment. The article discusses real-life practices the author uses to create a synergistic learning environment that maximizes the potential of the emotional connection to successful learning.

Introduction

Right now, you might be asking yourself, *Limbical Learning*? You will not find this term searching the internet or in the local library, as it is not a term coined by educators or brain researchers. Limbical Learning is a learning-related term that the author uses to refer to an area gaining greater attention in adult education and education in general; the connection of emotion to successful learning.

Numerous studies and brain imaging processes have provided evidence that there are many connections between the brain's emotion generating and processing area called the limbic system and other information processing and memory construction parts of the brain (Anderson, Wais, & Gabrieli,

2006; Carter, 1998; Dolcos, LaBar, & Cabeza, 2005). In fact, depending on the strength of the emotional connection, emotions can even override analytic thinking and severely affect the ability to process information rationally (LeDoux, 1995, p. 213). The emotional connection may well be one of the most important discoveries related to learning success in the past few years.

The industrial education environment of today is one of the foremost adult learning settings. As industry discovers the value of training and provides more extensive training to its adult learners (employees), the emotional connection becomes even more significant. Many adults harbor negative emotional connections to past learning experiences and fears associated with past learning failures. There is also the emotion-filled perception that adults are less capable of learning than are younger learners.

Anxiety also influences the emotional connection. There are instances where completing an educational program is mandatory to obtain or maintain a job. Occasionally salaries and wages are based on knowledge level. Insensitive or tactless comments from peers or managers related to learning ability or about participation in learning opportunities can be a factor. Even just having a desire to learn can create a significant level of stress. The vicissitudes of adult life away from the job undoubtedly produce a high level of stress that can negatively affect the learning environment.

In some cases, industrial adult educators face the challenge that people perceive emotion as a shortcoming or a sign of weakness. Therefore, not only does the industrial adult educator need to provide an emotionally safe learning environment, they must also deal with becoming emotionally comfortable themselves to facilitate the use of emotion as an effective learning tool. Until the adult learner and adult educator are emotionally comfortable, emotionally confident, and emotionally in tune the effectiveness of the learning is not at the ultimate level.

The Learning Process and Emotion

It might be of value at this point to define emotion and discuss in a general sense, how learning takes place in the adult brain. Definitions of emotion are wide-ranging. The New Age Encyclopedia defines emotion as, "Mental states or processes accompanied by marked bodily reactions, which occur in anticipation or realization of frustration or satisfaction of needs" (1979). Salovey and Mayer (1990) say that emotion is an "organized response crossing the boundaries of many psychological, cognitive, motivational, and experiential systems." Finally, both Ratey (2001, p. 149) and Goleman (2005, p. 6) mention that the Latin derivative of the word *emotion* is a term that means, "to move". They go on to discuss how emotion relates to stimuli that cause us to take action.

As for learning, the human brain consists of two identical hemispheres referred to as the left and right cerebral hemispheres. Major segments of the two hemispheres are called lobes. The four lobes are the frontal, parietal, temporal, and occipital. Data enters the brain through the parietal lobe (touch information), the temporal lobe (auditory information), and the occipital lobe (vision information). The frontal lobes are considered to be the supervisor and decision maker (Goldberg, 2001, p. 23). The parietal, temporal, and occipital lobes act as a memory bank for the data they each receive. These structures are the key areas responsible for short-term or working memory (temporary, at-the-moment memory).

Each lobe directs the incoming data to more central parts of the brain for processing. Data flow takes place as the approximately 100 billion brain cells (neurons) humans have pass the data from one to another through projections stemming from each neuron called axons (transmitters) and dendrites (receivers). The connections between neurons called synapses act as an information transfer point. An electrical impulse causes the release of neurotransmitters from one neuron into the narrow space between synapses (synaptic cleft) where another neuron receives them. This forms paths between neurons, which can result in formation of neural networks. The more the paths are used, the stronger and more elaborate the networks become.

Incoming sensory data flows to the thalamus, a major part of the limbic system. All data from our senses, except smell, are processed to a certain extent by the Sensory Register, which is a small portion of the brainstem and the thalamus. The thalamus determines the importance of the incoming data. The Sensory Register forwards data that the thalamus considers to be of importance to other parts of the brain for further processing. Insignificant data is discarded (Sousa, 2006, pp. 41-42).

The data considered to be of value is processed for long-term memory by a structure called the hippocampus. This structure is also a component of the limbic system. The hippocampus compares information in working memory to memories stored from the past and looks for connections between the incoming and stored information. Neuroscientists believe that a structure connected to the end of the hippocampus called the amygdala assigns an emotional significance to the information sent to long-term memory. The amygdala, a key part of the limbic system, deals with fear. As the new incoming information is compared to past memories, any memories with a connection to fear can cause the learner to re-experience those fears depending on the strength of the emotional connection.

Adults have many more memories to draw upon so the chance of recalling a fear-based event connected to past emotional experiences (which may be related to learning) is exponentially larger than it is for younger learners.

The connection between the hippocampus and the amygdala ensures concrete memory of important emotional events virtually forever. This is why adult learners must be emotionally comfortable and have a positive emotional connection to the learning.

Our distant past was filled with emotionally charged situations that required effective information transfer to long-term memory and assignment of emotional value to experiences; survival depended on it. The brain has evolved significantly over the eons of time but the structures related to emotion have changed little and perform the same essential functions today as they did in the past. It is no coincidence that the structures in the brain mainly responsible for transferring information from working memory to long-term memory are located in the emotional area of the brain.

This is not stating that emotional significance is the only process associated with successful learning; there are many other processes that enter into learning such as rehearsal (repeating information, underlining, highlighting, summarizing), experience (actual participation in the newly learned skill or application of the new knowledge), and of course, how motivated a learner is to learn the subject at hand. Even then, these items have direct or indirect relation to emotion. Rehearsal and experience can be more successful when a strong emotional attachment is present. Transfer from short-term to long-term memory is very difficult without motivation. Combining these processes with a working knowledge of the effects of emotion can produce a very stimulating learning environment.

Research on Limbical Learning

Researchers have conducted extensive studies on both animal and human subjects to confirm that the emotional connection to learning is not just another unconfirmed speculation in the multitude of research about the inner functions of the brain and how we learn. This research confirms that there is a definite connection between learning and emotion, a connection which adult educators, in fact, all educators need to take seriously.

Sousa (2006) discusses how the learning environment can affect information processing. An emotionally comfortable learning environment enhances the release of chemicals in the brain called endorphins. Endorphins produce feelings of pleasure and stimulate the frontal lobes making the learning experience more pleasant and satisfying. On the other hand, a stressful learning environment induces negative feelings and the release of a hormone called cortisol. Cortisol activates the brain's defense behaviors and causes the frontal lobes to focus on the cause of the stress and narrow thinking to developing ways to deal with the anxiety (p. 84).

McGaugh, Weinberg, and Lynch (1995) relate numerous studies on how emotion affects learning and memory. Their findings demonstrate that emotional events are put into memory with a greater emotional value assigned to them and therefore, recalled with greater accuracy and detail. Through their studies and the results of other studies, they have concluded that the amygdala definitely does play a role in emotional learning.

Ratey (2001) ties motivation to emotion through a structure in the limbic system called the cingulate gyrus. This structure is equipped to receive processed visual, auditory, olfactory, and information on the internal states of the body. The cingulate gyrus also has a connection to the hippocampus, which allows the mind to compare the information gathered by the cingulate gyrus to information in long-term memory. The resulting response is prioritizing and judging what input is worth further processing or in other words, what is motivating enough to merit continued response (p. 248).

Another fear related part of the adult learning environment is the notion that adults are less capable of learning than are younger learners. There is scientific evidence that the learning process can and does continue throughout our lifetime. Studies have shown that "while brain connections are vulnerable to age, neural networks have the potential to grow more sophisticated … making the brain more responsive" (Fishback, 1999). Numerous studies have verified that neurogenesis (the production of new neurons) does continue in certain areas of the brain, areas associated directly to learning and memory such as the hippocampus (Eriksson et al., 1998). The key is keeping the adult brain mentally and physically active to encourage neural network activity (Churchill et al., 2002; Hillman, Beloposky, Snook, Kramer, & McAuley, 2004). This is a classic case of "Use it or lose it".

Synergistic Learning – Combining Limbical and Adult Learning Concepts

Effective adult learning can be related to synergy (the phenomenon that occurs when a combination of elements creates an effect that is greater than the sum of the effects each component could create on its own). When the educator creates a learning environment in which the various elements of adult learning principles, emotion's affects on learning, and meeting learners' needs and expectations are properly combined, the result is a synergistic learning environment. Learner motivation increases, as does the effectiveness of the transfer of knowledge from short-term to long-term memory. This synergistic learning environment provides meaningful learning opportunities and experiences for both learner and educator.

In the author's opinion, the most significant aspects of a synergistic learning environment relate to educator expertise and the educator's ability to interface with the learners. Through his years of education, research, and experiences teaching adult learners both in post secondary settings and in industrial settings he has developed a list of 12 skills that are of significant value to an industrial adult educator in promoting a synergistic learning environment that addresses learner emotional and cognitive needs and expectations.

Development of many of these skills requires the adult educator to spend significant time beyond the actual teaching environment gaining knowledge related to specific learning needs, adult education, and current learning research. Skill development also involves being able to analyze the adult educator's personal philosophy related to teaching and the educational perspectives of those participating in the learning experience. There is also the aspect of experience. Development of the skills involves experience applying the skills in the real learning environment. This is essential if synergy is the expected result. The following is a list of what the author refers to as *The Definitive Dozen*.

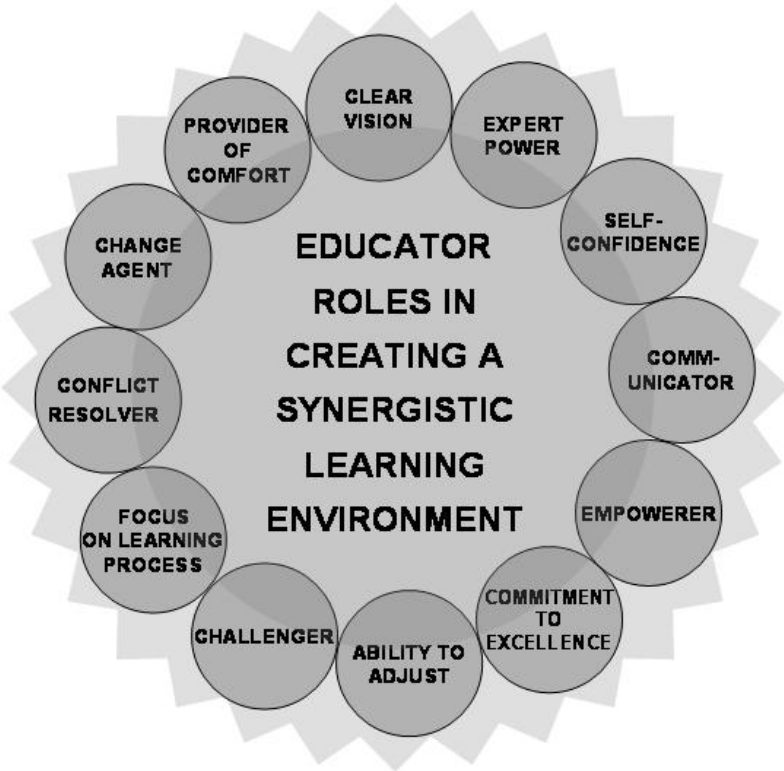

Figure 1. Educator roles in creating synergy within the learning environment.

They are numbered but the numbering in no way reflects the level of importance or the value of any of the skills.

1. The adult educator must have a clear vision of where they are going and have an effective method of getting there – Ability to conduct a quality needs analysis, composition of clear learning and performance objectives, creation of first-rate lesson plans, and development of effective evaluation methods are all elements of this skill. The first few minutes set the tone for the entire class. Sharing the objectives and the strategy helps cultivate the emotional connections between class participants and the instructor.
2. The adult educator must demonstrate expert power on the subject matter – Expert power is defined as, "the ability to control another's behavior because of the possession of knowledge, experience, or judgment that the other person does not have but needs" (Schermerhon, Hunt, & Osborn, 2000, p. 312). Do not misunderstand the essence of this definition. When the author first became familiar with this "power" it truly did not seem to fit with emotion and learning. The reference to control made it seem more like a very insensitive type of power. However, a deeper look into what learning actually is reveals that it is a change in behavior. An adult educator's responsibility is to "control" that change in behavior. Making sure emotion is a significant part of this control will enhance the learning process.
3. The adult educator must have self-confidence – Self-confidence is a major attribute any educator must have. A lack of self-confidence will lower the emotional comfort level in the learning environment. As the educator is the leader in the classroom, the emotional ambiance the educator exudes will affect the emotional mindset of learners and the overall learning experience.
4. The adult educator must be able to communicate the knowledge on a level that ensures comprehension – This requires the adult educator to do some research prior to or during the first part of the course. This research consists of identifying learning styles. There are numerous instruments available for performing a quick and easy learning style analysis. Some suggestions are ATLAS - Assessing the Learning Strategies of Adults by Konti and Kolody (1998), and C.I.T.E. – Center for Innovative Teaching Experience Learning Styles Instrument by Babich, Burdine, Allbright, and Randol (1976). Once learning styles are identified, applying instructional techniques that harmonize with the learning styles creates a more emotionally comfortable learning environment.
5. The adult educator must use empowerment in allowing learners to share experiences with the class – Nothing is more emotionally significant than personal experiences. This learning tool allows those sharing experiences

and learners listening to the experiences to enter into the affective learning domain, which in turn provides the emotional connection discussed throughout this article. Educators that share their own experiences, provide a comfort level that encourages and empowers learners to share experiences.

6. The adult educator must be committed to excellence – Learners can recognize when an instructor is not fully committed to delivering the necessary learning in the most effective manner. This type of learning environment creates a situation where the emotional significance quickly deteriorates. The brain will do its comparisons to previous learning experiences and make the connection to similar negative learning experiences from the past. When this connection occurs, the emotional value of the learning decreases and the transfer of information from short-term to long-term memory reduces considerably.
7. The adult educator must be able to direct his/her philosophy of adult education to meet learner needs and learning styles – All educators have (or should have) their own philosophy of education and teaching style. It is essential to have a philosophy of teaching and learning and to personalize philosophies. This provides an identified foundation for how we approach adult learning and provides self-assurance that beliefs, needs, and educational knowledge is continually progressing. Of course, as this article suggests, our philosophy should include an emotional element. An effective instrument to identify personal philosophy of adult education is Zinn's Philosophy of Adult Education Inventory – PAEI (1999) or Konti's Principles of Adult Learning Scale – PALS (Galbraith, 2004, pp. 79-91).
8. The adult educator must provide learners with challenges that test their ability and are conducive to their learning desires – When an instructor provides learners with challenges that test their abilities two things happen. First, learners experience a moderate or high level of stress until they prove to themselves that the can meet the challenge. Second, once the challenge is met learners experience a degree of euphoria in which the stress hormones recede and endorphins are released creating a sense of well-being, thus a more effective learning experience.

   The challenge for the instructor is to know the learner well enough to provide challenges that are not above the learner's capability. Previous knowledge of learner capabilities, familiarization with the desires possessed by the learner, and constant mental evaluation of learner performance can all lead to successful challenges.

   A concept related to challenge is recognition. Recognition for accomplishments is essential to learner emotional connection. This creates a positive experience and production of a neurotransmitter called

dopamine. Dopamine provides feelings of enjoyment and acts as a motivator. The result is a satisfying learning experience and motivation to participate in future learning opportunities. Be careful though, overuse of rewards and recognition or exclusion of expected rewards can result in negative motivation.

9. Learners expect to receive abundant knowledge related to the subject matter while being allowed time to contemplate and understand the new learning – Adult learners normally want comprehensive knowledge on a subject to enable them to fully comprehend the material while processing how it affects them and what its value is to them both presently and in the future. If learners are not provided adequate time to contemplate the learning, a significant level of anxiety can develop. With this comes the activation of the brain's defensive behaviors. Now, instead of focusing on the information being provided, the emotional system is focused on developing ways to deal with the anxiety; thus, learning effectiveness decreases significantly.
10. Learners expect the instructor to address any conflicts that may arise – Conflict is one of those emotions that can override the analytical part of the brain. Conflict can cause the amygdala to take command before the rest of the mind has time to process the incoming information and determine the best course of action. In most classroom conflicts, the result is not a total takeover, but even a slight takeover can have detrimental effects on the learning environment. The crucial element in dealing with conflict is the ability to recognize tensions early. Conflicts can exist between course participants, between participants and management, or even between participants and instructor. There are numerous conflict resolution techniques available; find one that contains elements of your philosophy of adult education.
11. If the learning involves changes of previously learned material, learners expect the instructor to provide them with valid reasons for the change and demonstrate the value of the change – Many times communicating a change to previously learned material creates a phenomenon called cognitive dissonance. Cognitive dissonance (Festinger, 1965) is the psychological discomfort felt when "information and opinions which are communicated … introduce new elements which are dissonant with already existing cognitions" (p. 177). In the case of changes to previously learned material, a learner experiences a discrepancy between what is already known and the new information. The discomfort level rises depending on the importance of the subject matter to the learner, how strongly the information conflicts, and the learner's ability to rationalize the conflicting information. Feelings of dissonance create anxiety. Educators need to be ready to provide

supporting evidence that the change has value and act as change agents in helping learners to understand and accept the new information.

12. The adult educator must create a learning environment that is safe from external interference and is both emotionally and physically comfortable – Many times shielding learners from outside interference is a considerable challenge. If the learner's manager is not interrupting with various requests and questions, cell phones are ringing, vibrating, or signaling the receipt of text messages, and e-mail notifications are popping up on the learner's computer screen. These all detract from the comfort and effectiveness of the learning environment. Comfort must not only focus on emotional comfort but physical comfort as well. Chairs that are uncomfortable, classroom temperature, outside noise, lack of breaks, poorly designed learning stations, and even the classroom lighting can affect emotional well being.

An additional concept that can give learners motivation to apply the learning is to offer a congratulatory luncheon or some kind of recognition event at the conclusion of training. The key to this concept is to make sure that all levels of supervision are represented at the event. This provides learners with the awareness that supervision supports them and their participation in the educational program. It can also demonstrate to learners and educators that supervision values and supports the educational programs.

Real-Life Practices Used in Industrial Education Courses

Many adult learners may have not participated in a learning experience in the recent past. It is a beneficial practice to provide learners with activities to get the mind focused and get them back into the learning process. It is also advantageous to make sure they are as comfortable as possible with the learning process. The author addresses these issues by providing a thorough explain of how the training will be delivered, what subject matter will be covered, and the learning objectives associated with the subject matter.

For job-related training, the author gets them personally involved in determining what learning they need. This is not to say that the course will contain only what learners determine they need; in an industrial environment, it is essential to cover all content that is common to the particular training program. Doing things to make learners feel personally involved in identifying training needs makes the emotional connection. If the training relates to a new process, change in procedures, or other things that are unfamiliar to learners, make sure to explain exactly what training they will be receiving, communicate the learning objectives, and discuss why the training is necessary.

The methods used by the author to allow learners to identify training needs are classroom discussions, benchmarking, and preliminary tours. The method employed depends on subject matter, the type of course, and any personal knowledge of participant learning styles. Discussions work well for most situations. The key to this method is to have a list of items related to each objective and apply a questioning process to extract perceived needs.

Benchmarking involves identification of current knowledge level and comparison to the expected knowledge level at the completion of the training. One suggestion is to give the learners a written preliminary test that allows them to see where they currently are in comparison to where they need to be at the completion of the training. The author never refers to it as a preliminary test as the word *test* evokes that enemy of learning, fear. Tests are always referred to as a *mass proficiency confirmation* (MPC). Benchmarking works well for longer process and job skills courses.

Preliminary tours work well for new processes, process changes, and those situations where the process or equipment is unfamiliar to learners. An initial tour of the new process or new equipment provides a level of comfort resulting from familiarity. These tours also include an explanation of why the training is necessary.

To get learners into the learning mode it is of value to use brainteasers and word puzzles. These entertaining activities lighten up the classroom atmosphere and make the learning environment more relaxed. They also serve to get the synapses firing and to persuade neural networks that may be stagnant to become active again. There are a vast number of brainteasers and puzzles available to educators; just search the internet. There are many books available as well as numerous free resources.

A practice the author uses frequently is having learners work as a group at the end of each day's class to discuss the day's learning and come up with a learning point that they felt was significant. If class size is six or more, the learners are broken up into groups of three or four. After a short discussion period, each group shares a learning point with the class. This discussion and sharing period makes the point meaningful. The author takes it one step further by informing the learners that their learning points will be included in the final MPC. This further strengthens the meaningfulness of the learning point and ensures assignment of an emotional tag to this information.

Another practice used by the author at various times to enhance the comfort level of the learning environment is to demonstrate and assist learners in applying memory enhancement techniques. The author not only assists the learners in applying these techniques, he uses them himself to recall items that are difficult to remember. One technique is development and distribution of

small reference cards that learners can easily carry while working their jobs. These reference cards can relate to numerous things such as short lists of instructions for performing a task, process flow diagrams, hazardous material properties and exposure limits, and warning label illustrations.

Use of mnemonics is another memory tool the author uses frequently. Mnemonics are memory aids that involve creation of rhymes, meaningful phrases, abbreviations, and mental associations. Here is an example of a mnemonic. This mnemonic uses first letters in the phrase and the planet order to help in remembering the order of the planets.

Martha Visits Every Monday And Just Stays Until Noon.
Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune.

(If you support the notion that Pluto is still a planet, just add *Precisely* to the end of the phrase.)

Mnemonics works well for remembering numbers, remembering lists, remembering equipment locations, and remembering names. Mnemonics can also be useful to remember course participant names.

An excellent practice to keep the stress level in the learning environment in check is to make sure that nothing associated with the learning is unexpected. The author always provides the learners with a syllabus that communicates course content, course schedule, course objectives, attendance and participation expectations, performance evaluation criteria, and the post-training strategy. He also verbally reviews the syllabus to ensure full understanding of the items on the syllabus. There are no pop quizzes and deviations from any of these items are communicated to learners as far in advance as possible. In discussing expectations with learners, it is beneficial to include a discussion of what their expectations are to ensure that there is agreement between learner and educator expectations.

The author frequently uses a concept referred to as gun drills in which learners are given a hypothetical situation and set of circumstances then having them communicate or demonstrate how he or she would handle the situation. The intent of this practice is to provide a challenge at the appropriate level of difficulty to determine if the previous learning effectively transferred to long-term memory. This practice also serves to reinforce the neuronal connections related to the previous learning. One more feature of gun drills is that they provide a means for presenting recognition for properly addressing the situation and an opportunity for guidance if any misconceptions are present.

Final Thoughts

The mind is an amazing structure but as amazing as it is, the ancient framework of emotion is still the predominant feature. This knowledge is but one of the many tools adult educators can use to make the adult learning environment successful. If you do not have a formal philosophy of adult learning, use one of the many available instruments to identify yours and then go one step further; personalize it so that your philosophy has deeper personal significance.

Applying the many tools available and ensuring that the tools coalesce with the learners and the learning environment can lead to a synergistic learning setting. Those adult educators that exploit the emotional connection to learning and achieve synergy in the learning environment can proudly wear the label of *Sage of Adult Edification*.

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Training and Continuing Education Programme in Nigeria's Informal Sector Automobile Industry

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Abstract

Servicing automobile mechatronic components continues to pose difficulties for informal sector (roadside) mechanics in Nigeria. Thus the study was aimed at assessing the informal sector training/retraining programmes as well as determining ways government policies could evolve sustainable maintenance sub-sector in the automobile industry. A total of 300 craftsman, spare parts dealers and senior government officials formed the sample of the study. Qualitative and quantitative research methods were used. Among others, the study revealed that there is no regular retraining programme available to the mechanics and that the National Automotive Policy made no provision for the informal sub-sectors. It was recommended that the efforts of the roadside mechanics in automobile maintenance could be enhanced by providing effective continuing education programmes.

Background of the Study

In recognition of the prominent position of the automobile industry in economic Nigeria's structure, successive Nigerian Governments have taken several measures to enhance the development of the industry. The most prominent of these measures were the formulation of the National Automotive Policy (NAC, 1993) and the regulation on importation of used automobiles and replacement parts. Ogundadegbe (2000) reported that the Nigerian Government banned the importation of used cars older than eight years in 2000. The age limit was changed to five years in 2003 (Ugochukwu, 2003). The upward review in age limit was occasioned by the substantial revenue loss by the Government since

the inception of the defunct policy (Fadiyi, 2003). The latest policy will translate to a windfall for importers and the roadside mechanics.

Jaial (1999) reported that over 90 per cent of the imported vehicles in Nigeria are used ones (popularly referred to as "tokunbo" vehicles). The higher patronage by most Nigerians for the imported used vehicle is explained by their relatively cheap price and reasonable good condition. It is noteworthy that newer models of automobiles are made up of newer technology of which the roadside mechanics are unfamiliar. Hatzted (1998) and Lidow (2002) contended that advances in electronics and computer technology led to the introduction of a vast number of simple and sophisticated electronic components, computer systems and several other micro electromechanical systems into the automobile. These include electronic steering, electronic ignition system, integrated electronic braking, electronic security systems, service interval reminder, on-board diagnostic system, brake-by-wire and throttle by wire systems, among others. The electromechanical component in these new automobiles goes beyond the capacity of the roadside mechanics to maintain and service. Whereas faults in mechanical components can be diagnosed by mere visual inspection, the electronic types require scanning equipment for their trouble shooting. These advance equipment are not available to the roadside mechanic and even when provided their knowledge base will not suffice for the use of the equipment. Furthermore, their experience and competency in servicing old automobiles ceases to be cognate relative to the newer ones.

The foregoing clearly reveals that the automobile owners are at risk as well as the industry in leaving the roadside mechanics to suffer knowledge lag in a global era mainly driven by knowledge. The roadside mechanics should therefore be assisted in adjusting to the demands of the inevitable effects of globalization on the automobile industry through the provision of interventions that will facilitate the empowerment of the entire informal automobile sector. This could be achieved, among other ways, through training to improve the knowledge base of the roadside mechanics.

Training, according to Eyibe (2000), is the process of imparting to a person a limited skill to perform an operation without necessarily understanding the principles on which the operation depends. He maintained that training aims at the acquisition of limited ability or skill and the development of intelligent capacities. Specifically, the type of training needed by the informal sector roadside mechanics is technical or technological training. According to Mytelka and Tegfachew (1999), technological training is the process of technological capacity building through which firms acquire the tacit knowledge needed for the sustenance of their productivity. In the instance of the informal sector automobile industry, it is the process whereby the mechanics build up their knowledge bases on the vehicles they service in order to remain in business.

Technical training is badly needed in the informal sector to maintain product quality, contribute to diversification, incomes, positive rate of return, productivity and enhance occupational safety/health (Fluitman and Haan, 2002). Training becomes imperative for the sector because of its increasing sensitivity to technology transfer mechanisms that facilitate the assimilation and adaptation of technology (Odetola, 1993). While the ILO (2000) stresses the importance of sensitizing national training policies to reflect these needs, such training interventions tend to be more effective if beneficiaries (Trade Associations) participate in their planning and when existing structure is re-oriented to planned training (Limatainen, 2002; Fluitman & Haan, 2002). The argument of using existing structure is buttressed by the fact that the traditional apprenticeships have the advantage of adapting to local needs, and of generating positive attitudes to work – a task which formal off-job training often finds difficult (Gray, Fletcher, Foster, King & Warrender, 1993).

There are a number of policy options for the provision of continuing professional development and enhancing the available training programme in the informal automobile industry. These models include among others: extension programme (Aderoba, 1994), day release, production activity and self-training techniques (Odetola, 1993). Furthermore, the National Board for Technical Education (NBTE) could equally re-orient existing modular curricula of technical colleges as provided in the National Policy on Education (FGN, 1998) for out-of-school students to suit mechanics with low educational background. Extension Education Programme as envisaged could be organized by agencies already providing non-formal education programmes such as Industrial Development Centre (IDC) (NCI, 2000), Industrial Training Fund (ITF) (Fapohunda, 1993) and the National Directorate of Employment (NDE).

Donor-assisted projects have demonstrated that informal sector enterprises can be upgraded through carefully targeted skill development Efforts (Carr-Hill and Leach, 1995; Fluitman and Haan, 2002). Automobile technology is at the emerging stage hence the mechanics in the informal sector can hardly reverse engineer the components nor establish Research and Development (R & D) outposts in advanced countries (Kim, 2000). It will be foolhardy to assume they will acquire sufficient technological learning through trial and error as to remain sustainable in the context of high-tech vehicles. A skill empowered informal automobile sector will likely provide better sectoral organization, capital accumulation, additional employment and income generation (Voh and Yunussa, 1993).

Generally, the centre of gravity of the entire informal sector, needs to be shifted from purely retailing activities to more productive and service oriented trades (Vandemoortele, 1991). Even in the proposed retraining programmes, there should be stress on the importance of 'pedagogical content

knowledge' (PCK) of the master craftsman to have understanding of what aspects of the technical content apprentices can learn at a particular development (training) stage, how to represent it to them and how to lead them into different conceptual understanding (Sparks, 2002). Training in the informal sector should, however, not strictly be tailored after the formal training design rather it should bear the strengths from both types of training (Limatainen, 2002). Indeed, it is a wrong policy assumption that technological learning/ innovations will emerge automatically in time through learning by doing (Oyelaran-Oyeyinka, 2000) especially for the ones (such as the automobile industry) at its emerging stage. A skill empowered informal automobile sector will likely provide better organization, capital accumulation, additional employment and income generation (Voh & Yunussa, 1993). Thus this valuable sector needs the attention of major stakeholders in order to institute a viable continuing education programme.

Statement of the Problem

The relatively cheap price and reasonably good condition of imported used automobiles (popularly referred to as 'tokunbo' vehicles), accounts for its higher rate of patronage by most Nigerians. Most of these vehicles contain components which operate on electrical, electronic and electromechanical principles. It is an established fact that maintenance is an essential factor in vehicle purchase hence the technicians as one of the important professionals in the automobile industry play major roles in prolonging the service life of vehicles. The roadside mechanics classified among the informal automobile sector has therefore become a major stakeholder in the maintenance of imported used vehicles since the formal sector shrinkage due to the effects of the government's Structural Adjustment Programme (SAP). It is observed that most of these informal automobile sector technicians are not even familiar with some of these electromechanical components in modern automobiles; hence they cannot repair and maintain the vehicles. Donor-assisted projects have demonstrated that informal sector enterprises can be upgraded through carefully targeted skill development efforts (Carr-Hill & Leach, 1995; Fluitman & Haan, 2002). Automobile technology is at the emerging stage hence the mechanics in the informal sector can hardly reverse engineer the components nor establish Research and Development (R & D) outposts in advanced countries (Kim, 2000).

Whereas faults in mechanical components can be diagnosed by mere visual inspection, the electronic components will require special tools like the scanner for troubleshooting them. These advance equipment are not available to the informal sector mechanics and even when provided, their knowledge base will not suffice for the use of the equipment. Suffice it to state that while

the haphazard use of simple test equipment on mechanical components could perhaps result in minor damage, modern electronic control units can easily be damaged beyond repair – a costly way to acquire experience (Hillier, 1991).

Since major shifts in the technology frontier were generally through acquisition from abroad (Narayanan, 1997), same should be extended to the maintenance sub-sector. In the formal automobile sector, major vehicle distributors are making conscientious effort at equipping their workshops and retraining their technicians (PAN, 2001), same cannot be said of those in the informal sector. What matters today is not the simple acquisition of technology but the ability to master, maintain and to innovate it (Mytelka & Ohiorhenuan, 2000). Moreover, it will be foolhardy to assume that they will acquire sufficient technological learning through trial and error as to remain sustainable in the context of high-tech vehicles. Furthermore, a lot of mechanics will soon face severe specialized unemployment when the stock of fairly used older automobile models is exhausted from the exporting countries, coupled with the age limit policy for imported used cars. Hence, training and continuing professional development programmes are imperative to improve the operations of roadside mechanics for the benefit of both exporting and importing countries of used automobiles as well as vehicle owners.

Purpose of the Study

The main purpose of the study is to assess the training and Continuing Education Programmes (CEP) of roadside mechanics in Nigeria. Specifically, the study aims at

1. Assessing the structure of training and continuing professional development programmes available in the informal sub-sector of the automobile industry.
2. Determining the ways government policies could be tailored toward evolving sustainable maintenance sub-sector in the automobile industry in Nigeria.

Research Methods

The survey research design was used in the study. The population comprises approximately 1000 master craftsmen who are members of the Nigerian Automobile Technicians Association (NATA) and 300 spare parts dealers in the informal automobile sector at three towns: Nnewi, Lagos and Abuja. The populations also include 100 senior administrative officials of four Government Parastatals namely the National Directorate of Employment (NDE) the Industrial Training Fund (ITF), the Industrial Development Centre (IDC). A

sample of 300 respondents made up of 240 automobile technicians and spare part dealers and to senior government officials were used for the study. They were selected through stratified random sampling technique.

Three focus group discussion (FGD) guides/interview schedules and four different questionnaires were used to collect primary data from the four groups of respondents namely auto-mechanics, auto-electricians, spare parts dealers and government officials. Secondary data were generated through extensive literature reviews on the internet, library and review of relevant government policy documents. Frequency counts, percentages, mean and standard deviation were used to analyse the quantitative data obtained from the fieldwork using the computer package of SPSS.

Results

Table I: Frequency and Percentage Response of Auto-mechanics and Auto-electricians on the Structure of Available Training Programme

Structure of Training Programme	Auto-Mechanics	Auto-Electrician
Duration (in years)		
0 – 2	-	-
3 – 4	6 (8.2)	24 (61.5)
5 – 6	43 (58.9)	4 (10.3)
Master decides	18 (24.7)	9 (23.1)
Apprentice decides	-	-
Mode of Admission		
Oral interview	29 (39.7)	4 (10.3)
Written interview	12 (16.4)	2 (5.1)
Parent/Guardian recommendation	23 (31.5)	21 (53.8)
Presentation of FSLC/SSSC	-	10 (25.6)
Fees Charged		
None	-	-
Less than ₦5,000 ($36)	50 (68.5)	8 (20.5)
₦5,000 – ₦10,000 ($74)	14 (19.2)	17 (43.6)
₦10,000 – ₦20,000 ($147)	3 (4.1)	8 (20.5)
Above ₦20,000	-	-
Training Content		
Use of listed content (Theory/practical)		
Yes	30 (41.1)	12 (30.8)
No	43 (58.9)	27 (69.2)
Training depends on clients' fault (No listed content)		
Yes	33 (45.2)	22 (56.4)
No	40 (54.8)	17 (43.6)
Use of listed content for only the practical		
Yes	24 (32.9)	-
No	49 (67.1)	39 (100)

Note: The shortfalls to the total of 100 per cent on any sub-heading represent the percentage of those who did not respond to the item.

Analysis of data on table 1 shows that auto-electricians spent less time (3 – 4 years) than auto-mechanics (5 – 6 years) on apprentice's training. It further revealed that parental/guardian's recommendation is a significant factor and followed by use of oral interview as mode of admission for training. Again, the majority of auto-mechanics charge less training fee [<₦5,000 ($36)] than majority of the auto-electricians [₦5,000 – ₦10,000 ($74)]. The table also shows that much of the master craftsmen do not use listed content (theory/practical) to guide the training programme but depend mainly on clients' complained faults.

Table 2: Mean and Standard Deviation of Auto-mechanics/Auto-electricians' Responses on Training Techniques, Method of Competency Certification and Continuing Professional Development

Training Techniques Adopted		$\overline{X}_M$	SD_M	$\overline{X}_E$	SD_E
1.	Theory lessons preceding the practical	1.78*	.98	1.64*	.99
2.	Practical without any theory lesson	2.21*	.82	2.23*	.84
3.	Practical demonstration, observation before explanations	2.21*	.71	2.15*	.74
4.	Senior apprentice teaching junior ones	2.15*	.84	2.33*	.74
5.	Assignments given according to the master's perception of skills already acquired	2.22*	.71	2.08*	.84
6.	Assignments given according to years spent on training	2.05*	.90	2.10*	.72
7.	Apprentice stating areas of training needs	1.74*	.80	1.08**	.77
8.	Training is first done using abandoned cars	1.84*	.88	1.69*	.66
9.	Testing the apprentice's initiative by giving assignment on untaught task	1.90*	.78	1.46**	.76
10.	Using the complaints of clients to determine areas of training emphasis	2.01*	.77	1.64*	.84
Method of Competency Certification					
11.	End of the stipulated contract period of training	1.64*	1.08	2.03*	.81
12.	When apprentice can rectify most faults brought by clients	2.40*	.57	2.26*	.79
13.	When apprentice can identify the faulty components associated with clients' complaints	2.03*	.73	2.10*	.99
14.	Clients certify when apprentice has mastered the trade	1.67*	.88	1.67*	1.01
15.	The master craftsman decides when an apprentice graduates	2.14*	.84	2.31*	.73
16.	The apprentice decides when he graduates	1.60*	.87	.95**	.22
17.	The apprentice has to pass the trade test organized by the Ministry of Labour and Productivity	1.51*	.78	1.92*	.77
Continuing Professional Development on New Technology					
18.	Contacting another mechanic who knows how to service any new product	1.60*	.72	2.15*	.37
19.	Enrolling in the skill programme of the National Directorate of Employment (NDE)	1.53*	.83	1.31**	.66
20.	The Trade Association organizes retraining programme for mechanics	1.49**	.85	1.85*	.49

21.	A senior apprentice goes to learn from other mechanics	1.25**	.68	1.15**	.37
22.	Learning from the clients' experiences after the trial and error attempts at servicing new products	1.33**	.76	1.31**	.57
23.	Travelling to another town and learning from other skills mechanics	1.18**	.65	1.10**	.31

Decision: * = Sometimes (1.5 – 2.49) ** = Never (0.5 – 1.49)

$\overline{X}_M$ and SD_M (stand for mean/standard deviation for auto-mechanics)

$\overline{X}_E$ and SD_E (stand for mean/standard deviation for auto-electricians)

To varying extent, the auto-mechanics/auto-electricians agree that they sometimes use the identified techniques. However, some training techniques were employed less namely: apprentice stating area of training need, theory lesson preceding the practical and use of abandoned cars for training. The certification procedures employed less often include sitting for trade test examination and using the opinion of clients to certify graduation. Table 2 further shows that there is no cut clear retraining programme available to the mechanics except that sometimes they enrol in the skill programme of NDE.

Furthermore, the qualitative data analysis on training and retraining programmes available in the informal sector reveal:

There has not been any structural change in the traditional training programme offered in the informal sector. Training is still conducted on-the-job without much theoretical background. More secondary school holders are enrolling as apprentices. Furthermore, at Nnewi the UNICEF established primary and secondary schools which master craftsmen and journeymen/apprentices attend to acquire basic general education. The UNICEF project was in response to the high rate of male-child drop-out in Anambra state schools and is aimed at combining productive work with education. These set of educated apprentices are advantaged because of increased requests by clients to name faulty parts and need for reading instructions on spare part labels. Some master craftsmen require their apprentices to procure some of their own tools because of incessant theft of the master's tools. Other master craftsmen encourage their graduating apprentices to sit for the trade test organized by the Ministry of Labour and Productivity.

No organized and regular continuing professional development programmes exist for the technicians. Those with special knowledge/skill in servicing particular new components act as consultants and are referred such problems from other technicians. Most times, they consider their acquired knowledge as a trade secret. However, the UNDP had in the past organized some training programmes for entrepreneurial skills development (Business Management, Book-keeping, workshop organization and use of first aid box) for mechanics in

Lagos. The UNDP also proposed building a central and standard fault diagnosis workshop for the mechanics' use especially in servicing fairly recent models. The absence of any regular continuing professional development programme does retard the rate of accumulated knowledge in the auto industry. The mechanics expressed willingness to have a training programme even if it entails their paying some tuition.

However, the Peugeot Assembly of Nigeria (PAN) is charging ₦10, 000 for a two week retraining at Kaduna. The qualification criteria for the programme is: reading and writing, knowledge of any trade (electrical, auto-mechanics) and recommendation from National Automobile Technicians Association (NATA). Furthermore, NATA plans to eliminate mediocre technicians through its National membership Registration programme. The programme will entail verifying the testimonial issued to the apprentice on graduation before the master craftsmen before registering the person as NATA member.

Table 3: Mean and Standard Deviation of Government Officials and Technicians Responses on Ways Government Policies Could Assist the Informal Auto-Maintenance Sub-sector

Policy Intervention	$\overline{X}$	SD
1. Creating a new agency for monitoring developments in informal sector maintenance activities	3.16***	1.43
2. Using existing agency like NDE to organize retraining programmes for mechanics	4.34**	.92
3. Involving the National Automotive Council (NAC) in collecting lists of fabricated parts in the sector	3.77**	.95
4. Assisting the trade unions in institutionalizing their association	4.23**	.81
5. Encouraging NGOs to providing technical and managerial training for the technicians	4.12**	1.10
6. Giving subsidy to the Trade Association for mechanics to organize themselves for sharing experiences on servicing new products	4.03**	1.20
7. Local car manufacturers should be requested to organize workshops for the mechanics	4.40**	.87
8. Ministry of industry to establish diagnostic equipment centres for mechanics	4.39**	.94
9. Technical colleges should be empowered to use he existing modular curriculum to improve the mechanics' skills	4.26**	.97
10. Providing sustainable channel of communication between the sector and relevant government agencies	4.53*	.60
11. Providing incentives for organizations/companies that engage in any activity aimed at improving the sector	4.40**	.79

Decision: * = Strongly Agree ** = Agree *** = Undecided

Table 3 shows that the respondents were undecided regarding the creation of a new agency for monitoring developments in the informal sector. They, however, agreed strongly to provide sustainable channel of communication between the sector and relevant government agencies. They also agreed among others to the establishment of diagnostic equipment centres by the Ministry of Industries and assisting the trade unions to institutionalizing their Associations.

Sequel to the qualitative (key informant interviews and focal group discussion) and policy document analysis, the following are the stakeholders' views:

1. reduce the age limit of imported used automobiles from eight to 10-15 years;
2. reduce the tariffs and port charges for importation of spare parts;
3. local component parts manufacturers should be monitored over maintenance of set standard; there should be automobile component test centre, an independent centre for certifying parts made locally; since Assembly Plants refuse to patronize them on the excuse of low standard;
4. imported spare parts should be inspected and its quality established before they leave the ports of exporting countries. These ports should also be tested at the Automobile component test centre. Countries found to collaborating with dubious businessmen should be sanctioned;
5. provision of a steady re-training programme;
6. establishment of a central fault diagnosis centre within the mechanic villages;
7. organized linkage with non-formal training agencies like IDC, ITF and NDE;
8. provision of public utilities especially electricity and permanent physical structures in the mechanic villages;
9. re-introducing UNDP programmes for up-grading their skills; more so as they pay stipends to participants.

Summary of Findings

1. The primary modes of admission are parental/guardian recommendation and oral interview; the fees charged range from less than ₦5,000 ($36) to ₦10,000 ($74) for a training period of 3 – 4 years (auto-electricians) or 5 – 6 years (auto-mechanics).
2. Master craftsmen do not use listed content (theory/practical) to guide the training programme but depend mainly on clients fault.
3. There is no regular or widespread retraining technical programme excepting the fairly expensive one organized by PAN in Kaduna and the intermittent UNDP programme in Lagos on entrepreneurial skills. At

Nnewi UNICEF established primary and secondary schools (Market School) for basic general education.

4. The Ministry of Industries could establish diagnostic equipment centres and assist the trade Unions in institutionalizing their Association in order to provide for sustainable channel of communication between the informal sector and relevant government agencies.
5. Independent automobile component test centres are not yet established to certify the quality of local and imported replacement parts.
6. Using the National Automotive Council (NAC) to collect lists of fabricated parts and the NGOs for providing technical and managerial training programmes.
7. No provisions for the maintenance and informal sub-sectors in the National Automotive policy.

Discussion

Results presented on Table 1 revealed the structure of the only available training programme (apprenticeship training) for Auto-mechanics and Auto-electricians. The findings revealed, among others, that most of the master craftsmen do not use listed content for theory and practical to guide the training programme but depend mainly on faults complained by their clients or customers. With this method, an apprentice may happen to learn how to rectify some particular common faults several times while some less common ones may never brought to their master throughout the duration of his apprenticeship. The result also showed that apprentice learning auto-mechanics spent more time (5-6 years) than those learning auto-electrical works who spend between 3 –4 years. This could be explained by the fact that the auto-mechanics technicians need to learn how to rectify problems involving almost all the components in the automobile (including having a fair idea of the electrical components) while the auto-electricians' work only centre on the electrical component alone which is only about one fifth of the total automobile components.

The result presented on table 2 revealed that majority of the master craftsmen used most of the training techniques listed. However, some techniques such as apprentice stating area of training need, theory lesson preceding practical and use of abandoned cars for training were used less frequently than the rest. The absence of theoretical explanations before the practical could be attributed to the fact that most of the master craftsmen themselves are not very conversant with the theoretical principles governing the operation of most automobile components hence they cannot give to their trainees what they themselves do not have. This contravenes one of the basic principles of

vocational education that an instructor must be well vested in the theoretical and practical aspect of whatever he intends to teach.

Furthermore, tables 2 also showed that there is no fixed method of certification and that apprentice does not decide when to graduate nor state his specific areas of need.

Conclusion and Recommendations

The findings of this study have significant implications for the automobile industry particularly the informal sub-sector. The efforts of the informal sector mechanics at fabricating replacement parts could be enhanced by making provisions for their training and continuing professional development programme. There are many ways for facilitating their training such as reorienting available technical colleges to adapt its modular curriculum to suit the less educated, networking the skilled mechanics through their association (NATA) for regular in-house knowledge exchange. Other measures include involving ILO/UNDP, NGO's in providing targeted skill development programmes for the master craftsmen and journeymen. The National Board for Technical Education (NBTE), National Business and Technical Examination Board (NABTEB), Ministry of Education, Industrial Development Centre (IDC), Industrial Training Fund (ITF) and NATA should be charged with the development of training policies, instructional programmes for the informal sector mechanics. Furthermore, proper certification of apprentices based on acquired skills by NATA officials and relevant agencies should be pursued rather that just the issued testimonial by the master craftsman on the length of training. Fortunately, findings of study show appreciable increase in possessed general education thus much of the envisaged training programme would be concentrated on the technical component.

Compared with the fees charged at public and private schools for a term those charged for training over 3 – 5 years in the informal sector are mere paltry sum. The government could through the National Poverty Education Programme (NAPEP) empower the master craftsmen to admit more trainees. This is especially necessary as the study's findings show that older workers out number the newer ones coupled with the fact that more graduate of higher institutions are experiencing difficulty in securing employment in the formal sector. Skill empowerment through training could prove to be the solution of youth unrest than use of brute force by law enforcement agents. By such intervention, the government will use the informal sector to effectively complement the formal sector.

For any of the intervention policy measures recommended for the informal sector, the government should provide mainly indirect and proactive measures

with the major roles played by the NATA officials. The fluid structure of the sector possesses its inherent advantages and the government should not be quick to change the prevalent structure as too much direct control on the sector could stifle initiative of the practitioners. The sector should be assisted to attain its maximum potentials without necessarily restructuring it to ape the formal sector or over-regulating it.

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Understanding the Educational Needs of Adult Immigrants: A Reflection from the Review of Literature

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Abstract

The concept of adult learning has gained importance in this knowledge revolution era and there exist a plethora of literature in the field of adult education focusing primarily on principles of adult learning and how these principles impact teaching and learning. Little attention has been paid to teaching of disadvantaged adults especially adult immigrant learners. This paper explores some of the issues facing adult immigrant learners enrolled in adult education, human resource development and career and technical education programs. It discusses the characteristics of adult immigrant learners and the learning barriers faced by this distinct group of adult learners. Also examined is the need for adult educators to understand the needs and experiences of adult immigrant learners to effectively plan and deliver adult education, career and technical education, and human resource development programs to this segment of the population.

Introduction

The phenomenon of migration world over is as old as humankind and is usually accompanied with uncertainty and many challenges to the immigrants involved. As noted, "Immigration especially to a country that is geographically distant and socially, economically, and culturally different from that of one's origin, can be a precarious turning point in some immigrants' lives" (Kemuma, 2000, p. 17). Most people choose to migrate to the United States for a variety of reasons and under different conditions. While some groups come voluntarily; seeking better economic and educational opportunities for themselves and their families, others flee political turmoil, persecution, war,

and extreme economic hardships from their home countries (Alfred, 2001; Cortes, 2004, Portes & Rumbaut, 2006). During the 1980s, nearly 10 million immigrants entered the United States; another 4.5 million arrived between 1990 and 1994, and by 1994, 22 million United States residents were foreign-born, representing 8.5% of the U.S population. According to the 2000 census, immigrants and their children constitute 20 percent of the total American population (U.S. Census Bureau, 2000). Today, adult immigrants make up 15% of US workforce (Center for Adult English Language Acquisition, 2005).

Alfred (2001) noted that different immigrant groups come to the US for various reasons and can be categorized as labor immigrants, professional immigrants, entrepreneurial immigrants, and as refugees. Labor immigrants enter the country legally and illegally in search of menial or low paying jobs. Professional immigrants tend to be well educated with professional degrees. Entrepreneurial immigrants include people who come to the US with the intention of contributing to the economic or cultural development of the host country. Refugee immigrants are aliens unable to return to their country because of persecution. Unlike in the past where most immigrants came from European nations, empirical evidence show major shifts among the immigrants now coming to the United States (Walker & Serrano, 2006). Today's immigrants originate from all over the world. They come from non-European countries of Central America, South America, Asia, Mexico, former Soviet Union, the Caribbean, Middle East, and Africa. The largest group of immigrants comes from Mexico and Latin America countries. The next largest group comes from Asia, followed by Africa (Gray, Rolph, & Melamid, 1996).

Not only are the immigrant populations in the US growing, but these groups help shape the fabric of the American society and the culture of adult and higher education as well. Concern for immigrant education in the United States has focused on efforts towards functional literacy and financial literacy learning and other diverse educational needs for adult immigrants. Economically, some immigrants need to be prepared for highly skilled jobs, and socially, they need to be prepared as leaders and caretakers of their families and communities. To ensure that immigrants get assimilated in the American society, education provided through adult learning programs is critical. For the adult learning programs to achieve the set goals there is need for identification of the learning needs of adult immigrants. The adult education programs must also plan, implement, monitor and continuously evaluate the learning opportunities available to adult immigrants. Thus, recognition of the diversity of the US population has led to concerns for immigrants' education (Duran & Weffer, 1992; Kemuma, 2000; Olneck, 1995). There is increased focus on acculturation and adaptation of immigrants especially through many adult education programs that currently exist the US (Berry, 1997).

Problem Statement and Research Questions

It has been correctly observed that "immigration is likely to destabilize professional careers and force individuals to make unexpected choices under conditions of great uncertainty and risk for which their biographical experiences had not prepared them" (Kemuma, 2000, p. 17). In the case of the United States of America, some immigrants including those with professional careers in their countries of origin realize that their knowledge and occupational skills are disregarded as lacking relevance in American society and have to go to school as adults. Thus, for the adult immigrants to contribute to society and to be integrated into the American labor market and society at large, they must acquire relevant knowledge and skills by enrolling in various adult learning programs. It is a truism that education has been recognized as a tool for integration in American society. But for the many adult immigrants' quest for relevant knowledge, skills and abilities is one of the major critical challenges faced by the newly arrived immigrants. This paper therefore aims at discussing the educational challenges, adult immigrant characteristics, and barriers faced by adult immigrant learners. Kemuma (2000) observed that studies on immigrants and education in the US were largely limited to children whose parents have immigrated to the US, and not how adult immigrants orient themselves. "The immigrant or minority parents only come in when assessing the influence of the home milieu on the children's performance in school. Studies on how adult immigrants orient/ed in the US and the role played by adult education were not available." (p.31). The paper answers the following research questions:

1. How can adult educators provide effective instruction to adult immigrant learners enrolled in adult education, career and technical and human resource development programs?
2. How can adult learning programs offered by many universities in the US best prepare adult immigrants to live and work in the US today?

These questions underscore the challenges that adult educators, training providers, practitioners, and policy makers face as they try to meet the growing learning needs of adult immigrants.

Purpose

The primary purpose of this paper is to provide some background information on immigrants as disadvantaged adult learners by discussing the issues they face, the characteristics that they bring with them as they seek educational assistance, the barriers they encounter, and the implications of all these factors for teachers and trainers of adult immigrant learners.

Method

To successfully carry out this study, the literature review was conducted using academic literature databases, Ebsco, Proquest Research Library Plus, and Academic Search Premier. The search terms that were used are adult learners, adult learning, adult immigrants, adult education, self-directed learning, experiential learning, and adult educators. The references from books and articles were used to identify additional material on the topic of adult immigrants. On the importance of literature review, it is noted, "Although the literature review is a widely recognized genre of scholarly writing, there is no clear understanding of what constitutes a body of literature. Each reviewer must decide which specific studies to include or exclude from a review and why" (Kennedy, 2007, p. 139).

Issues, Characteristics, and Barriers Faced by Immigrant Learners

In general, adults have certain characteristics that describe them as learners. For example, Apps (1991) identified six characteristics pertaining to adult learners namely; the learner's history, the preferred learning style, the social setting for adult learners, motivation for learning, psychological dimensions, and preference for the practical. Understanding these characteristics about adult learners can help adult educators in their instruction process and as facilitators of learning.

Although immigrant learners share these characteristics with other adult learners, they also have distinct characteristics. Sparks (2001) contend that immigrants bring a multiplicity of characteristics and resources that include socioeconomic status, literacy levels, education experiences, legal status, physical and psychological health, English proficiency, resettlement experiences, conditions of home countries, social support networks, transnational family, educational styles learned from home countries, and culture variables. Sparks recommended that adult educators take a socio-cultural approach to planning programs for adult immigrant learners. Similarly, Duzer (1997) noted that because immigrants are usually new to United States' culture and language, some often feel alienated from local cultural practices and institutions. She further noted that they often feel insecure about their housing, family, or employment situations. Adult educators need to consider the implications each of these factors has on the teaching and learning process of adult immigrant learners.

According to Cross (1981), adult learners in the United States of America faced three major barriers which include; situational barriers, institutional barriers, and dispositional barriers. Adult immigrant learners in the US are

equally faced with these barriers hence the need for adult educators to understand the situation that adult immigrant learners may be facing, the institutional issues that may prevent them from enrolling into adult learning programs, and the dispositional barriers which may include cultural shock, stereotyping, perception, and attitude towards school and learning in adulthood (Merriam & Caffarella, 1991).

In addition, Gray, Rolph, & Melamid (1996) noted that while immigrant students are likely to live in poverty, have different learning styles, experience academic difficulties due to role conflict as they try to balance work, family obligations and school, the greatest barrier some adult immigrant learners face is inadequate language skills. English being the language of the United States, immigrants must become proficient in speaking, understanding, reading, and writing to fully participate in education and become successful both in school and at the workplace. Deficiency in language skills impedes their educational and career progress. As noted by Nevzer (1999, p. 2), "Adults whose language is not that of the host country are more likely to exhibit low levels of educational attainment and have trouble in accessing work and learning opportunities." Adult immigrants participate in English language and literacy programs for variety of reasons; for survival/life skills, pre-employment purposes, workplace, pre-academic reasons, vocational, citizenship, financial literacy and family literacy (Duzer, 1997).

Allender (n.d.) described nine immigrant learner characteristics which have been found to impact the pace and success of formal language learning in Australia. They include having no or limited formal education, no experience of formal learning as adults, disrupted education due to war/ political crisis, functionally illiterate in first language, non-roman script backgrounds, elderly, severe trauma, and cultural and educational backgrounds different from the native country.

Immigrant learners also face typical obstacles faced by other adult learners such as inadequate transportation, time limitations, cost barriers, situational barriers, low self-concept, negative stereotypes, social exclusion, lack of effective communication skills and lack of awareness of various learning opportunities (Guilbert, 2005; Hiemstra, 1993). In Sweden, Kemuma (2000), established that adult immigrants faced challenges which included having to learn the Swedish language, disregard of the their previous educational and occupational experiences, need to acquire educational credentials in Sweden in order to find employment, and no guarantee of employment on attainment of the necessary credentials.

Suggested Instructional Strategies for Meeting the Needs of Adult Immigrant Learners

Knowles' (1990) principles of andragogy are still applicable to teaching adults today. According to Knowles, adults are self-directed in their learning, they have a deep and wide base of experience that serve as resources as they learn, they are practical, problem-solving oriented learners, they want their learning to be immediately applicable to their lives, and they want to know why something needs to be learned. In general, this picture is representative of adults, whether they are natives or immigrants. But adult educators working with immigrant learners need to think about how these same characteristics can be filtered through culture, language and experiences of the immigrant learners (Florez & Burt, 2005).

Understanding the uniqueness of adult immigrant learners is necessary for effective teaching/learning process in adult education programs. In order to provide effective adult learning programs, Sparks (2001) advocated for a social cultural approach to planning programs that takes into account the cultural background of the learners, the cultural form of learning, the meanings that different cultural groups give to learning, and the social interactions and relationships. She further cautions planners to resist "the notion of a generic adult learner with universal characteristics and traits while remembering their own particular culture-based perspectives through which they view the world" (p.25). Similarly, Alfred (2001) suggested that education planners and educators must first broaden their knowledge of cultures, histories, and expectations, become aware of their own socio-cultural histories and how these histories influence their views and assumptions about immigrant groups, and acknowledge immigration as a form of diversity if they have to provide meaningful education and learning experiences for immigrants.

In addition, Vaynshtok (2002), contend that designing and implementing programs for adult immigrants depend on content, environment, and intended audience with one difference being that planners are dealing with a culturally different audience. In view of this, she suggested for educators and planners to take a critical thinking approach as they design and implement programs for refugees. Critical thinking approach calls for educators and planners to re-examine their own assumptions and expectations and re-examine and update their teaching techniques if they would be appropriate to their particular group of learners. She also suggested that it would make sense if educators started gaining at least some familiarity with the learners' culture, previous education background, historical context, and to approach their teaching based on emotional sensitivity and trust.

Florez & Burt (2001) suggested ten instructional approaches that instructors working with adult English language learners could use. They include getting to

know the students and their needs, using visuals to support instruction, modeling tasks, fostering a safe classroom environment, watching both your teacher talk and writing, use of scaffolding techniques, bringing authentic materials to class, striking a balance in each activity, balancing variety and routine in your activities, and celebrating success. In the same breath, Crandall & Peyton (1993) called for instructional approaches that respect and draw upon the learners' experiences and strengths. They advocated for a combination of multiple approaches and activities that actively involve the learners and meet their individual needs as well. And Allender (n.d.) described exemplar curricula and classroom practices that were developed to overcome learning barriers faced by migrants and refugees in Australia that educators in other countries could learn from. For example, learners with minimal first language literacy would benefit from immediate personal experiences, cultural backgrounds, familiar topics, and concrete, real world material than abstract themes. Those learners with minimal formal schooling would benefit from instruction that emphasizes study management techniques, problem solving, memorizing, categorizing, and the use of reference tools. As for aged language learners highly contextualized language relevant to learner's experience is recommended combined with creating supportive relationships, slowing the pace of instruction, and minimizing the formality of assessments. Although these strategies apply to teaching of English as a second language to adults, many of these could be used in teaching immigrants in general.

Discussion and Conclusion

As immigrants continue to arrive in the US in record numbers, the American population is and will become more diverse than ever before (Sonnenschein, 1997). This dramatic shift in the composition of today's population speaks of an urgency to meet the diversified learning needs of the ever increasing number of minorities in the US. Immigrants with their distinct background needs will continue to be part of the adult education programs. Adult education has an important role to play in providing effective education for them. Like all other learners, adult immigrants face various barriers. Cantor (1992, p. 39) pointed out that adults face the following barriers in their learning processes: "… responsibilities (families, careers, social commitments), lack of time, lack of money, lack of child care, scheduling problems, transportation problems, insufficient confidence …" Adult educators need to be prepared to understand and to respond effectively to the needs and experiences of adult immigrant learners.

There is need for adult educators to recognize the cultural background of their learners as they plan and deliver programs. Just as each of us has beliefs,

values, norms or culture that is appropriate within ethnic groups to which we belong, so is an adult immigrant learner. As a member of a defined culture, we have a cultural identity that influences our thoughts and actions. Also it would make sense for teachers to broaden their knowledge of their learners' cultures and histories.

To recognize and understand the cultures of immigrant learners requires that adult educators understand their own cultures as well in order to acknowledge immigration as a form of diversity. It is important to have a policy and program delivery that is broad and flexible enough to cater for a diverse group of immigrant learners. To help facilitate immigrant education, create an atmosphere that is much more conducive to learning by respecting the knowledge, skills, and experiences of the adult immigrant learners' past.
By adult educators conducting needs assessments early in the program they will be able to pinpoint specific learners' needs and how to address such needs. In addition adult learning programs must conduct formative and summative evaluation to determine if they are efficient and effective in achieving the set goals.

The United States of America has always been recognized as a nation of immigrants, with its long and proud tradition of opening its doors to individuals and families from other nations. As immigrants continue to arrive in the US, there is need for adult educators and learning institutions to understand and respond effectively to the needs of these immigrant learners to best prepare them to live in the US and to cope with the many challenges that they face. This calls for the understanding of the adult immigrant learners' educational needs, their characteristics, and the barriers they encounter as adult learners. Costa (1987) challenges adult educators as teachers to have faith in their learners, challenge learners to see thinking as a goal of learning to be mastered, present challenging problem solving opportunities, give learners time to learn, provide rich responsive environment for learning, pay attention to learners' developmental readiness and sequence, and to be the kind of learner they would have them be. Thus, Costa's ideas on what teachers can do to promote learning and intelligent behavior among the learners in this case the adult immigrant learners are critical to the success of the adult immigrant learners enrolled in many adult education programs nationwide.

The adult learning programs in the US continue to play a vital role in the overall development of adult immigrant learners as well as preparing them for the world of work. To effectively meet the needs of the adult immigrant learners, the programs and institutions for adult learners must continuously examine and reexamine what they do and how best they can meet the needs of adult immigrant learners. The success stories of immigrant adult learners in the US could be applied in other parts of the world especially in this era of globalization. To ignore the many issues that face adult immigrants is merely postponing

problems that will face generations to come. As researchers and educators, we must conduct research on educational lived experiences of adult immigrants as a strategy to promoting a just society that values people and what they represent regardless of their countries of origin. As noted by Guy (2001), it is a major failure to society to treat immigrants as invisible human beings.

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Examining Technical Education and Teachers' Preparation in Jordan: Implications for Career and Technical Education in the United States

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Abstract

Jordan is a country that has attempted to move its economy from an agriculture-based economy that depends on foreign aid to a light-industry economy, vocational and technical education have become a priority in the Jordanian education system. In the United States, the concept of Career and Technical Education (CTE) began in the 19th century with the demand for growth in and development of the U.S. workforce. The authors provide a general overview of vocational education in Jordan and career and technical education in the United States. The article begins with a look at the structure of Jordan's educational system, general system of education, higher education, and vocational and technical education. This is followed by a description of the current preparation of vocational/technical teachers (VTTs) and future challenges in vocational education and training and an empirical perspective of vocational and technical education in Jordan.

Introduction

According to the Jordan Ministry of Education (MOE), more than 1.7 million students were enrolled in some kind of education in 2005–2006. The MOE reported that in the same school year, approximately 1,056,470 students were enrolled in public school, 327,223 students in private schools, 124,189 students in United Nations (UN) schools, and 17,224 students in other schools belonging to companies and other associations (Ministry of Education, Annual Report, 2006). Approximately 200,000 students were enrolled in higher education institutions in the same year (Higher Education, Annual Report, 2006).

The total number of schools in Jordan in 2005–2006 was 3,126 public schools, 2076 private schools, and 174 schools sponsored by the UN (Ministry of Education, Annual Report, 2006).

Though Jordan is one of the developing countries in the world, it is considered one of the leaders in the field of education among other Arab countries. It is also considered to be one of the top five countries in Asia by level of enrollment in vocational education along with Thailand, South Korea, Israel and Turkey. See Table 1 (National Institution of Educational Planning and Administration, 2002, p. 8).

Table 1: Countries Classified by Level of Enrollment in Vocational Education as percentage of Total Enrollment in Secondary Education

<2%	2-5%	5-10%	10-15%	>15%
Oman	Iran	Cyprus	N/A for ME	Israel
Kuwait		Iraq		Jordan
UAE		Syria		Turkey
Saudi Arabia				
Quatar				

Jordan has very limited natural resources and a modest domestic industrial base. In 1999, approximately 65% of the GDP was contributed by the services sector. The shortage of natural resources and the modest national economy compelled the country's policymakers to invest in human capital. Education is seen as a key element in human resources development to confront current and future social and economic challenges (Ahlawat & Billeh, 1996).

Purpose of the Study

The purpose of this study was to examine Vocational Technical Education (VTE) and teacher preparation in Jordan. Moreover, this study was designed to show the implications of these findings and reveal possible connections between VTE in Jordan and the field of Career and Technical Education (CTE) in the United States. For example, both countries are faced with student disinterest in technical careers, despite the prevalence and growth of employment in this area. Further discussion of the implications for and connections with the United States' situation are presented later in this paper.

Like other developing countries, Jordan suffers from a shortage of natural resources, and a large portion of the population is unemployed. According to government numbers, the unemployment rate in 2005 was 15.4% (Civil Service Bureau, Annual Report 2005), while according to unofficial numbers the rate of unemployment was about double that number. Survival of this

situation demands the continued development of human capital within the framework of a long-term strategic plan to adapt industrial-based economics rather than depending on aid from other rich countries. It would be beneficial to study other Asian countries' experiences, such as Singapore and South Korea. Kim and Zirkle (2006) discussed the Korean experience as an example of shifting from an agriculture-based economy to a light industry-based economy. This transformation occurred following the financial crisis that affected South Asian countries in 1997 and 1998. The economy shifted from agriculture-based to industrial-based, focusing on electronics manufacturing and telecommunications, and became very competitive in the global market.

VTE is not an emerging field in Jordan. The first vocational school in Jordan was established in 1921 as an agriculture school, which is the same year in which the East of Jordan Principality was established. In 1924 the first industrial school was established in Amman (Almasri, 1994).

A small number of studies have investigated VTE in Jordan, but vocational teacher's preparation has been rarely examined. In general, most of the studies conducted about vocational education were sponsored by international organizations such as the Europe Training Foundation, the World Bank, and the US Agency for International Development (USAID). The study reported here is significant for two reasons. First, it provides a snapshot of vocational and technical education in Jordan. Second, after looking at the current context, it attempts to examine the applicability of career and technical education (CTE) in the United States to the situation in Jordan.

Research Questions

In order to better understand the current education systems in Jordan and in the United States, the following three questions were answered:

1. What is the current state of vocational/technical education and teacher preparation in Jordan?
2. What are Jordanians' perspectives toward vocational and technical education in Jordan?
3. To what extent could trends in Career and Technical Education in the United States be applied in Jordan?

Two important reports have been written on vocational and technical education in Jordan. The first was: "An overview of vocational education and training in the Hashemite Kingdom of Jordan", which was conducted by the European Training Foundation; the other was "The changing demands of the 21st century: Challenges to technical and vocational education", conducted by the Minister of Education in Jordan. Those two reports were utilized to support the literature reviewed for this study.

Methodology

The researchers worked closely to ensure that the literature review would be a manageable task (Merriam & Lehy, 2005). More importantly, the researchers utilized two methodologies to answer the research questions. First, in terms of studying VTE in Jordan and CTE in the United States, relevant literature was reviewed from the following resources: (a) ERIC databases, (b) Internet search engines, (c) academic journals and books, (d) Dissertation Abstracts International, (e) Interlibrary Loan, and (f) Pro Quest, Psych Info, etc.

Second, the researchers chose to examine VTE in Jordan by interviewing several Jordanian students currently residing and studying in the United States with knowledge and experiences of vocational and technical education in Jordan. Next, a list of eight questions was developed by the researchers to be utilized as an instrument in this study. These questions were drawn from a 13-item survey developed by the researchers for a similar study of vocational technical education in the Middle East. The researchers collaborated with specialists at the Penn State Survey Research Center (SRC) to meet standards for validity and reliability. Their expertise and constructive suggestions provided conformation that the survey items and research questions were suitable for the purposes of this study.

Review of Research on VTE and CTE

This study focused on the general system of education, structure of education, higher education, vocational education in Jordan, and career and technical education and its implications for the United States. Additionally, the philosophy of education, general objectives of education and the instructional aspects of education were discussed.

> *General objectives of education evolve from the philosophy of education and are exemplified in a citizen believing in God, affiliated to his country and nation, endowed with human virtues and perfections, developed in the physical, mental, spiritual, emotional and social aspects of his personality, whereby the students at the end of education cycle, becomes a citizen capable of the of the following* (Ministry of Education, 1997, pp. 5–7).

Derived from the general objectives of education in Jordan, vocational and technical education can applied in many places as follows:

- Assimilation of facts, concepts, principles and theories, dealing with them, using them in explaining universal phenomena. And utilizing them for the service and happiness of man, as well as solving his problems.

- Conscious assimilation of technology and acquirement of the skills to deal with, produce, develop and utilize it for society's service.
- Meeting employment requirements and depending on one's self in acquiring general and specialized professional skills.
- Using special abilities and free time to develop knowledge, creativity, initiative, perseverance in work, and for innocent recreation (Ministry of Education, 1997a, pp. 5–7).

In Jordan, teaching vocational education begins in the first grade and goes to the tenth grade in all public and private schools. Since the Ministry of Education adopted vocational education as a major subject in all schools in the kingdom, topics such as health care, environment, basic agriculture skills, and home economics have been taught to children from the first grade on. By the end of the tenth grade, students should have a general idea about vocational education fields such as agriculture, industrial, business, health care, and home economics, which enables them to choose one of three options: (1) academic school, (2) vocational school, or (3) comprehensive school.

General System of Education

The Ministry of Education is responsible for pre-school, basic, and secondary education in the public schools. In addition, other government institutions, such as the Ministry of Islamic Affairs, Ministry of Social Development, and Ministry of Defense, along with private sector organizations such as the United Nations Relief and Welfare Agency (UNRWA), provide basic education services and some vocational training programs in Palestinian refugee camps. The private sector also provides pre-school, basic, and secondary education. These educational corporations do not receive any government funds, but they are obligated to implement the curricula and provide text books in the same manner as do other educational organizations. Finally, the Vocational Training Corporation (VTC) was established in 1976 by temporary law No. 35 as a semi-autonomous organization under the supervision of the Board of Directors, and chaired by the Minister of Labor. The main rules of VTC are to: (a) provide vocational training opportunities for technical workforce preparation, upgrade workforce training to different program vocational training levels (non-academic), (b) provide assistance to small and medium enterprises, and (c) regulate occupational work by classifying workplaces and workers (Vocational Training Corporation, Annual Report, 2005, p. 3). The main portion of the operating budget is funded by the Jordanian government. These organizations are different from those that are responsible for providing vocational education in the country (Mfadi, 2001, pp. 3–5).

Structure of the Jordanian Education System

The educational system in Jordan consists of four stages: Pre-school education, which is offered for children before the age of six; basic education, which is compulsory for all children from 6 to 16 years of age (first grade to tenth grade); secondary education; and tertiary education (Vocational Training Corporation, 1996, p. 23). Secondary education begins in the Jordanian educational system after the tenth grade and runs for two years. At the end of tenth grade, all students are classified into two streams: the comprehensive secondary stream (which covers general and vocational education), and the applied secondary education stream. Figure 1 shows the education structure in Jordan and educational system stages from pre-school through higher education.

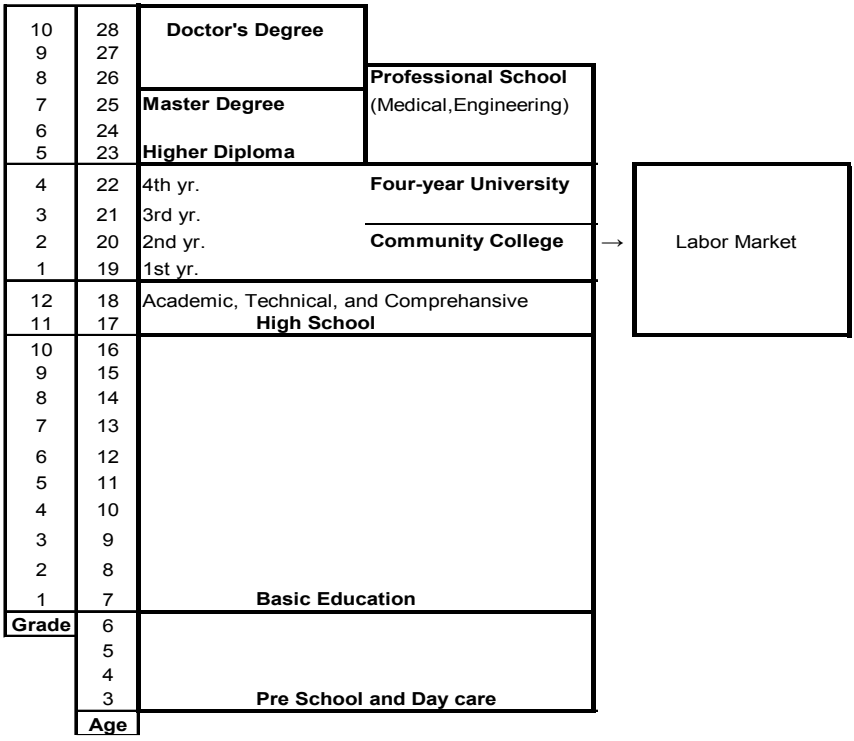

Figure 1. Structure of the Education System in Jordan

Higher Education

The mission of the higher education system in Jordan may be summarized by this sector's need to participate continuously in a development process to attain the concept of a knowledge-based economy (Zabalawi, 2006). The message

of higher education as Zabalawi suggested may be expressed by the following perspectives:

1. To graduate a high-skilled workforce able to participate in the development process in all sectors;
2. To develop and renew the higher education sector to enable it to graduate well qualified individuals; and
3. To encourage and support scientific research (p. 18).

Higher education is offered in two- and three-year programs at the community college level (leading to a community college diploma) or in four-year university-level programs leading to a baccalaureate degree. About half of the 60 community colleges in Jordan are private. They have all been placed under the Al Balqa Applied University (Europe Training Foundation, 1999). From 1997 to 1998, approximately 100,000 students were enrolled in Jordanian universities, and about 30,000 students were studying abroad (Anbosi, 1998). The Ministry of Higher Education's (MHE) numbers indicate in 2006, nearly 192,000 students were enrolled in four-year universities while 25,743 male and female students were enrolled in community colleges in the same year (Ministry of Higher Education Annual Report, 2006).

Vocational Education

The mission of vocational education when the first industrial school was established in Jordan in 1924 was to prepare individuals for work. According to Maldonado (2000), "Vocational education has been generally regarded as a program that prepares individuals for work" (p. 17). An individual who was between 12 and 15 years of age and had completed primary education (four years) was eligible for enrollment in this type of school (Masri, 1994).

Vocational secondary education in Jordan was offered through two tracks. First, vocational secondary education for 17- to 18-year-olds in grades 11 and 12 lasted two years. Vocational secondary education was designed to prepare students for direct entrance into the labor market as skilled workers or for entrance into technical higher education in community colleges and universities. The second track, applied secondary education, involved two types of vocational education preparation: Training Centers and Formal Apprenticeships. These had two missions. First, the preparation provided vocational preparation in different specializations related to industrial education and women's crafts. Second, formal apprenticeship programs lasted for three years, with two years specified for organizational training between center and relevant employers and one year for supervised professional experience. Mfadi (2001) pointed out that since the

founding of Jordan; teacher education has been regarded as a key element in the teaching and learning process. Consequently, education leaders have expressed a deep concern for the development of teachers and teacher education by establishing pre-service and in-service preparation programs within higher education institutions in both the public and private sectors.

Vocational/Technical Education Providers

Vocational education is funded primarily via government funds, but other organizations provide this kind of education. They include: (a) the Vocational Training Corporation, (b) the community colleges, (c) UNRWA as the vocational education and training provider for Palestine refugees, and (d) the National Center for Human Resources Development as the main coordinating and monitoring institution for vocational education and training reform programs (Europe Training Foundation, 1999, p. 27).

Vocational/Technical Teachers (VTTs)

In Jordan, the Educational Act, No. 3 of 1994 specified that the first university degree is the minimum qualification for practicing teaching at all educational levels in the public and private sectors (MOE, 1997a).

The goals of vocational teacher preparation are to equip a prospective teacher with state-of-the-art technical knowledge, a sound background in general education, and pedagogical competencies that will facilitate student learning in the classroom/laboratory setting (Glenn & Walter, 1990). As Lynch (1996) pointed out, the education of vocational teachers is provided through three models: (a) an alternative certification program; (b) an in-service program; and (c) a college or university degree program. Also, Masri (1994) divided vocational teachers into three categories according to their preparation.

1. University degree: Recipients of university degrees in their related occupational fields of vocational education possess theoretical skills, have very limited practical training skills, and lack pedagogical education. Those teachers practice the teaching profession in a vocational secondary education track as an instructor and practical trainer.
2. Community college degree: Teachers in this category are qualified in their specializations and have a limited background in instructional methods. They mainly serve as instructors and practical trainers in vocational training centers and formal apprenticeship programs.
3. General Secondary School Certificate Examination: Holders of this certificate have passed one of the six specializations in vocational secondary education. These teachers have theoretical skills in their areas of specialization

in vocational secondary education. They have theoretical skills in their areas of specialization and some off-the-job practical training, but they lack pedagogical education (Masri, 1994).

Today, a well-educated and skilled teacher who meets the technology challenges to produce a well-prepared future workforce is what is needed by the schools. Teaching is a profession that requires instructional strategies, techniques, and methods of communication to facilitate the required changes in the learner's behavior (O' Lawrence, 2005, p. 58). Mfadi (2001) reported that the number of vocational secondary teachers totalled 3,432 teachers in all educational authorities and 2,793 (81%) teachers working at the Ministry of Education (MOE). Twelve percent of all vocational teachers had less than a community college diploma, 36% were recipients of a community college diploma, about 45% had their first university degree, and only 7% had a graduate degree.

In general, VTT teachers should have had sufficient subject knowledge in their field or their major to make them knowledgeable and able to equip their students with high levels of skill and knowledge. Vocational teachers differ from other teachers in several ways. For example, in general science, social science and humanities teachers are most often knowledge-based; they depend on printed materials, such as text books, to deliver content. Vocational teachers are knowledge- and applied-based, with experience in one or more fields that are very essential to being a successful teacher. Universities and community colleges are responsible for preparing VTTs and equipping them with the necessary knowledge and skills. This preparation includes courses from several fields, such as industrial, agriculture, business, and health care. Usually, each school identifies the most suitable courses for the students depending on the location of the school, the viability of the workplace, and the financial support.

Future Challenges in Vocational Education and Training

Due to the government's plan to industrialize the economy, it was essential to develop a vocational and training system. The government has set the following policy priorities for the development of a competitive and sustainable economy: (a) liberalize trade, (b) privatize large public enterprise, (c) adapt the labor force to the needs of the labor market, (d) limit unemployment and poverty, (e) strengthen the institutional capacities of public administration, and (f) develop and diversify the industrial sector (Europe Training Foundation, 1999, p. 19).

The current situation in Jordan indicates a big gap between higher education graduates and the demand of the labor market. Average unemployment in Jordan is approximately 14.5% of the manpower in the country; most of these youth have graduated from the universities in many different majors. This means that a big portion of the students who graduate from higher edu-

cation hold certificates in humanities and social sciences and are unskilled. The question to be asked is, how could the higher education system graduate knowledge-workers and high-skilled workers if this system has about 200,000 students in four-year university programs and about 75% of them are enrolled in humanities and social studies (Badran, 2006, p. 34)? Almasri (1994) asserted that the qualification structure of the labor force has traditionally been characterized by a large number of academically educated university graduates, on the one hand, and large numbers of unskilled and semi-skilled workers, on the other, while the intermediate levels of skilled workers and technicians have always been underdeveloped.

An Empirical Perspective of Vocational and Technical Education

For the purpose of clarifying the image of vocational and technical education in Jordan, researchers suggested interviewing Jordanian students. Gay (1992) suggested using interviews as a triangulation of objectives; an interview has a unique purpose, namely to acquire data not attainable in any other way (p. 223). Researchers for the study described in this paper identified participants in Jordan and in the United States for either a face-to-face interview or telephone-based interview. After a number of tries with nine graduate students and vocational technical teachers in the United States and in Jordan, three interviews took place. Questions and answers were recorded. The lower-case letters (a), (b), and (c) represent responses from the three participants.

1. In terms of curriculum, how would you describe vocational and technical education in Jordan?
   (a) "Vocational education in Jordan does not match the country, students' or labor market's needs".
   (b) "In the regular school, there are textbooks for the students from the first grade to the tenth grade. Those textbooks need to be updated to match the huge acceleration in technology".
   (c) "Vocational education has a good curriculum, but does not do anything if you have good curriculum and good graduate, but those graduates could not find jobs".
2. Is the program relevant to the needs of students as well as business and industry?
   (a) "It is a traditional program and does not follow up with new trends of technology".
   (b) "Most of the programs are good for working in mechanic shops, carpentry, welding, etc. but it is not suitable for working in big companies that require specific skills and qualifications".

(c) "Maybe it is relevant to the students, but the labor market demands some further skills to match it needs".

3. How do you evaluate vocational education teachers in term of their qualification to prepare students for the workplace with job skills needed?
   (a) "Vocational teachers are not really qualified, a high percentage of them hold a community college degree and lack of high level of knowledge to follow up with new generation".
   (b) "Most of the teachers graduated from college education, they lack necessary skills and adequate knowledge".
   (c) "Vocational and technical teachers need to be highly skilled and be subject matter experts in the field in addition to other academic qualifications. It is not enough to teach students skills by reading about those skills from a textbook".
4. Do you think that the vocational curriculum is considered as an integrated part of the school curriculum? How?
   (a) "I am not sure, but I remember that I learned this subject in school as a part of the curriculum".
   (b) "It is part of the curriculum. Students learned mathematics, physics, and chemistry in additional to specific skills. But, there is no collaboration between laboratories teachers and academic teachers".
   (c) "I think that is true to some degree, to integrate vocational curriculum into school curriculum, we need to ignore the boundaries between the two curriculums step by step, in the final stage it will be one curriculum for both technical and regular school".
5. How do you describe students who graduate from vocational and technical training programs in terms of their competency for successful employment?
   (a) "It is hard to tell, since this depends on the student's ability to apply what they have learned and improve himself in the labor market. In general, I think it is less than what the market needs".
   (b) "I think most of the students graduate with the minimum requirements of knowledge and skills; it is not enough in my opinion".
   (c) "Vocational and technical graduates have the competency to do specific tasks; the more important thing, though, is how those students will improve their knowledge and their skills to move vertically and horizontally in their careers".
6. Could you assess the physical condition (lightning, laboratories, library, ventilation, etc.) of vocational education facilities as conducive to learning in your country?
   (a) "The physical condition is a moderate one, laboratories were built many years ago and very simple improvement occurred. Libraries also in the public school are poor in books and other materials".

(b) "I will not say it is very poor, the whole economic situation is difficult and the education system in general and vocational education is part of this system. Then the lightning, library, and laboratories will not be perfect".

(c) "Jordan is a developing country; it suffers from economical problems, so physical condition of vocational education is adequate. For sure it needs more financial support to set the situation in its best conditions".

7. Are the classroom facilities (computer and internet access, textbooks, machinery, instructional materials, etc.) for vocational education programs adequate for students to learn about job skills needed for the workplace? Explain that?

   (a) "For sure it is not; textbooks need updating, and machinery also needs maintenance and to be updated to newer ones. Public schools do not provide internet and computer labs are not well utilized".

   (b) "I think most of machinery needs to be replaced with newer. Also, textbooks need to be updated".

   (c) "Textbooks are available in vocational and technical schools. Computers also available but need to be activated. To limit of my knowledge, many schools do not have internet access and some other schools in rural areas do not have even telephone lines".

8. What is the role of professional development programs in your country for assisting vocational education teachers in Jordan to improve their teaching skills?

   (a) "It should have a major role, but I am not sure if this meets the expectations or not".

   (b) "I know that they have something like workshops and those workshops are not really what the teachers need".

   (c) "If this term (Professional development programs) means that to update teachers' degrees in the field of vocational education I think the Ministry of Education has put a long term strategy in place to update all vocational and technical education teachers from their current degree to a higher degree".

Career and Technical Education in the United States

Career and Technical Education (CTE), formally called Vocational Education in the United States, is considered a conduit for preparing persons with competitive and marketable skills for global economies such as those in Europe as well as countries in the Middle East. The concept of CTE began during the 19th century with the demand for growth and development of the technically educated workforce in the United States. During such time, the United States

was making a transition from an agrarian society to an Industrial Revolution that meant there was a critical need for skilled craftsmen.

The major transition or shift in U.S. society was brought on by the "Land Grant Act", formally called the Morrill Act, sponsored by U.S. Representative Justin Morrill (from Vermont) on July 2, 1862. The Act provided federal support for the masses in the United States to acquire skills in agriculture and the mechanical arts. The Federal government donated public land to States and Territories that were not in rebellion, to establish land-grant colleges. Twenty-eight years later as a Senator, Justin Morrill sponsored the Morrill Act of 1890 to provide similar opportunities for African Americans to acquire agricultural and technical skill training. The Morrill Act of 1890 provided a platform for historically black colleges and universities that are commonly referred to today as HBCUs, because many African Americans were denied admission to the original land-grant colleges and universities. Federal funds were withheld from any state that refused admission to land-grant institutions of higher learning based on race unless the state provided separate institutions for minorities. More importantly, the 1890 institutions for African Americans were the beginning of the separate-but-equal phenomenal in America's public education system, de jure segregation. Currently, there are 103 HBCUs in 22 states and the Virgin Islands that are educating more than 300,000 students (Atlanta World, 2003).

Community colleges and/or two-year institutions in Jordan, just like those in the United States, play a vital role in providing education and technical training to the masses of stakeholders in their respective countries. In the United States, during the 20th century, the concept of lower-school or two-year colleges was initiated by Joliet Junior College in Joliet, Illinois in 1901 under the influence of William Rainey Harper, president of the University of Chicago. Dr. Harper and other educational leaders suggested that the two-year college concept in the United States emulate that found among the European universities and secondary school system. That is, the universities would be responsible for the higher-order scholarship, while the lower schools would provide general and vocational education to students through age 19 or 20 (Cohen & Brewer, 1996, p. 7). The higher-order scholarship and lower-school concept were not successful because colleges and universities in the United States were providing academic and technical programs at both levels. One hundred years later, the same issue is back on the table with Research 1 institutions (i.e., University of Michigan, Northwestern University and other CIC institutions), pushing technical programs to the state teachers' (Bloomsburg State University, California State University of Pennsylvania) colleges and universities. More importantly, education leaders at the 2001 American Association of Community Colleges (AACC) Convention advocated having

community colleges begin to initiate teacher-education and other four-year baccalaureate degree programs.

Historically, researchers have indicated that community colleges are in the best position and considered central to innovation in preparing the workforce (Bragg, 1998; Farmer & Key, 1997; Grubb, 1996). More importantly, the vast majority of postsecondary technical programs are offered in America's 1,157 community colleges, with California, Texas, Illinois, Florida, and New York, respectively, having the largest enrollments (AACC, 2000). California, often considered a "trend sitter" state, led the nation with a total of 122 community colleges (108 public, 13 independent and 1 tribal) with enrollments of 1,879,379 during the 1997–1998 school year. In Texas, home of former President George W. Bush, there were 74 community colleges (68 public and 6 independent) with enrollments of 770,776 during the 1997–1998 school year. Illinois, the land of Barack Obama, the 44th President of the United States, had a total of 57 community colleges (49 public and 8 independent) with enrollments of 658,102 during the 1997–1998 school year. Florida, known as the Sunshine State, had 31 community colleges (28 public and 3 independent) with enrollments of 552,010 during the 1997–1998 school year. New York, a state with more than 10 million people in one city, had 58 community colleges (43 public and 15 independent) with enrollments of 379,345 during the 1997–1998 school year (AACC Community College Press, 2001). Presently, 1,472 public community colleges, technical colleges, and independent junior colleges are operating in the United States as they have been for the past 12 years (Vaughan, 1995).

Final Thoughts

During the 21st century, 65% of the highly skilled technical jobs in America will require more than a high school diploma but less than a four-year college degree (Gray & Herr, 1996). The sad reality still exists in America as it does in Jordan and other countries that most youth and their parents place more value on a four-year liberal arts degree over technical careers. The primary goals and aspirations of students in the United States are to obtain a baccalaureate degree, but many are unaware of options for high salaries and satisfying and reputable jobs in technical or paraprofessional career positions. Moreover, others assume that no education beyond high school is necessary for persons to engage in meaningful work and economic independence.

Finally, the evolution of vocational education officially began during the 20th century, as the United States was moving from agrarian to an industrial society by investing tremendous resources into establishing a skilled and productive workforce. The major changes in society began with public policy in 1917, Public Law 64-347, commonly referred to as the Smith-Hughes Act, and

culminated on August 12, 2006 with Amendments to the Carl D. Perkins Act (now called Perkins 4).

The success of career and technical education in the United States is based on producing quality programs and skilled graduates who meet the high-tech needs of employers in our global economies. As teachers and administrators prepare individuals for the global workforce, in Jordan as well as the United States, they must encourage graduates to become "prosumers" and not just consumers. According to Alvin Toffler, the futurist, a "prosumer" is one who produces goods and services for himself as well as society.

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Are Students Our Customers in the Malaysian Higher Education Marketplace?

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Abstract

Over the past decades, higher education has attempted to define its student population using metaphors (Hoffman & Kretovics, 2004). This has inevitably given rise to multiple metaphors of which three are more frequently used--"the student as customer" metaphor (Comesky, Mc Cool, Byrnes, & Weber, 1992; Emery, Kramer, & Tian, 2001; Pitman, 2000; Tovote, 2001); "the student as product" metaphor (Emery et al., 2001; Srivanci, 1996); and "the student as employee" metaphor (Halbesleben, Becker, & Buckley, 2003; Helms & Key, 1994). Although it seems logical to employ multiple metaphors simultaneously given the diverse nature of higher education in general (Hoffman & Kretovics, 2004), the current paper focuses only on the student-as-customer concept from the Malaysian perspective. Accordingly, it addresses a commonly debated issue, which is "Should our students be treated like customers or not?" Specifically, the purpose of this paper is two-fold: it aims to (i) examine why it is inappropriate to adopt the student-as-customer ideology within the Malaysian context; and (ii) propose the student-as-partner metaphor as a more relevant alternative in defining the interaction between students and Malaysian public institutions of higher learning.

Introduction

During the past few decades, attempts by higher education to define its student population have been numerous, resulting in multiple student-role metaphors (Hoffman & Kretovics, 2004). Among the many metaphors proposed, three are more frequently cited. They are "the student as customer" (Armstrong,

2004; Comesky, Mc Cool, Byrnes, & Weber, 1992; Emery, Kramer, & Tian, 2001; Guolla, 1999; Pitman, 2000; Tovote, 2001), "the student as product" (Emery et al., 2001; Srivanci, 1996), and "the student as employee" metaphors (Halbesleben, Becker, & Buckley, 2003; Helms & Key, 1994).

While these metaphors are acceptable in several situations, the very vocational nature of higher education sector lends to a more specific difficulty (Conway, Mackay, & Yorke, 1994). It is hence not surprising that there still is an on-going debate in the education arena as to whether students should be treated as customers, products or employees. Whichever is chosen will have important implications for the correct identification of institutions' students or potential employers, and hence, the strategic planning process.

The substantial allocation of RM12.1 billion for the Malaysian Higher Education Ministry announced recently in Budget 2008 is indeed a boost to the Ministry. The allocation will enable the Ministry to draw up more strategies to raise the standard of higher education, and undeniably spur our local universities to be on par with world class institutions of higher learning. For these strategies to be effective, however, we strongly believe that the strategy formulation and implementation efforts should be preceded by a careful examination and definition of the role of students in higher education. Given this background, this paper will attempt to examine the student-as-customer concept in the context of Malaysian public universities. First, it will summarize the extant literature that provides arguments for and against the perception of students as customers. Additionally, the paper will offer reasons as to why applying the model of student as customer is inappropriate and may even be detrimental in the Malaysian context. The paper concludes by offering the partner metaphor as a more fitting label to delineate student-university interactions in the Malaysian setting.

Students As Customers: Exploring The Metaphor

The notion that students are customers developed in the early 1990s during which competition among American colleges escalated (Schwartzman, 1995b). The general idea behind this metaphor is that students are paying for a service (education) and thus should be treated as customers of the university (Halbesleben et al., 2003).

In this section, we will first provide a working definition of customer that will be used to frame the arguments for and against viewing students as customers in their interaction with Malaysian public universities. Specifically, we will posit and will attempt to resolve the question as to whether we should treat students in Malaysian public universities as customers or not. It may be well to begin by defining the word customer. A customer is a person who buys

goods and services as well as defining the goods and services they are buying (Touzeau, 2005). The ensuing section will now review the extant literature that supports the student as customer concept.

Apart from the student group, there are other groups that can be categorised as customers of university institutions that include employers, families, and society (Alvarez & Rodríguez, 1997). However, there exists a general consensus among many authors (e.g., Owlia & Aspinwall, 1996; Sallis, 1993; Siu & Wilson, 1998) that it is more logical to view students as customers of these institutions since teaching is basically a service relationship (Chung & McLarney, 2000). Also, with the recent changes in universities and colleges the role of students as "customers" of higher education has received renewed interest (Modell, 2005). Lamentably, the concept of customer is not clearly defined in this emerging sector, which makes these educational institutions difficult to manage from a marketing point of view (Navarro, Iglesias, & Torres, 2005).

The student as customer metaphor first gained popularity when the marketing perspective was employed to evaluate education. A marketing perspective suggests that students are in role as customers since satisfaction with an educational product/service is an outcome of the exchange between instructors and students (Guolla, 1999). As a matter of fact, education researchers today frequently have promoted the view of students as customers and of education as a service that they purchase (Halbesleben et al., 2003). If students are the customers, they are the recipients of the value-added activities provided by the educators and administrators (Orsini, 2000). As such, students, being viewed as customers, must be served and whose needs must be met if the relationship with the educational institution is to continue and be successful (Ivancevich & Ivancevich, 1992; Measelle & Egol, 1992). Accordingly, Bailey and Dangerfield (2000) have argued that business schools today should then be more market-oriented and be able to anticipate the needs of customers, while striving to meet both expressed and latent needs.

In Malaysia, the corporatization of public universities implies that universities will now be allowed to borrow money, enter into business ventures, set up companies, and acquire and hold investment shares (Lee, 1999). An article by Abdullah (2000) discussed the corporatization exercise and underlined the general expectation that public universities and colleges today must become more market-oriented, open and efficient in responding to the changing times. Given the above, the notion of treating students as customers seems reasonable since students receive educational services from universities. This perspective too suggests that we should perhaps be running our universities more like businesses.

Similarly, there are a number of writers who are in support of this student as customer perspective. For instance, Guolla (1999) contended that students

should be treated as customers since they anticipate and hope to experience a highly valued service. An empirical study by Shank, Walker, and Hayes (1995) in fact revealed that students expect to be treated with respect and common courtesy. As such, faculty should not take this important aspect of the service evaluation for granted. This is especially true in today's competitive, marketing-sensitive environment where university students (especially non-traditional ones) expect to be treated like customers, rather than students. Hence, recent years have seen more universities making conscious efforts in ensuring the ease of most services in general using new technology and focusing more on students as customers. Another development supporting the student-as-customer argument is the proliferation of different delivery methods for courses.

Under the customer metaphor too, Franz (1998) found students buying their education and shopping around for classes and majors. The goal of an educator now becomes one that attracts and retains students for the educational courses. Rising costs in education, accompanied by declining performance and productivity, indicate a need for a change to create higher education institutions that are more responsive to students' needs that will in turn maximize provision of services to students, increase student satisfaction, and minimize costs for the institution (Havranek & Brodwin, 1998). In light of the aforementioned, the concept of treating students as customers is clearly plausible such that it can provide the impetus for universities to strive for excellence, while providing a conducive environment for our students to work.

The next section will examine the literature that refutes the students as customers metaphor.

Arguments Against

Although the students as customers metaphor has garnered much support, as noted earlier, this notion also has not been spared of criticisms that pointed to the limitations inherent in such thinking (Halbesleben et al., 2003). Thus, there has been and still is much controversy in the education arena over whether students should be treated as customers (Chung & McLarney, 2000). For instance, many researchers (e.g., Driscoll & Wicks, 1998; Scott, 1999) have cautioned against the possible danger of approaching customer orientation strategies in higher education, and some even called it a "damaging view of higher education" (e.g., Kaye, Bickle, & Birtwistle, 2006; Shelley, 2005). To these critics, such perspective could lead to a narrow vocational orientation and loss of control of the curriculum by the academicians (Elliott, Goodwin, & Goodwin, 1994). Furthermore, the educational process cannot be simply defined as a "I purchase-you give me" transaction. On the contrary, students are expected to be active and produce, not merely receive (James, 2001).

While it is true that students exercise educational choices and pay for their educational opportunities, they are not simply customers. Hence, this label does not seem to go well with many in the academy who opine that it is too businesslike to be acceptable or applicable within higher education (Driscoll & Wicks, 1998; Scrabec, 2000). Although there are some similarities between teaching and selling, the differences far outweigh them (James, 2001). Others argue that students are students; no more, no less (Hoffman & Kretovics, 2004). In reviewing the literature on students as customers, Kamvounais (1999, cited in Leavell, 2006) found that there was difficulty in utilizing customer in describing the relationship between students and universities. For instance, the central function of higher education is to offer education to students. As such, students come to gain an education and to learn. But if we perceive students having the role of customers, then is there something that can be bought by them in their pursuit of education? (Touzeau, 2005).

Undeniably, Malaysian graduate students, like other traditional customers, can shop around for higher education, taking into consideration factors such as price, convenience, reputation, services offered and value. However, this is clearly not the case with undergraduate students. Although their decisions to study at a particular public university are reflected in their university application forms, the placement is solely determined by the University Centre Unit (UPU) of the Education Ministry. Hence, they may not be able to get into the university or even the course of their choice should they fail to meet certain standards and criteria set by the selection board. Clearly, these students can never become customers to the particular university of their choice, regardless of their ability to pay (Touzeau, 2005).

Moreover, Malaysian students must continue to prove they are making satisfactory progress while pursuing their education, failing of which they may be put on probation, lose financial aid and/or scholarship money, or even worse, be dismissed. It follows that "higher education is not just a commodity to be bought; rather, it is a privilege to be earned" (Touzeau, 2005, p. 16). Since one must show his or her worthiness to become a student in a higher education institution, education cannot be likened to other generic consumer products and services. Hence, it would be illogical to view students like we do of other traditional customers; the latter does not have to fulfill certain requirements to purchase a product but only to have the money to pay for it.

Even if graduate students have a choice like other traditional customers as to which university they want to attend, one important fact remains. If these students are customers, they would then have the power to affect teaching styles and course content which is the essence of customer power. Additionally, if the customer is the student, then it seems reasonable the customer should be consulted as to the content and content weight for the course

(Leavell, 2006). Kerridge and Mathews (1998) similarly noted that if students were treated as just customers, the module content would be made easy, a minimum of assessment undertaken and all students would be given grade A's. Clearly, this is and should not be representative of the scenario in our public universities in which both the course content and content weight have been predetermined by the universities--students are simply not afforded the opportunity to exercise their customer power in this respect.

Also, if students are envisioned only or primarily as consumers, then educators assume the role of panderers, devoted more to immediate satisfaction than to offering the challenge of intellectual independence. Young academics can probably be coerced to cross the thin line between serving and pandering in order to survive, and must at all costs make sure that the paying customers are happy (Houle, 2005). The irony is that the marketization, supposedly in the customer's favor, may not necessarily lead to more 'quality' teaching and indeed, may even produce a worse experience for the student (Scott, 1999).

Furthermore, it is uncommon to hear the phrase "the customer is always right" in educational settings. If the customer were always right in education, the value of performance ratings assigned to students in a course would be undermined (Aliff, 1998). This view is supported by Driscoll and Wicks' (1998) studies. They found discrepancies in the view of education as a typical commercial exchange. They argued that students only pay a fraction of the cost of their education, which is particularly true in the public universities and as such there exists no real commercial transaction. In addition, as noted by West (1995, p.20), "The higher education industry is one in which those who consume its product do not purchase it, those who produce it do not sell it, and those who finance it do not control it." This statement indirectly suggests that the party that actually funds much of postsecondary education (the government) has little control over how the education is actually administered to the "customer," further limiting the exchange (Halbesleben et al., 2003).

More importantly, if we become so customer-oriented that we focus on keeping our customers happy, then we may have failed at our central objective. We will be doing a great disservice to our students and society and the nation at large by not pushing out students to strive and reach their full potential. Schwartzman (1995a) pointed out that as for teaching and learning, the cost of treating students as customers carries mixed blessings. Even if students can be understood as customers in some contexts, they deserve more from educators than instant gratification. Similarly, Snare (1997) argued that the increasingly common model of higher education that treats students as customers analogy is harmful to both students and society. This analogy undermines educational quality because it overemphasizes student satisfaction and encourages grade inflation. Additionally, the customer model encourages passive learning and

deceives students about the operation of the real world. Ultimately, it threatens social and democratic values by allowing students to buy degrees instead of earning them. Although this would not be the case with Malaysian public universities, the customer framework can still be detrimental such that the quality of higher education will be compromised. But most importantly, the educational process cannot be watered down to the level of a business transaction.

Students As Partners: A Metaphor For Malaysian Higher Education

While treating students as customers has its relevance in several different situations, this concept is still flawed in some ways, particularly in the context of Malaysian higher education. As noted earlier, a true education necessitates students to earn their degrees through sheer hard work, albeit their ability to purchase it. It follows that we should not see education merely as something to be 'consumed', but as an activity in which to participate (Kaye et al., 2006). Hence, adopting this ideology of student as customer may inadvertently compromise the traditional academic expectations of students and faculty responsibility (Shelley, 2005), and ultimately the quality of Malaysian higher education.

Based on such significant limitations of the student as customer notion and the assumption that quality management education is the educational goal, we propose a more plausible metaphor for the Malaysian public university context. Our view is that students in Malaysian public universities would best assume the role of partners (Armstrong, 2004; Franz, 1998; Winer, 1999) rather than that of customers. In other words, students and the university alike must share responsibility for education. As correctly pointed out by Shelley (2005, p. 3), the paradigm "… that places a majority of responsibility for success on one side is doomed for failure…"

As depicted in Figure 1, a partnership suggests shared responsibility and mutual respect, with both students and universities working toward a set of common goals, i.e., the students to optimize their learning processes, and the universities to streamline their academic processes. Applying a model of students and the university as partners is crucial to mitigate the possible contractual hazards between both parties. Besides, the proposed partnership can ultimately contribute to the university's core competencies. Such partnership is made possible through a thorough understanding of the student's learning processes and how these interact with the university's teaching environment. Therefore, the complementary processes of the integration management must be in place.

In adopting the above concept, our main focus here is primarily on making the partners more competitive in the teaching and learning environment, and

this goes well beyond treating students as universities' customers. To achieve this goal, students themselves may have to be proactive and learn new behaviors to adapt to the academic environment. The university, on the other hand, has to view teaching as a tool to manage student-university interactions. We concur with Ho (2003, p. 51) who noted that, "Teaching is not the art of filling the student with knowledge in the way one would fill an empty receptacle. Teaching is a two-way learning process in which the student and the teacher help each other to learn by sharing their insights and difficulties with each other."

And to a certain degree, teaching can play a pivotal role in ensuring the quality of academic processes and help provide the universities with a source of competitive advantage. Thus, as noted earlier, teaching should be viewed as solely a necessary connection for knowledge and flows transfer between the university and students, rather than as a commercial transaction. In other words, both students and the university, in partnership, are integrated via the complementary processes which in turn help in the attainment of common goals. Hence, in the educational process, educators should regard students with dignity, viewing them as distinctive individuals with different backgrounds and unique learning styles (Touzeau, 2005).

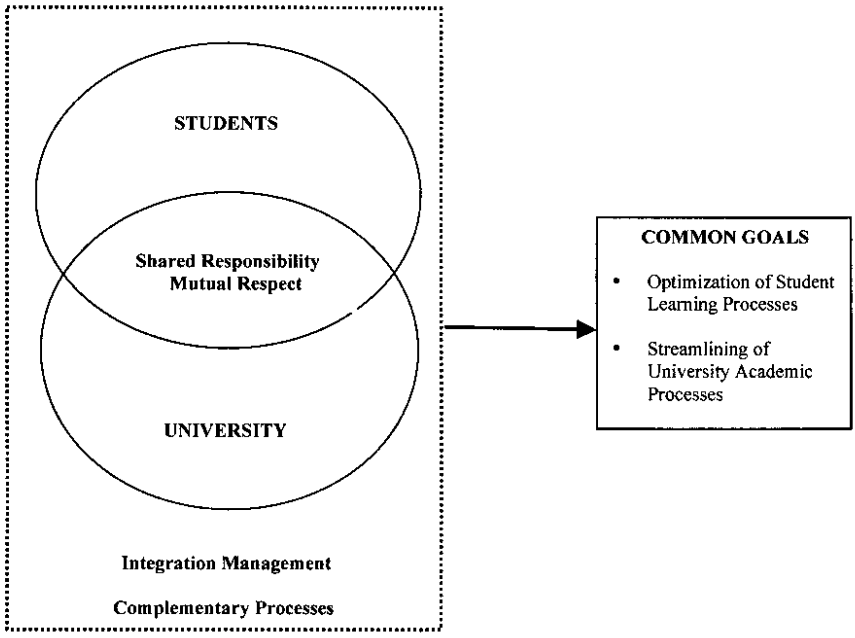

Figure 1: Students as Partners Metaphor.

Conclusion

In conclusion, at the very least, our tertiary educators, confident in the importance of education and of their experience in the field, should therefore insist on the language of 'partner' rather than 'customer' and the academic not as a 'service provider' but as a professional tertiary educator. Within this framework, our students must then be challenged to take active responsibility for their own learning and to become life-long learners. Hence, applying the student as partner model is seen as imperative in two broad aspects: Not only would we be producing a pool of future employees who are better equipped with the skills and knowledge to compete in the demanding, diverse business world they are entering, we would also be helping our students realize their full potential and be the best they can possibly be; both of which are clearly instrumental to the attainment of Vision 2020 (i.e., Malaysian vision to become an industrial nation by the year 2020). We close with the words of Gibbs and Knapp (2002, p.2): "In order to survive, institutions need to understand what they are good at, what they can contribute, and how they can convince others that they provide quality, flexibility and content in order to add value, and to become partners in sharing and shaping the futures of their students, researchers and benefactors."

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