

## **National Conference on Tertiary Education 2005 Industrial Training Program: A Reflective Practicum**

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### ABSTRACT

*The current national issue of jobless graduates has triggered concern from the government, public, industry and academia. Claims have been made about graduates not able to meet job requirements due to lack of skills and competencies and mismatch of graduates' capabilities versus jobs expectations in the market (Berita Harian, 2004, September)*

*Universiti Teknologi MARA has incorporated industrial training or practicum in its curricular structure for most of its academic programs in the Faculty of Business Management. The objective of this practicum is to expose undergraduates to the realities of life in the working environment, and to synthesize knowledge acquired in formal education into practice. It is generally assumed that undergraduates have learnt and acquired work skills in the industry and yet there has been no definitive means to assess their learning and skills while on the job training. The current evaluation system on the undergraduates' performance and the practicum itself is unilateral from the industry. However, the cognitive, psychomotor and affective skills of the undergraduates need to be evaluated in order to determine whether the industrial training program is effective from the undergraduates' perspectives. It is a concern for the university to determine whether the industrial training is meeting its objectives with added values in learning for the undergraduates for future job employability.*

*This paper attempts to look into the theoretical concepts of an effective industrial training program and how effective learning takes place in industrial training. Effective learning and an effective industrial training program share common elements: defined training objectives, good trainer, motivated learner, structured training program, the learning process and organizational culture. However, social context, experiences and reflective learning are three significant elements that constitute effective industrial training.*

## **Introduction**

“Universities today generate business graduates who are hardly trained in business operations. Graduates hold a compartmental view of the conduct of business as subjects and the present curricular program are taught in unconnected and unsynergistic manner” reported an educationist in the media (New Straits Times, 2004 June). This writer urged local higher institutions of learning to develop programmes that match future skills and knowledge requirements of modern businesses and integrative learning should not only emphasize functional and academic skills but also inculcate communication skills and the ability to learn continuously and to be operational focus among graduates. The current national issue of jobless graduates has raised serious concern as to the quality of graduates produced by higher institutions of learning with respect to the needs of the job market. This theoretical paper attempts to look in depth at the role of industrial training towards developing quality graduates that are ready for the job market.

## **The Gap: Linking Academia to Practices**

Empirical research done by Cornford and Athanasou (1995) revealed that there are real problems of transfer of theory and skills learned in class to the actual service in the work place. The most effective learning in students is one which is not context free, but occurs within a specific, natural work place where there are visible models of applications involving theory, skills and attitudes. Neumann and Banghart (2001) wrote that previous researches in the West have identified a major gap between

corporate needs and graduates' skills. This gap refers to graduates who have little "real world" experiences and lack communication and problem solving skills. Graduates need more opportunities to practice or work in teams to develop "soft skills" like persistence, integrity and initiative. Employers today prefer and expect graduates to possess such skills at a level of finesse and expertise but this is rarely available in a university setting (Neumann and Banghart, 2001).

Hackett (2001) quoted Gaita (2000) that education, in its best sense consists of more than just the "relative shallow of the acquisition of skills; it is the deeper meaning of what is taught and learned, beyond the actual purpose or function of the professions for which the students are being educated, that the value of education is to be found. Gaita (2000) wrote that education should encompass both practical training and critical reflection.

The world of education has no limits. Formal education is no longer sufficient to guarantee one's future and success, specifically job employability. Prospective employers are not only expecting high grades, their preferences are now towards candidates that exhibit excellent personal qualities, good mastery of language, in particular English, good communication and leadership skills. The former Education Minister, Tan Sri Musa Mohamad had urged all public universities to re-examine their programs in 2003. The current Higher Education Minister Datuk Dr. Shafie Mohd Salleh has also challenged all higher institutions of learning to intensify efforts to upgrade and identify critical focus areas to produce critical thinking graduates who are marketable and gain international recognition (UILC News, 2004).

Based on the curricular structure of a first degree program, it was found that an undergraduate spent 92 per cent of credit hours in formal learning and 8 percent on practicum. Integrating both formal education and industrial training is important for graduates as Jain (1999) wrote that lack of training results in a lack of skills to use the knowledge in a person which causes ineffective services, lack of self confidence, employer / customer dissatisfaction. Provision of training will foster an increase in professionalism and further exploitation of management methods. Well trained individuals know the scope, expectations and depths of their jobs and will be able to add building blocks to their professionalism as they progress through their careers.

## **The Link: Industrial Training Program**

It has been a practice in Universiti Teknologi MARA where most educational programs in the Faculty of Business Management incorporated industrial training or practicum requirement. The main objective of this practicum program is to provide opportunity for students to gain practical experiences and face the realities of the working world. It is with noble intent to expose students to the real life business environment and hands on applications in organizations for continual learning and self development to take place. Industrial training program serves to link the formal learning in class to the realities of the world. Good and effective industrial training should serve to reduce that gap on condition that the students really maximize their learning and training, developing skills and values while undergoing the practicum program. The industrial training program is a vital transition platform for students to equip themselves to the needs of the industry. However, there has not been much concerted effort on structuring a well design industrial training program from both institutions and industry so as to benefit these undergraduates as potential job seekers, the institutions and the industry itself.

The “practical” segment of a business and management faculty is dependent on the world of business as source of “real practical knowledge” (Schon, 1987). Schon elaborated that “in normative curriculum, a practicum comes last, almost as an afterthought”. Most industrial training programs are slotted in the final semester for Business Management undergraduates in Universiti Teknologi MARA. The duration for practicum varies in practice: range from 6 to 15 weeks in host organizations selected by the students themselves. General assumptions are made that students have benefited from the program and they will learn something from the organization. The current evaluation system assessing students performance is based on the supervisor from the host organization. Evaluation done by the industry evaluates trainees “reaction” level (level 1) as in the four level Kirkpatrick evaluation mode (1998)l. It is high time that evaluation should encompass the “learning” (level 2) and “behavior level” (level 3) of the trainees in order to assess their learning during the industrial training. The evaluation system should gather feedback from these trainees on their learning experiences in the organization. Focus should aim on students’ reflective practicum per se based on their experiences

which actually contributed to added value learning through reflections and meanings. Effective industrial training must have value for the university so that undergraduates have improved skills, knowledge, performance and development for job employability.

**a. Training**

Many training proponents defined training as a planned and systematic effort to modify or develop knowledge, skills and attitudes through learning experiences, to achieve effective performance in an activity or range of activities (Garavan,1995; Noe, 2000; Janaidah Hashim, 2001). Training is a planned effort by an organization to facilitate employees' learning of job competencies that are critical for successful job performance (Noe, 2000). Training is generally defined as practical education in a profession, art or craft. Training is a process to make a person competent by instruction and practice.

**b. On the job training**

Industrial training programs offered by various host organizations varies in training format and approach. Nature of industrial training can be classified as formal training and non formal training. Some organizations provide systematic, structured formal training with defined objectives; while others are ad hoc basis in which learning activities are unstructured and based on realities of work activities and functions. On the job training is commonly adopted technique for practicum program. On the job training, referred as OJT is suitable for new and inexperienced employees learning through observing peers or managers performing the jobs and trying to imitate the work processes or behavior. OJT itself may take various forms: structured as in apprenticeship or unstructured in self directed program. OJT is an attractive training method as it needs less investment in time and money for materials, trainers or instructional design and managers / staff who are job knowledge experts are used as instructors. However, unstructured OJT has its disadvantages as trainees may pick up "bad" habits as well as useful skills and this may result in poorly trained employee or use ineffective methods to produce products or provide service (Noe, 2000).

Conditions for Learning in Effective Industrial Training Program

Cornford and Athanasou (1995) empirical research proved that expertise is developed through training and it occurred in informal and

practical situation. Their research stated that for effective learning to occur in training, the following conditions must be met:

- there is satisfactory trainer-trainee relations;
- trainees are exposed to levels of difficulties commensurate with their understanding;
- opportunities are provided for practice to ensure that information is retained;
- opportunities are provided for practice beyond a mere demonstration of competence or mastery level;
- motivational comments and feedback are regularly supplied by trainers;
- trainees are exposed to cases/situations with examples of incorrect skill, application and errors in process application available as negative examples.

Similarly, a local empirical qualitative research (Abdul Yazid and Muhamad, 1998) categorized eight (8) factors that influence effectiveness of a training program: 1) clear objectives, 2) motivation of learner, 3) suitable learning environment, 4) guidance and coaching, 5) learning transfer, 6) monitor and feedback, 7) conducive training place, and 8) organizational commitment.

### **c. Training objectives**

Objective(s) is an intended result of an educational activity. The factors which determine objectives are the milieu, the nature of the work itself, the aspirations, the motives, the content and the framework itself (Houle, 1972). Tyler's (1949) classical learning theory laid five basic criteria an effective training or educational program should have : 1) identify needs, 2) define objectives preferably in behavior terms, 3) identify learning experiences that will meet these objectives, 4) organize learning experiences into a plan, 5) evaluate the outcome of the effort in light of the objectives. "Ninety per cent of training participants revealed that clear training objectives determined training effectiveness of the program as participants were well informed of the learning objectives and the expected outcome was easier to attain" (Abdul Yazid and Muhamad, 1998).

### **d. Trainer**

The role of the trainer in OJT in the work place is to structure the learning experiences and activities for the trainee so that optimal understanding

and acquisition of information takes place (Cornford and Athanasou,1995).  
A good trainer

- can maintain good sympathetic interpersonal relationships with trainees.
- can communicate clearly and provide constructive feedback.
- demonstrates mastery of a range of teaching skills.
- reveals mastery of the theory and skills taught.
- can motivate trainees.
- has a keen understanding of the nature of individual differences and is capable of translating this into different teaching techniques and levels of explanation for individual trainees.
- is aware of limitations and possibilities of the learner at different stages of skills learning process.

A trainer that has these four main characteristics is indeed a good facilitator and highly motivating: expertise (the power of knowledge and preparation), empathy (the power of understanding and consideration), enthusiasm (the power of commitment and animation) and clarity (the power of language and organization), (Knowles, Holton III, Swanson,1998).

#### **e. Trainee**

Students undergoing industrial training are young adults in their early twenties. Learning in industrial training in organizations is a new experience for them as it may be the first work exposure in a new learning environment and different setting. The nature of the student's conduct and behavior influence the success of their learning. Merriam and Caffarella (1999) described self directed learners as people who take primary initiatives for planning, carrying out and evaluating their own learning experiences. The process of self directed learning is a combination of factors such as learning opportunities people find in their environment, the personality characteristics of learners, cognitive processes and the context of learning which collectively interact to form episodes of self directed learning.

Host organizations expect students to behave as matured adults whom are able to exhibit certain level of capabilities and to perform responsibly. For an optimistic and goal oriented trainee, he will maximize his opportunities to learn as much as possible during training, while average ones will just endure the training for the sake of requirements.

#### **f. Training Program (OJT)**

On the job training must be structured to be effective. The principles of structured OJT are based on social learning theory as it involves the use of credible trainer (a manager or peer) who models the behavior or skill, communicates specific behavior, practice, feedback and reinforcement (Noe, 2000). Effective OJT program include:

- a policy statement that describes the purpose of OJT and emphasizes the company's support for it.
- a clear specification of who is accountable for conducting OJT.
- a thorough review of OJT practices: program content, types of jobs, length of program.
- training of manager or peers in the principles of structured OJT.
- availability of lesson plans, checklist, procedural manuals, training manuals, learning contracts and progress report forms for use by staff who conduct the OJT.
- evaluation of employees levels of basic skills.

#### **g. Experience**

Through personal experience one can find answers to many questions one faces. Wisdom is passed from generations to generations is the result of experience. The ability to learn from experience is generally considered a prime characteristic of intelligent behavior (Ary, Jacobs, Razavieh, 1996). Contrarily, knowledge is within the meanings of people make of it; knowledge is gained through people talking about their meanings, thus knowledge is laced with personal biases and values and is inextricable tied to the context in which it is studied (Creswell, 1998).

In Dewey's system, experience is always the starting point of an educational process; it is never the result (cited by Knowles, Holton III, Swanson, 1998). For learning to happen through experience, the experience must exhibit two major principles of continuity and interaction (Merriam and Caffarella, 1999). "The principle of continuity of experience means that every experience both takes up something from those which have gone before and modifies in some ways the quality of those which come after". Interaction is "an experience is always what it is because of a transaction taking place between an individual and what at the time constitutes his environment". In simpler words, experiences that provide learning are never just isolated events, learners must connect what they have learnt from current experience to those in the past as well as see possible future implications.



Learning is the process whereby knowledge is created through transformation of experience (Kolb,1984). Kolb conceptualized the four steps in the experiential learning cycle:

- i. concrete experience - an openness and willingness to involve in new experiences
- ii. observation and reflect - observational and reflective skills where new experiences can be viewed from a variety of perspectives
- iii. abstract conceptualization - creation of concepts that integrate the learner's observation into logical sound theories. Learner develops analytical abilities so integrative ideas and concepts can be created from their observations
- iv. testing implications of new concepts in new situations - using these theories to make decisions and solve problems in actual practice

In the context of industrial training, students learn effectively through involvements and activities in carrying out tasks so as to acquire new experiences. The readiness of the students and motivation are predictors towards effective learning on OJT. Learning is inherent in the experience itself (Knowles, Holton III, Swanson, 1998).

Through practice, a trainee is able to demonstrate the learned capability (cognitive, verbal or psychomotor skills). For practice to be effective, the trainee needs to involve actively, take the appropriate amount of time to do the tasks till he becomes comfortable using new knowledge, skills or behavior modification (Noe, 2000). The trainer is to ensure practice relates to the training objectives (performance) and develops criteria for attainment of the objectives and the conditions under which trainee needs to perform effectively.

#### **h. Learning**

Learning is central to human behavior yet so elusive to understand (Merriam and Caffarella,1999). Gibbons (1990) cited by Knowles, Holton III, Swanson (1998) classified three types of learning : natural learning is learning that occurs as individual interacts with the environment. Example: skills through interaction with others, the environment, exploration, practice and the teacher within. Secondly, formal learning in which learning is chosen by others and presented to learners. Example: learning from instruction, assigned learning tasks. Thirdly, personal learning that is self directed and intentional learning activities. Example: learning to decide what to learn, how to manage learning process and how to learn from experience.

There are five domains of the learning process (Gagne,1972) cited in Knowles, Holton III, Swanson (1998):

- i. motor skills which are developed through practice.
- ii. verbal information, the requirements for learning being its presentation within an organized, meaningful context.
- iii. intellectual skills, the learning of which appears to require prior learning of prerequisite skills.
- iv. cognitive strategies, the learning which requires repeated occasions in which challenges to thinking are presented.
- v. attitudes which are learned most effectively through the use of human models.

From human resource development's perspective, employees or trainees must be effective in three domains of learning, namely : technical - learning to conduct the practical activities of work and life; social learning how to relate to others for mutual benefits, and developmental learning how to develop oneself as a person and as a learner.

Education must involve a learning process; the learning process must not be a single event, learning has to involve understanding, the process must be planned and learning is essentially a humanistic process (Jarvis,1995). He expanded Kolb model by describing learning begins with the person moving into a social situation in which a potential learning experience may occur, but not all learning experiences lead to learning. Learning involves transforming experiences into knowledge skills and attitudes, values and beliefs, emotion and senses. Transforming through the reflective process, thinking about and monitoring one's practice as it is happening that evolves learning (Jarvis, 2001).

#### ***i. Culture***

Organizational culture has practical relevance to learning (Lewis and Thornhill,1994). Organizational culture affects thinking, learning, training and general attitudes of people at work. Culture is something that is predominantly implicit in people's mind. It refers to ideas, meanings and values people hold in common and to which they subscribe collectively and transmitted by the process of socialization. Learning is a continuous lifelong process resulting from acting in situations. Situated conceptual knowledge can only be understood through use, and using it entails both changing the user's view of the world and adopting the belief system of the culture in which they are used (Brown, Collins and Duguid,1989). People who use knowledge actively rather than acquiring it, by contrast

build an increasingly rich implicit understanding of the world in which they use the knowledge and the knowledge itself.

To learn effectively, a trainee must enter the community and its culture, thus learning is a process of enculturation. Learning does involve all three : activity, concept and culture (Brown, Collins and Duguid,1989). It is only authentic activity which provides experience which is important for subsequent actions to act meaningfully and purposefully. The perceptions resulting from actions and tools (knowledge) used are a central feature in both learning and activity. What they perceive contributes to how they act and learn (Brown, Collins and Duguid,1989).

***j. Feedback***

Feedback and evaluation completes the training cycle. Frequent feedback to the trainees on their performance during training is an essential part of the learning process. Timely feedback to the trainer conveys the effectiveness of training methods and whether achievement of the training objectives have been met or otherwise. Feedback is information about how well a trainee is meeting the training and learning objectives. To be effective, feedback should focus on specific behaviors, good and weak performance and to be relayed to the trainee as soon as possible.

***k. Evaluation***

Evaluating the effectiveness of a training program serves several purposes (Mann and Robertson, 1996). It

- serves as a diagnostic technique to permit the revision of a program to meet specific objectives.
- demonstrates the usefulness of the training to the trainee and the organization / institution, and job relatedness.
- measures whether the training satisfies the needs of trainee, institution and organization.
- assesses whether the trainee achieves the expected skills, knowledge and attitudes.

The most common form of evaluation on industrial training is through the feedback evaluation sheet used by the industry to evaluate trainee reaction. This evaluation serves only as level 1 that assess trainee reaction or a measure of customer satisfaction (Kirkpatrick, 1998). It is of importance to the institution to determine the level 2 - the learning level,

the extent to which acquisition of knowledge, skills and attitudes have been attained and the level 3 – the behavior level, the extent to which the trainee has changed in behavior.

## **Reflective Practicum**

Experience does not necessarily result in learning. Jarvis (1987) explained that there are nine possible responses of learning. He categorized them into three main types : non learning, non reflective learning and reflective learning. Reflective learning is described as the higher form of learning which calls for more involvement : contemplation, reflective practice and experimental learning. Refer to Figure 1: Jarvis typology of learning and non learning.

Recapitulating from the literature review, learning continues through the formal educational system, training (either informal or non formal programs), life encounters and experiences. Learning and training relate to “change in the learner” as a whole. Learning both as process and product (means and ends) reside in the person himself and the social settings; training and education provides the medium and means in the form of programs; the educator and trainer as agents of change and experience is the platform and building block in the person.

Category of Response to Experience	Types of Learning / Non Learning
Non learning	Presumption Non consideration Rejection
Non reflective learning	Preconscious learning Skills learning Memorization
Reflective learning	Contemplation Reflective skills learning Experimental learning

Figure :1 Jarvis typology of learning and non learning (Jarvis, 2001)

Effective learning involves activity, context, environment, social relations, organizational culture and the readiness of the trainee to be able to reflect learning from experiences. Reflective practicum involves thinking about what is being learned, reflective practice is akin to problem solving and experimental learning is the result of the trainee experimenting on the environment. The most effective learner is trainee who is good at reflection in actions and thus reflective practicum should be the new direction towards establishing a quality industrial training program. The notion of delivering capable, holistic graduates are then ready for the job market.

In summary, the proposed conceptual framework for an effective industrial training is illustrated in Figure 2: Conceptual Framework for an Effective Industrial Training Program. Expanding this framework and adopting theories of Kolb (1984) and Jarvis (1987, 2001) drawing upon reflective learning from experiences is the proposed framework for effective learning in industrial training program. Refer to Figure 3: Framework for effective learning in industrial training program.

## **Conclusion**

The heart of the framework for effective industrial training lies in setting clear, attainable objectives by both parties, the learning institution and the host organization. This must be done mutually by both trainee (institution) and trainer (organization) to maximize benefits and fulfill the needs for both parties so that learning is meaningful for the trainee and trainer in manpower deployment. Through this social context, the student has to be involved actively in authentic activities to develop and gain experiences yielding effective learning. OJT must be structured to expose trainees to the realities of business world, and allowing time for practice and to reflect in problem solving and decision making. Training progress and learning must be evaluated through proper evaluation system to determine whether the industrial training program is effective in meeting its objectives and the university requirements.

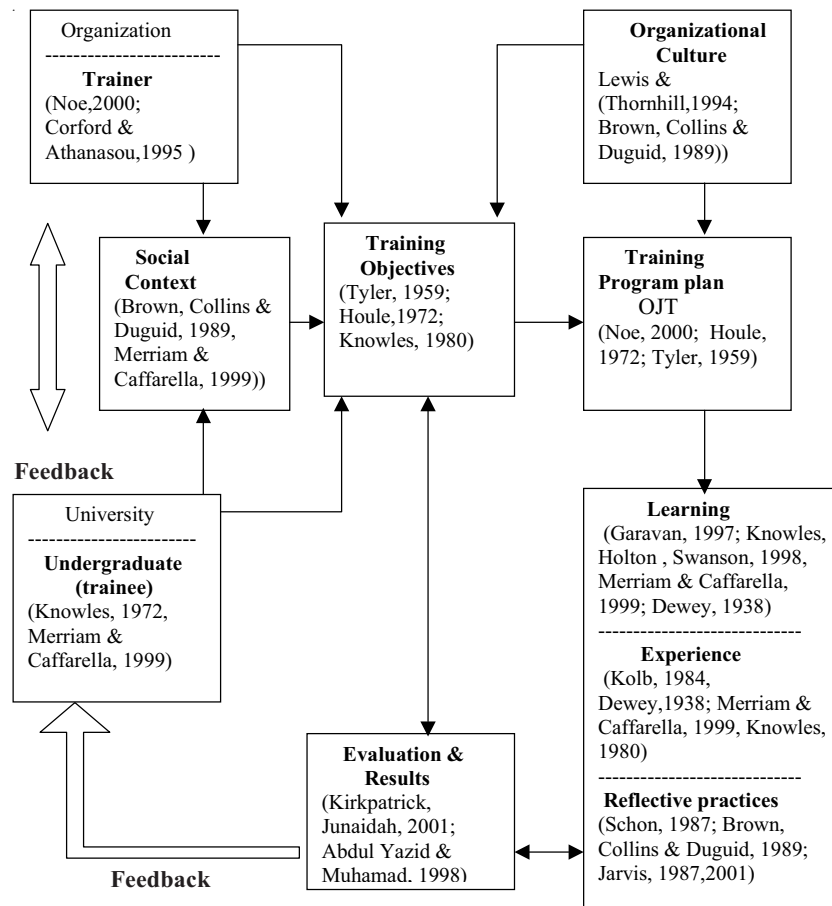


Figure 2: Conceptual Framework for an Effective Industrial Training Program

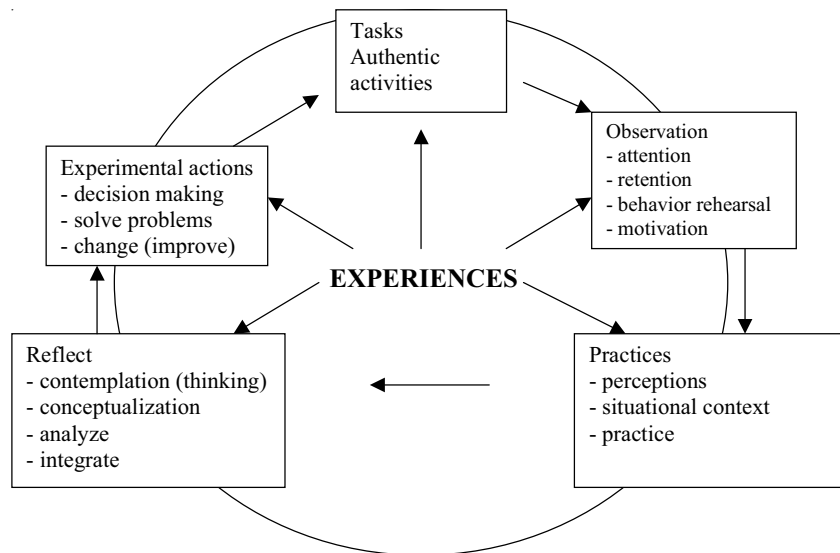


Figure 3: Framework for effective learning in industrial training program

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