

# Learning Transfer at Skill Institutions' and Workplace Environment: A Conceptual Framework

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## Abstract

Efficient human resource management and skills development are central to any organization. However, identified less than 15 to 20 percent of the knowledge and skills acquired in trainings were actually applied in workplaces. Lack of awareness and limited skills learned have caused loss of funds invested in training programs and continued to contribute to mismatches in labour issues. Thus, this conceptual paper proposes key aspects of learning transfer required in training institution based on National Occupational Skill Standards (NOSS) system and in workplace environment. A conceptual framework which is based on critical reviews of current approaches in studies of learning transfer has been devised to highlight the relationship between learning transfer and skills training for today's workplaces. The framework is a scientifically robust framework for transfer of learning at skill institutions. This study is significant in emphasizing the need for appropriate evaluation methods that can assist practitioners at skill institutions to develop learning transfer in a more credible manner.

**Keywords:** learning transfer, workplace learning, skills institutions, NOSS, skills, workplace environment

## 1. Introduction

The importance of training and development is widely acknowledged. The Malaysian government support for the production of skilled labor can be seen through the formation of two plans i.e. Industrial Master Plan 3, 2006-2020 (IMP3) and the Training and Development Master Plan 2008-2020 (PILPKK). It is reported that the estimated expenditure for the private employees to undergo training to enhance their existing skills were RM 500 million (Economic Planning Unit, 2010) and RM 320 million on workforce training (Mohd Najib Abdul Razak, 2011). While in the US, the figure was over \$130 billion (American Society of Training and Development, 2009). These indicate that workplaces are increasingly being accepted as suitable settings or conditions for adult learning (Billett, 2007). However, failures to transfer learning from one training program to workplaces have often been under profound scrutiny. This is supported by the literature in the area that found minimal has been learned at the training center to be transferred on the job to meet the requirements of the organization (Berk, 2008; Burke & Hutchins, 2007; Ford, Yelon, & Billington, 2011). In fact, Burke and Hutchins (2007) found out about 40 percent of the trainees failed to transfer learning immediately after training and 70 percent after a year period. This causes investments on training program unworthy to some as it cannot be transferred to workplaces (Grossman & Salas, 2011). It has become a prolonged issue caused by ineffective learning transfer among many trainees.

On the other hand, National Occupational Skill Standard (NOSS) is a system for skills training competency standards developed by the Malaysian Ministry of Human Resources to coordinate skill levels for national skills certification system. National Skills Training System is an important educational system for the country in producing skilled and semi-skilled workers. NOSS is a document that outlines the skills needed by a person

skilled workers working in Malaysia for a particular field of employment and the path to achieve these skills (Department of Skills Development 2010). But it only provides the basic or minimum requirements for training programs that will be carried out according to the requirements of real work (Pang et al. 2010). Therefore, it is up to the skills training centers if they want add or further refine the guidelines in accordance with their respective training institutions. Approach to competency-based education or training has been adopted to align the new system to meet the real needs of the industry towards Malaysia (Pang 2010; Sachs 2000). However, the effectiveness of the NOSS training system has received questionable feedbacks when many graduates who undergone the system had been unable to secure jobs.

Apart from the issue of mismatches between training and workplace learning, how the transfer can be developed and the dynamics of workplace learning that helps individuals in developing their competence remain to be seen. In this case, various studies on learning transfer indicated that it is still in the infancy especially in the context of Malaysian Technical & Vocational Education Training (TVET). Thus, there is a serious need for researches to identify factors that can contribute to the success of learning transfer in the context of education skills i.e. TVET using NOSS system, especially in Malaysia. This paper aims to conceptualize a framework of learning transfer factors using NOSS system particularly for skill trainings institutions and relevant workplaces.

## 2. The Learning Transfer Concept

Apparently, the concept of learning transfer is not new. The concept has been studied over the last decade under various terms that have existed in connection with the transfer of learning (Baldwin, Ford, & Blume, 2009; Barnett & Ceci, 2002; Blume, Ford, Baldwin, & Huang, 2010) i.e. starting with self-understanding of 'movement' or 'move' from one context to a new context' before it is termed as 'transfer'. The traditional concept of learning transfer was translated in a one-way movement as well as in process of time (Vermeulen & Admiraal, 2009) (Figure 1). A one-way movement (learning transfer) is defined as a single direction process that moves from training to workplace; with no transfer occurs from the workplace into training. The evidence of learning transfer is depicted in the models (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Holton, Bates, & Ruona, 2000). Nevertheless, learning does occur at workplaces and it is necessary to ensure its sustainability which is also known as workplace learning. Whilst, the movement of the time process means learning gained in training indicated by the performance at the workplace. It is therefore crucial for the performance to sustain as it is expected to decline over time (Burke & Hutchins, 2007).

There is also a concept of learning transfer based on the type of transfer. Thorndike and Woodworth (1901) stated that the transfer can take place when the objectives, methods and approaches used in the learning task are similar with the task to transfer. The generalization of the reactions occurs when there is similarity of stimulus and response in the learning and transfer environment. Specifically, Blume et al. (2010) identified the transfer generalization occurs when it is similar to the learning task for example, working in a small jet (simulator) during the training and the actual vehicle in real environments. Meanwhile, far transfer tasks occur when the learning task and situation differs with the real environment for instance, applying the principles of thermodynamics in air conditioner operation. This generalization process allows trainees to respond correspondingly to a new situation due to its similar experience they have encountered in training institutions.

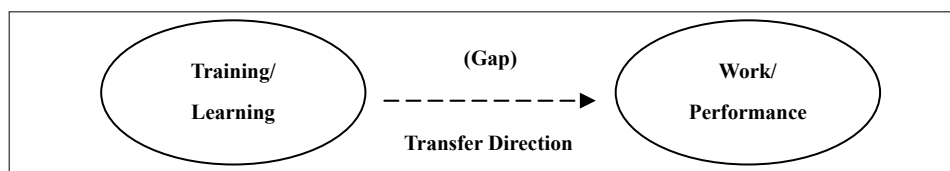


Figure 1. Traditional transfer concept (Vermeulen & Admiraal, 2009)

Gagne (1970) distinguishes two types of generalization namely the lateral and vertical transfer. The lateral transfer occurs when the skills learned can be applied in the same situation, both in terms of complexity and difficulty for instance, performing procedures or methods learned in a similar situation. On the contrary, vertical transfer occur when the skills acquired is needed to enable a highly complex skills acquisition. For example, when pilots acquire knowledge and skills to fly a plane, they later need to learn the necessary behaviours to be able to fly a plane effectively.

Regardless the explanation, the concept of transfer is closely related to the meaning of the transfer itself. Based on meta-analysis studies by Baldwin et al. (2009) and Blume et al. (2010), the terms 'generalization' and

'maintenance' have also been widely used to represent the concepts of transfer. All the concepts of learning transfer is applied and adapted to the context of the study.

### 3. Methodology

Figure 2 is a conceptual model that illustrates the learning transfer nature of skill institutions and workplace environment. The model draws partly on recent insights developed in training transfer researches on the factors that promote the transfer of learning from the skill institutions to the workplace (Baldwin & Ford, 1988; Holton, et al., 2000; Illeris, 2009; Oblinger, Lomas, & EDUCAUSE, 2006). The model recognises that learning is a social process that takes place within a societal context. Alongside the model is a criterion framework to guide learning evaluation. Limitations of space in this article preclude discussions of appropriate data-gathering methods for the framework.

### 4. A Conceptual Model of Learning Transfer for Skill Institutions and Workplace Environment

In this study, a conceptual framework has been designed to illustrate the relationship and connection between institutions and industry, NOSS system and learning on the workplace (Figure 2). The conceptual framework features three main aspects. The first is the formation of learning transfer constructs based on Baldwin and Ford (1988) model (Blume, et al., 2010; Burke & Hutchins, 2007; Department of Labour, 2011; Grossman & Salas, 2011; Holton, et al., 2000; Hutchins, 2009; Rodríguez & Gregory, 2005; Saks & Burke, 2012; Velada, Caetano, & Bates, 2009) and the conceptual model of Holton et al. (2000).

The transfer process model by Baldwin and Ford (1988) consists of three main dimensions namely training inputs (trainee characteristics, training design and work environment), output of training (acquisition of knowledge and skills during training) and state transfer (generalization of knowledge and skills acquired in training to work and retention of learning in the workplace). The model by Baldwin and Ford is adapted in the conceptual framework of the study because it was developed based on critiques of existing transfer researches; thus, provide rooms for further recommendations (Baldwin et al., 2009). The model focuses on trainee's characteristics, work environment and its impact on learning transfer (Baldwin, et al., 2009; Blume, et al., 2010; Burke & Hutchins, 2007; Hutchins, 2009; Tziner, Fisher, Senior, & Weisberg, 2007; Velada, Caetano, Michel, Lyons, & Kavanagh, 2007). Blume et al. (2010) assert that the model is useful in investigating the extent of trainee's individual characteristics, work attitudes and work environment that can affect the transfer of learning.

Baldwin et al. (2009) contend that in most cases, the studies on learning transfer focus on training designs in finding out the effectiveness of a training program. The results from these studies indicate various interpretations depending on the study environment. This indicates that the flexibility of learning transfer depends on training and workplace environmental conditions.

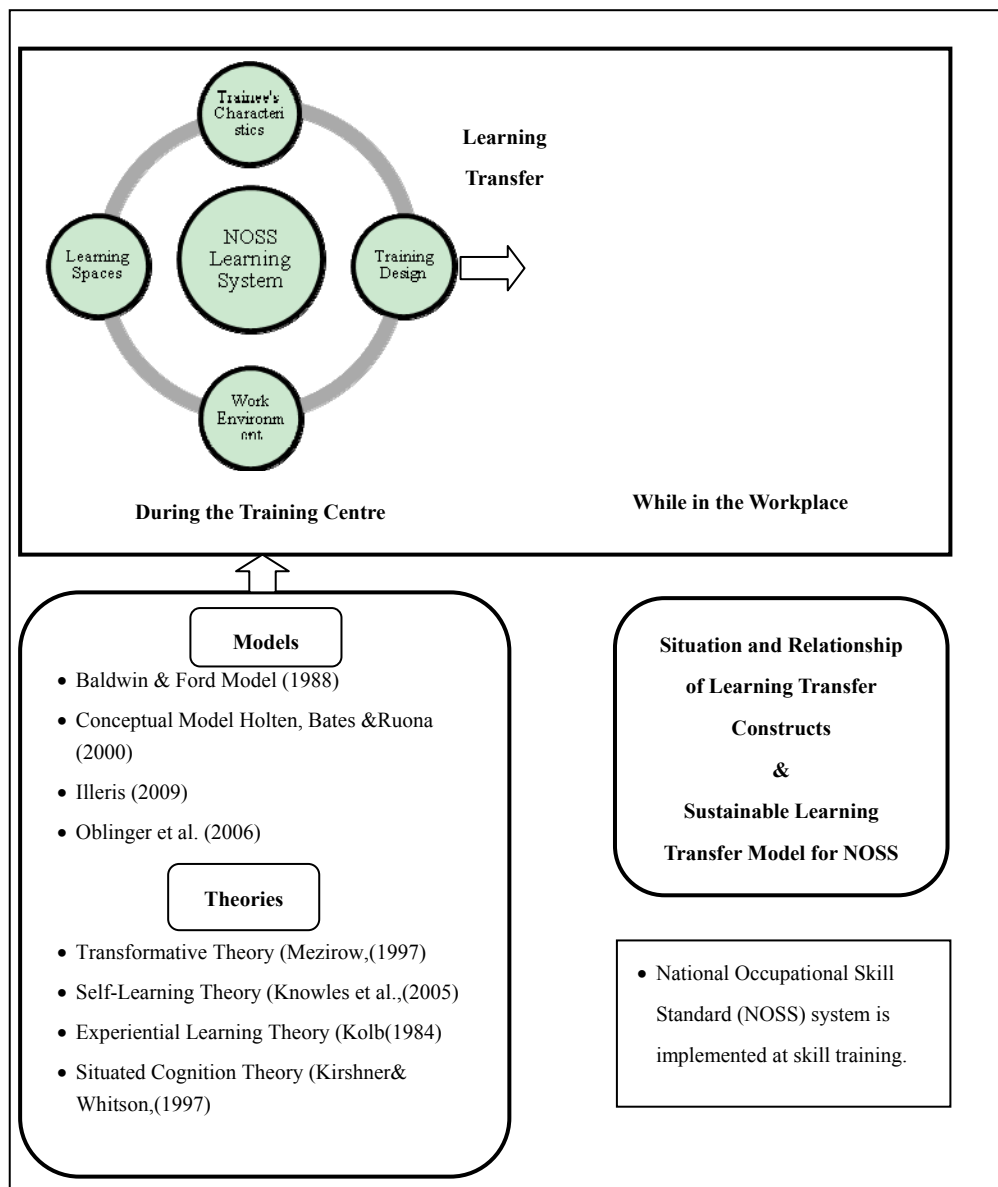


Figure 2. Learning transfer conceptual framework

Another underpinning model on the formation of learning transfer constructs in this study conceptual framework is the conceptual model of Holton et al. (2000). This widely used model in studies of the transfer of learning consists of the learning transfer concept that is influenced by individual factors, training and organization to improve performance. The transfer is influenced by factors such as interpersonal support for transfer, reward systems, personal characteristics, motivation and the design elements of trainings. Since the Holton et al. (2000) conceptual model consists of many aspects of different factors that influence the transfer of learning, it is considered as the more thorough and comprehensive model than others (Azmi Ahmad, Wan Mohd Rashid Wan Ahmad, Zakaria Kasa, Gessler, & Spottll, 2010). The model also outlines the factors that influence the effectiveness of learning transfer. To add, the model is based on previous models that have been certified. This includes detailed information on individuals, transfer climate, motivation factors and various factors in measuring the transfer of learning using quantitative methods (Bates, Kauffeld, & Holton III, 2007; Chen, Holton III, & Bates, 2005; Khasawneh, Bates, & Holton III, 2006). Therefore, Baldwin and Ford (1988) model and Holton et al. (2000) conceptual model are applied in the conceptual framework of the study.

The second aspect of the conceptual framework is the formation of the transfer constructs based on learning spaces factors highlighted by Illeris (2009) and Oblinger et al. (2006). This factor is selected in accordance with

the development of technology in teaching and learning. Oblinger et al. (2006) list five characteristics that typically match the learning space i.e. digital exposure, mobile, self-reliance, social and engagement. The literature review indicated a significant impact of learning space because it contributes to the major problems as a result of the transfer of technology transition (Illeris, 2004, 2009). Overall, these factors form the basis of learning spaces for effective learning transfer and guide the establishment of the study conceptual framework using NOSS-based training.

The third aspect of the study conceptual framework is the four identified theories that underlie each factors of learning transfer. The theories are the theory of transformative learning, self-learning theory, situated cognition theory and experiential learning theory. The theories are essential in supporting the factors and constructs that can influence the learning transfer in context of the study.

As illustrated in Figure 2, there are four elements that are consistently linked to achieve effective transfer of learning. The transfer factors will be investigated at the training institutions that have used NOSS training system and also at the workplaces. This will allow the researcher to examine the differences between the learning transfer that occur based on NOSS systems and workplace learning. Apart from that, the researchers will gather more evidences on the constructs and their relationship to of transfer learning.

The output of the conceptual framework will enable the researcher to identify the constructs of learning transfer and relationship of each to the transfer learning. It later leads to the development of a sustainable model of learning transfer using the NOSS training system and indirectly correlates with the identified models and theories used in the framework.

#### *4.1 Trainee's Characteristics*

Taylor et al. (2009) and Tai (2006) highlight the characteristics of trainees as critical factors for a more effective learning transfer. The trainees with the high level of autonomy and self-efficacy for learning and self-improvement goals are more likely to transfer knowledge and learn new skills (Azmi Ahmad, et al., 2010). Naik (2007) suggests that trainees' characteristics include trainability i.e. the ability, motivation, perception of the work environment, behaviour, self-concept and also refers to the trainees' preparation to learn.

Chiaburu and Tekleab (2005) found that training is significant as long as trainees can anticipate or predict what is obtained after completing the training. It guides the trainees with their participation and commitment during the training and later facilitates the learning transfer at the work environment. In addition, trainees who are well informed and possess sufficient knowledge of training, training instructors and topics covered in the training are better prepared to face the difficulties training (Baldwin et al., 2009). This indicates a significant correlation between before and after training. Nielsen (2009) concurred this with findings that trainees who possessed prior experience in their respective fields found it easier to relate to their workplace environment.

Burke and Hutchins (2007) also specify a clear evidence on the strong influence of trainees' features on the outcome of the training i.e. the trainees' intellectual capability, self-efficacy, motivation and personality traits. Baldwin et al. (2009) and Burke & Hutchins' (2007) meta-analyses found out that far transfer can be achieved with high intellectual trainees. In fact, high cognitive abilities clearly have an impact on trainees' performance due to the trainees' capacity to concentrate on learning during trainings. A finding showed that 16 percent of effective transfer relies on trainees' cognitive ability. The evidences conclude the important role of trainees' cognitive or intellectual capabilities.

Another important feature in the transfer of learning is motivation. Logically, a motivated trainee will be more successful with the transfer (Gegenfurtner et al., 2009). Holton III (1996) model hypothesizes that motivation to transfer relates learning with changes in individual performance. In other words, the motivation to transfer learning can be described as the desire to use the knowledge and skills acquired from trainings into job tasks. The trainees need motivation to enable them to determine their feeling, mood or appropriate anxiety level and sense of responsibility to enable transfer learning.

#### *4.2 Training Design*

Training design refers to the principle of learning and training content that takes into account the objectives, materials used and content structures of the trainings (Munna & Suring, 2011); thus, improper preparation of training design may lead to ineffective transfer of learning. The studies in this area found that training designs and training facilities contributed a significant influence on the transfer of learning (Blume et al., 2010; Burke & Hutchins, 2007; Hutchins, 2009). Lim & Morris (2006) underscore on the role of the training design in providing trainees with the right level of knowledge. Therefore, organizations need to design a training program that matches or relevant with trainees' knowledge and skills. In fact, training organizations should provide trainees a

training environment that is similar with the real work environment. When the training environment and practical exercises are similar to the real work, the acquisition and transfer of learning is more likely to improve. In terms of workplace learning, employers must plan training design to ensure improvement and retention of employees' performance through formal, informal or incident learning. This is to ensure improved and sustainable performance of employees.

The validity of the training content also has a significant impact on learning transfer. The training content validity refers to the extent to which training programs evaluated by the trainees through objectives and goals reflection of the training program (Holton et al., 2000). In this sense, trainees' contentment and confidence towards the training programs designed affect the organization in developing a valid or suitable training content. Based on the theory of identical elements, stimulus generalization and cognitive load of a suggested training should be designed in a way that is conducive to the needs and expectations of trainees (Hutchins, 2009). Therefore, the validity of the training content is a necessity to ensure the training program designed matches or able to fulfil trainees' expectations. An organization needs to re-evaluate their training if it is found to be irrelevant with the trainees' needs and restructure the design so that it is able to meet the requirements of the trainees.

#### *4.3 Work Environment*

Other factors that influence the transfer of learning is the work environment (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Kirwan & Birchall, 2006; Leimbach, 2010; Rodríguez & Gregory, 2005). The constructs of work environment includes supervisory support, peer support, opportunity to participate in trainings and the negative or positive reinforcement participating workplace trainings. Grossman & Salas (2011) assert that the environmental factors help to determine learned behavior once trainees return to the work environment.

There have been various studies conducted in relation to work environment factors. There are empirical evidences have been found to support the important role of supervisory and peers supports in learning transfer (Burke & Hutchins, 2007; Holton, et al., 2000; Nijman, Nijhof, Wognum, & Veldkamp, 2006). For instance, Baldwin and Ford (1988) claim that supervisory support and opportunity to perform critical tasks support retention of trainees' skills. Machin and Fogarty (2004) talk about the influence of transfer environment on trainees' willingness to participate in training. It has also been found that when trainees assume a positive transfer climate, they tend to apply the competencies learned more easily in the workplace (Grossman & Salas, 2011). The characteristics of positive transfer environment include the signals that prompt trainees to use new skills, the results of using the right skills and alterations to the wrongly used skills, and social support from supervisors and colleagues through the use of incentives and feedbacks. However, studies have shown that positive transfer climate is limited when trainees do not have the opportunity to use the newly learned knowledge and skills in their work environment (Lim & Morris, 2006). The trainees are not ready and accustomed with the new workplace environment which indirectly making it harder to transfer the learning outcomes acquired from the training.

Therefore, to facilitate the transfer, workplaces should motions the use of new skills and trainees should be provided with opportunities for training, incentives and goals and feedbacks on performance (Grossman & Salas, 2011). Similarly, efforts should be made to increase supervisors and peers' support which is another important contributors to the transfer of training (Blume, et al., 2010; Bossche, Segers, & Jansen, 2010).

#### *4.4 Learning Spaces*

The concept of learning spaces has been developed based on the theory of Kurt Lewin and the concept of Life Space (Illeris, 2009). According to Lewin (1935), individuals and environmental factors are variables that depend on each other. In fact, the main idea behind this concept was included in situational learning (Brown & Lippincott, 2003; Lave & Wenger, 1991). Illeris (2009) identifies five types of learning spaces i.e.

- Daily learning to replace everyday life in which we move and do not take part in any specifically defined activity. This type of learning is often informal in nature, diverse, personal and related to certain cultures and subcultures.
- School learning is learning in the education system. This type of learning is formal, rational and direct.
- Workplace learning is an in advertent learning in unavoidable circumstances during the work process (Marsick & Watkins, 2001). It is still considered as a formal work-related learning inside or outside workplace arena. It is often based on experience and easily accepted by individuals. However, the wider perspective of workplace learning is often limited by the production or services requirements and influenced by authority and financial interests (Illeris, 2004).

- Interest based learning includes community activities, associations or an individual interest or hobby. It can be considered as a daily learning which is in advertent but very effective.
- Net-based learning or e-learning is a new rapidly expanding learning environment that features certain advantages as well as disadvantages. Nevertheless, this type of learning is often associated with school and workplace learning because of its flexibility in terms of time and place (Brown & Lippincott, 2003).

Almost all trainees are involved with the learning spaces discussed earlier and the transitions between these learning spaces have become increasingly important and complex. Illeris (2004; 2009) found that the major problem usually occurred as a result of the transitions between the five learning spaces. Yet, much of the literature in this area has been limited with studies that concern higher education at universities (Brown & Lippincott, 2003; Thomas, 2010) which are hardly specified with the learning transfer in TVET context. Thus, this study aims to examine the relationship of these factors with the transfer of learning for the Malaysian TVET context.

## 5. Discussion

Training researchers, particularly those who study training transfers, are making important advances in our understanding of the factors that support or inhibit effective workplace learning. However, Burke and Hutchins, (2007) have identified various evidences that indicate practitioners' disinclination towards this area of research partly due to "academic research findings are often difficult to understand (Burke & Hutchins, 2007). The learning transfer is one of the ways in finding out on whether the transfer takes place during trainings. For that, this paper has sought to address the matter by presenting a conceptual model that identifies the various factors of learning transfer from skill institutions to the workplace environment. The design of the conceptual framework is expected to reduce the discrepancy between the expected and actual performance of trainees who have completed their trainings (Holton et al., 2000). The result of the study is vital in assisting the trainees to realize their capabilities to be better at work. Also, the finding from the study will signify the need to ensure whatever that is taught in training institutions are similar with those applied at workplaces; thus, cost effective to employers in avoiding skills mismatch. On the other hand, the result of the study will contribute to better understanding of factors that are related the effectiveness of the learning transfer using NOSS training in Malaysia. Finally, it is hoped that the result will help to inform trainers at training centers on focal factors that contribute to the effectiveness of the transfer of learning from training to work.

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