

## **Learning transfers in training institutions and the workplace in Malaysia**

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### **Abstract**

The development of quality human resources is the focus of the Government Transformation Plan (2010). Thus, it is estimated that organizations and institutions spend a large amount of money on workforce training annually. In general, however, less than 20 percent of the knowledge and skills acquired in training are actually applied in workplaces (Devos et al. 2007; Leimbach 2010). This leads to a limited application of new skills and results in the loss of funds invested in training programs, and could also contribute to the mismatch between job preparation and labour market needs.

This study was designed to identify the critical elements that influence the mismatch between training output and the demands of the industry, and recognize the factors that can lead to improved learning transfers. It uses an exploratory qualitative approach focusing on learning transfers aimed at meeting National Occupational Skill Standards (NOSS) that guide the Malaysian training system and respond to labour market demands in Malaysia. Eleven respondents, including instructors, employers, NOSS panel members, former trainees and trainees, participated in a set of face-to-face interviews and focus group discussions. Interviewing these different stakeholders gave a deeper insight into the relevant factors that influence the transfer of skills and knowledge from training to work practice.

Qualitative findings show that there are four main factors that influence the quality and quantity of learning transfers: 1) trainees' characteristics, 2) work environment, 3) training design, and 4) the learning space. Furthermore, the findings reveal the additional learning transfer characteristics that allow for the creation of an exploratory learning transfer model.

### **1 Introduction**

The issue of learning transfer is no longer new. However, there is increased concern about the application of new knowledge and training in the workplace (Taylor et al. 2009). The main concerns surround ways of applying knowledge, skills and attitudes in new situations. Nonetheless, research has focused primarily on identifying and measuring the factors that affect the transfer of learning in a particular environment (Baldwin et al. 2009; Taylor et al. 2009).

However, transfer of learning should be further explored to ensure it is effective in different environments.

Starting with the issue of the failure to transfer learning from the training environment to the workplace environment, it has been shown in previous studies that only 10 percent of the

investment in skills can be transferred in the form of behavioural change in the workplace (Ford et al. 2011; Georgenson 1982). This suggests the return on the investment in training programs is too low for it to be worthwhile (Grossman & Salas 2011). Research by Dayang Nailul Munna dan Suring (2011) shows that the learning obtained through training can be applied at work but at a very low level. The failure of trainees to apply learned skills in the workplace is an interesting topic for researchers. They are looking for ways to ensure that investment and transfer of learning is efficient and effective by researching strategies and interventions to enhance learning transfers (Baldwin et al. 2009; Burke & Hutchins 2007).

Consequently, this research effort is an exploration of the factors that are involved in, and lead to, effective learning transfer in Malaysia. Baldwin and Ford (1988) have shown that each learning transfer factor varies with each environment and it is critical to have a model that is specific to different contexts.

## **2 Research background**

The mismatch of trainee skills and employers expectations in Malaysia is evidenced by statistics and research findings from reports and studies conducted in training institutions and among employers (Department of Skills Development 2011; Department of Human Resources 2008, 2009, 2010). This mismatch raises problematic questions about the suitability of skills-based training system which follows the National Occupational Skill Standard (NOSS). The effectiveness of NOSS training is much disputed given that many graduates of training centers have difficulties finding a job (Department of Skills Development, 2011). Furthermore, a study by the Department of Human Resources (2009), suggests that there is often dissatisfaction among employers about learning outcomes of programs their employees attended.

In general, trainees who attend skills training programs show difficulty in working efficiently and effectively because they lack sufficient skills, experience, knowledge and behaviours (Ahmad et al. 2010). Devos et al. (2007) and Leimbach (2010) support this assertion through their research showing that less than 20 percent of the knowledge and skills gained in training programs are actually applied in the workplace. Therefore, it is highly relevant to find effective ways to promote the application of new learning to real work and ensuring the creation of highly skilled manpower.

Past studies show that transfer of learning is dependent on various factors, such as quality of content learned in the training in relation to industry needs. Evidence of this is the palpable sense of dissatisfaction amongst employers about learning outcomes in training programs undertaken by their employees (Department of Human Resources, 2009). In addition, the difficulty of trainees to connect what they learned in the training to the work environment is also a potential cause of limited learning transfer (Jørgensen 2011; Nielsen 2009). Other factors impacting on effective transfer of learning include trainees' characteristics, training program design and delivery and the work environment (Burke & Hutchins 2008; Munna &

Suring 2011), and a variety of predictor variables such as motivation, self-efficacy prior to training, self-efficacy after training, and knowledge after training (Blume et al., 2010). Further studies have focused on characteristics of trainees and how the work environment affects the transfer of learning (Baldwin et al. 2009; Blume et al. 2010; Burke & Hutchins 2007; Burke & Hutchins 2008; Hutchins 2009; Tziner et al. 2007; Velada et al. 2007). Baldwin et al. (2009) found that training design is the factor most widely studied by researchers in the effectiveness of a training program.

After undertaking a literature review of studies in Malaysia, we found there is barely any information on learning transfers in skills training in the country. Only research by Ahmad (2011) identifies that there are several factors that affect the transfers of learning: trainees' characteristics, course content, delivery mode of training and job tasks. However, this study only focused on trainees of the National Dual Training System (NDTS) and cannot be generalized to all kinds of skills training due to a small number of samples. Therefore, there is a clear need for an effective learning transfer model that represents all skills training types in Malaysia.

The extent to which transfer of learning occurs in the NOSS training system, which has become the guideline of the TVET system in Malaysia, is still questionable. The learning transfer model in training institutions should meet the needs of the industry and the suitability for the country (Paul 2008). Therefore, this study aims at identifying factors that influence the learning transfer in training centers and workplaces, based on the NOSS system.

## **Methodology**

This study is a qualitative case study, which was triangulated using different methods and resources. Information gathering consisted of face-to-face, semi-structured interviews with instructors, the NOSS panel, employers, currently employed trainees and a focus group discussion with ex-trainees that have work experience. Triangulation was ensured by sample selection of members of different organizations who hold different positions. Thus, researchers could share their experiences, explore and understand the research findings by immersing themselves deeply into what is interpreted through conversations and expressions of feelings (Yin, 2003). Face-to-face interviews also enabled the researchers to answer the questions 'how' or 'why', and when she/he has little control over events, explore them in detail. Konting (2005) explains that focus group discussions generate data that provides the researcher with the opportunity to be more flexible in analyzing specific issues that are unclear and need clarification.

### **2.1 Data collection method**

The researchers obtained data using two methodologies: face-to-face interviews and focus group discussions.

## **1) Face to face interviews**

Data was obtained through face-to-face interviews with trainers, employers, NOSS panel members, and former trainees. Thus, the researcher identified and explored factors impacting learning transfers, issues related to learning transfers in relation to NOSS and workplace learning. In addition, respondents from different organizations who work in different positions gave a broader view of experiences of learning transfers.

Identifying study participants was the first step. Instructors were selected based on their expertise and experience related to the theme of the study. The Department of Skill Development helped to select NOSS experts in the field of automotive industry. Employers were selected based on their industry expertise (they were identified through the National Industrial Directory) in the related research field. Employees participated in the study in their free time and only if their employers agreed. Trainees were selected based on information provided by their training institute. To be selected, ex-trainees had to have a minimum of 3 months of work experience. The research was conducted with the authorization of the Ministry of Human Resources, Ministry of Youth and Sports, and with industry involvement. After participants were identified, they were provided with an official appointment letter, a letter of authorization to participate in the study and a consent letter.

## **2) Focus group discussions**

The focus group discussions were conducted among trainees and former trainees, who had work experience or who had undergone training for at least three months. Through these discussions, the researcher was able to record trainee experiences from the training centers. The trainees could share experiences and ideas without feeling any constraints or limitations. Indirectly, the discussions also helped the researchers to compare results from face-to-face interviews and focus group discussions, and identify gaps. The Chembong Youth National Training Institute (Institut Kemahiran Belia Negara (IKBN) helped the researchers by contacting former trainees and trainees who have continued their studies at a higher level.

## **2.2 Research participants**

This sample size consisted of approximately seven participants. The sample selected was based on purposive sampling for maximum variation. Sampling was chosen to include the perspectives of a number of participants from various organizations (Creswell 2008) with the purpose of identifying the factors that influence learning transfers in relation to NOSS system and the workplace.

The participants (sample) of the face-to-face interviews were from various organizations. The interviews aimed at gathering their experiences in either training institutions or the workplace. In addition, it meant to improve the internal validity of this study. The researchers based the selection of the sample for the face-to-face interviews on three criteria, namely: (i) employers who had worked experience of at least five years in the automotive field, (ii)

trainers who had knowledge and were directly involved in the NOSS system related to the automotive field, (iii) former trainees who had worked for at least three months.

Face-to-face interviews were conducted with seven respondents from:

- NOSS panel of automotive sector (Tan Chong Motor, PUSPAKOM)
- Trainers from Institut Kemahiran Belia Negara (IKBN)
- Trainers from Institut Latihan Perindustrian (ILP)
- Employer and former trainee (TOYOTA)

The sample for focus group discussion consisted of four trainees who have work experience (at least three months). However, their involvement depended on their availability to participate in the discussions considering their busy work schedules. The criteria used for the focus group discussions was as follows: (i) skills trainers who have worked or been involved with the work environment, and (ii) trainees that have been employed for at least three months. The selection criteria of 'at least three months' of work experience' was chosen because transfer of learning can only occur in the workplace after approximately three months (Ford et al. 2011). Velada et al. (2009) suggest that the transfer of learning will be reduced to 25 per cent after six months of work, and to 15 per cent after a year of work. Therefore, in order to witness the effect of the training and learning transfers, the criteria was set to three to six months.

### **2.3 Research process**

The research process can be seen in Figure 1. After the participants granted their consent, the researchers started with the interviews, which were followed by focus group discussions. After data was obtained and completely transcribed, the researchers met with participants again to verify the results of the interviews and focus group discussions. At the beginning of the meeting, the researchers addressed such issues as (i) the purpose of research carried out based on the conceptual framework and research design, and (ii) issues related to consent to participating in the research.

Several steps were taken to ensure a smooth and efficient data collection and analysis. The researcher recorded every interview and focus group discussion to make sure information is collected (Creswell & Clark 2011). The researchers also kept notes to help develop follow-up questions, and to facilitate the creation of records from interviews and discussions in general.

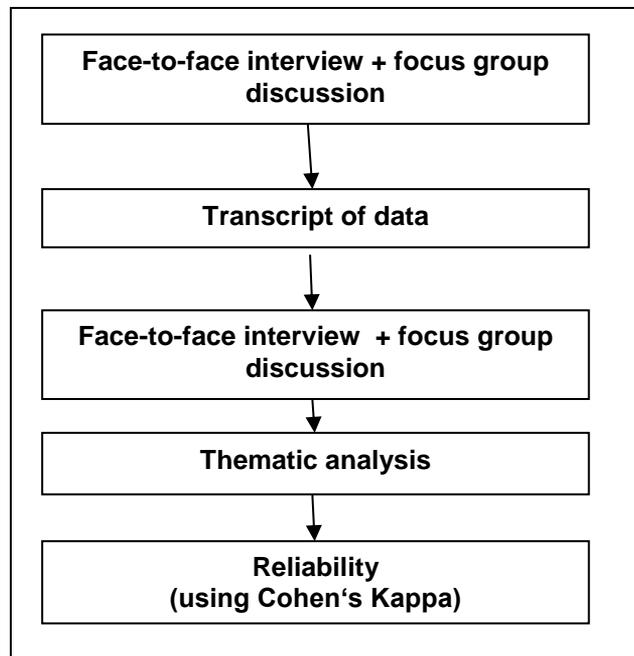


Figure 1: Steps in the research process

Interview data and focus group discussion were analyzed using the thematic analysis and reliability analysis of inter-rater agreement (Cohen's Kappa). What follows is an analysis of the research process.

### 3 Thematic analysis

For this study, the researchers used thematic analysis to analyse interview data. Thematic analysis is a method of identifying, analyzing and reporting patterns (themes) within data (Braun & Clarke, 2006). In terms of this study, this refers to the discovery and emergence of themes derived from the interview results. These themes are related to factors influencing learning transfers in the training system in Malaysia. Braun and Clarke (2006) support this approach suggesting that the themes identified through this methodology can yield important information about the data in relation to the research question, and levels of patterned responses or meaning within the data set. Data was analyzed using the Nvivo software version 8.0.

Thematic analysis is suitable for reporting on experiences, their meaning for participants, as well as the impact of various discussions currently taking place in society on these experiences. Through thematic analysis, several themes or patterns can be identified in two ways, namely inductive (bottom-up) and deductive or theoretical (top-down) (Braun & Clarke, 2006). Through the inductive approach, during the encoding process, themes identified were not based on existing theory or conceptual framework (Braun & Clarke, 2006). Compared to deductive approaches, the themes developed were based on the theories and the existing literature (Braun & Clarke, 2006) which means that researchers must provide theories during the encoding process.

Therefore, this study uses theoretical or deductive analysis because the researchers used coding based on existing theories and previous studies such as Baldwin and Ford's model (1988), a conceptual model of Holton et al. (2000) and the theory of learning space by Illeris (2009) and Oblinger et al. (2006). The researchers based their theoretical analysis on the six stages suggested by Braun and Clarke (2006): familiarization with data, (2) creation of initial codes, (3) identification of themes, (4) review of themes, (5) definition and naming of themes, (6) report writing.

Finally, the researchers examined the validity and reliability of the collected qualitative data through panel of experts' validation using Cohen's Kappa<sup>1</sup> analysis. Confirmation of the themes through these experts was important because experts are outsiders who act as inter-rates in verifying construction themes identified by researchers (Cohen et al. 2011). Two experts in the field of technical and vocational education have been appointed to be an expert evaluators for this analysis. After obtaining the consent from the panel of experts, interview data was analysed and shared with experts for their verification.

## **4 Findings**

Thematic analysis was conducted to answer the following research question:

1. What are the factors that need to be considered for developing a sustainable learning transfer model for training institutions and the workplace based on NOSS?

Overall there are five major themes (Ruhizan et al. 2014) namely (1) trainee characteristics, (2) work environment, (3) training design, (4) learning spaces and (5) transfer of learning, and 20 sub-themes identified from the interviews and discussions. Figure 2 depicts an exploratory model of learning transfers developed based on results from the data analysis using Nvivo software.

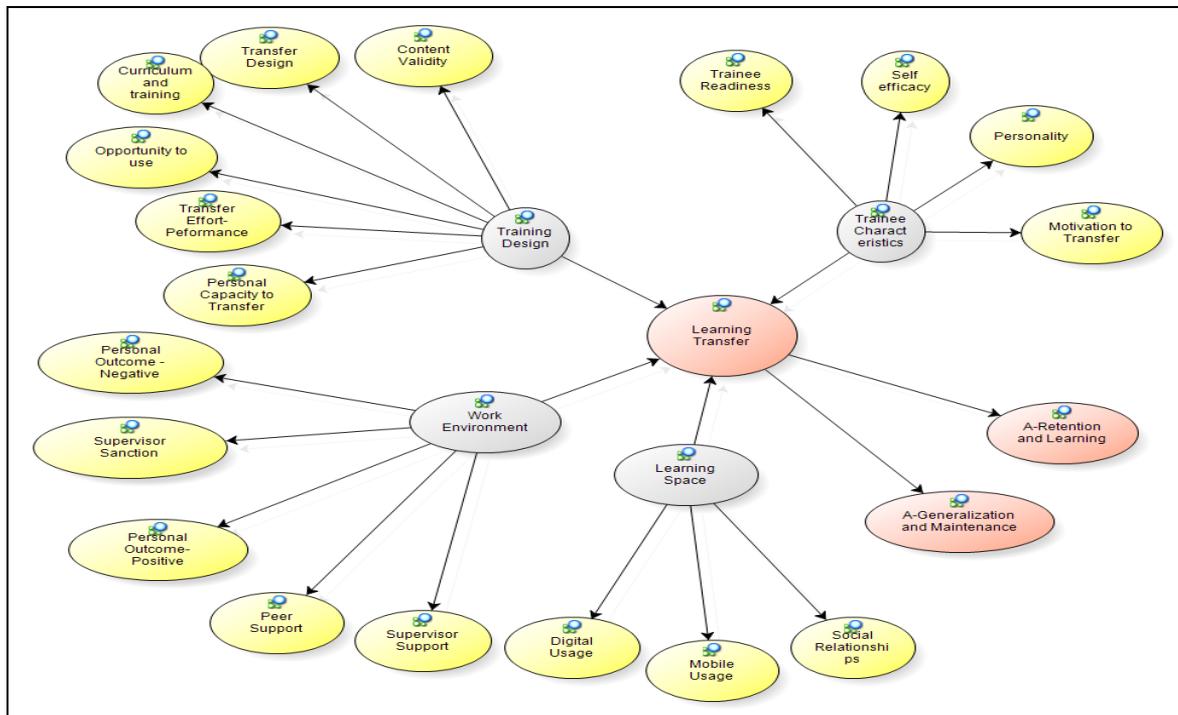


Figure 2: Exploration model of learning transfers in Malaysia

#### 4.1 Trainee characteristics

‘Trainee characteristics’ was identified as an important factor affecting the transfer of learning. This is supported by previous studies related to the role of trainee characteristics in improving the effectiveness of learning transfers (Azmi Ahmad 2011; Baldwin et al. 2009; Chiaburu et al. 2010; Hutchins 2009; Naik 2007; Tai 2006; Taylor et al. 2009; Weissbein et al. 2011). Based on Baldwin and Ford’s (1988) model, trainee characteristics include their ability, personality and motivation. Meanwhile Holton et al. (2000) identified a number of other characteristics such as self-efficacy, readiness to learn, motivation to transfer, effort-performance transfer, and performance related to characteristics of the trainee. Thus, promoting the right characteristics in trainees should be emphasized in training to ensure that skills are transferred to and maintained in the workplace.

In this study, trainee characteristics include factors (sub-themes) such as (1) self-efficacy, (2) readiness of trainees to apply learning outcomes to the workplace, (3) motivation and (4) personality. The following are some statements from respondents related to these sub-themes:

The trainee should be able to make the distinction between ‘right’ and ‘wrong’ actions at work. The following statement refers to the characteristic ‘personality’.

*Trainees must have determination and not to be easily influenced. We know there are some senior employees who do not follow procedures. We expect trainees not to follow these employees.*

Employer

The following statement indicates that ‘self-efficacy’ is an important characteristic affecting trainees’ performance. If trainees are confident they can transfer what they have learned in training to the workplace.

*Initially, I was not confident at work because I did not feel comfortable. I was afraid to make mistakes. After three months, I now feel more confident. I am no longer afraid. I now know my colleagues are not awkward around them anymore.*

Ex-trainee

## 4.2 Work environment

The second factor which seems to influence learning transfers is the ‘work environment’. Some studies found that the work environment is essential for understanding the process of transfer of learning (Baldwin & Ford 1988; Ruhizan et al. 2014; Sitzmann & Ely 2011), and not less relevant than trainees characteristics and training design. However, the extent of the importance in the context of skills training in Malaysia is still questionable. Work environment can either hinder or facilitate trainees in applying the learning outcomes and maintaining the level of their performance. Based on the model of Baldwin and Ford (1988), the dimensions of the work environment include support and opportunities to perform. Holton et al. (2000) identify some of the factors that influence the work environment as feedback, peer and supervisor support, acceptance of changes, positive personal outcomes, negative personal outcomes and supervisor sanctions.

This study identified six factors (sub-themes) that influence the work environment: (1) negative personal outcomes, (2) positive personal outcomes, (3) peer support, (4) openness to change [missing in Figure 2], (5) supervisor or employer sanctions, and (6) supervisor or employer support.

The following statement refers to the sub-theme ‘positive personnel outcomes’. It indicates that the employer is satisfied with the trainee’s performance which can motivate the trainee and help him/her recognize the connection between what he/she is learning at the training institution and the work at the company.

*A company provided positive feedback on my performance. The employer commended that the trainee would sweep the floors at the workshop and arrange tools before and after his shift.*

Instructor

The following two statements show how supervisors’ or employers’ guidance can provide opportunities for trainees to familiarize themselves with the work environment. It can help them to learn how to apply the knowledge and skills acquired in the training institutions to the workplace.

*Supervisors at work often commend that our students learn quickly. However, they still need to guide them because trainees feel hesitant because of many new tasks they are faced with. Supervisors help them learn bit by bit.*

Instructor

*We, as instructors, have to explain to trainees what they need to do if they want to find a job in the future. They should not get too focused on one area but try new things. For example, we often advise them to do some on-the-job training.*

Instructor

### **4.3 Training Design**

‘Training design’ is the third theme that affects and influences the transfer of learning. This is supported by Baldwin et al. (2009) who explain that the training design received the most significant research attention in the effectiveness of a training program. The training design refers to the learning and training content including objectives, materials used in the training and training content rules (Munna 2011). Based on the model of Baldwin and Ford (1988), there are three factors that influence the training design: learning principles, sequence, and content of training. On the other hand, Holton et al. (2000) provide identify four factors that affect the training design: content validity, transfer design, personal capacity to transfer learning, and opportunities to use the learning.

In this study, training design consists of six sub-themes: (1) personal capacity to transfer learning, (2) perceived content validity, (3) opportunities to use the knowledge gained, (4) transfer design, (5) curriculum and training, and (6) transfer effort-performance.

Within the ‘training design’ theme, we categorize the availability of a real work environment that gives trainees a better understanding of the training in relation to their future occupations. The following statement refers to ‘personal capacity to transfer learning’. It shows that the environment is important and can help improve the ability to transfer learning.

*In my opinion the work environment is important. We make sure that working conditions are similar to those in the industry, even though the instruction takes place at the institute. We organize learning activities according to a structure like those in the industry, some are supervisors and some are managers. We also follow documentation procedures like in real workplaces. We use notes and work sheets.*

Instructor

The following statement refers to ‘perceived content validity’. It shows that trainees recognize that the skills and knowledge that are taught in trainings are similar to performance expectations at work. It shows the extent to which teaching methods, support and equipment used in training need to be similar to those used in the workplaces.

*What I have learned here is similar to what will be expected from me at work. For example, if I want to use tools, I have to check first whether there are enough of them or not, then check*

*whether they are broken or not. If so, I need to report it. In real work I will need to do the same. At the training institute, we are given a toolbox for which we are responsible.*

Trainee

#### **4.4 Learning Spaces**

‘Learning spaces’ seem to also have a significant influence on learning transfers. In relation to learning spaces, there are three sub-themes: social learning space, digital resources and mobile phones (Oblinger et al., 2006). This article focuses on net-based or e-learning spaces because technological advances have brought a new dimension to the learning of transferable skills. Trainees’ can now learn using equipment such as tablets, smart phones, laptops, etc.

The following statement is an example of interactions that help trainees learn about the use of audio and video applications, the Internet and ways to find and share information. Such interactions enhance their social skills and allow them to improve their team working skills.

*Use of the Internet for knowledge is important and very useful. Sometimes trainees met their friends outside the institute. They find out how to use some equipment from them.*

NOSS panel expert

The following statement refers to trainees’ exposure to digital technologies that can help them to find information more quickly.

*When we get an assignment, we have to use the Internet to find out information. It is always useful to know something new which will help to complete the module.*

Ex-trainee

#### **4.5 Learning transfers**

The following two sub-themes have been identified under the main theme of ‘learning transfers’

##### *4.5.1 General applicability of skills and their maintenance*

This sub-theme refers to the extent to which trainees can apply their skills in different work contexts and maintain/improve their skills in the workplace (Tesluk et al. 1995). The following statements show that the trainees can apply their acquired skills to their work and improve skills in the workplace. It is important to ensure that all the skills that they learn can be applied and transferred.

*The work process is still the same. What has changed is the work environment because it is more diverse than before. It takes some time to adapt to this new environment but I personally like it.*

Trainee

*We are teaching on the basis of one type of engine but there are many other types we do not teach about. Trainees must realize that. This means that there are requirements in NOSS that trainees must know how to meet in real work even if they ~~GGPHDWOHDOW~~ them in training.*

Instructor

#### 4.5.2 Retention of skills and continuous learning

The 'retention and continuous learning' refers to the actions taken by trainees to maintain and improve learning outcomes through courses, training, workshops and various other programs. All of these activities are conducted with the assistance and continuous effort by employers and the trainees themselves.

The following statement shows that continuous training is occurring and is needed to maintain and enhance the skills acquired, and to ensure that transfer of learning occurs effectively.

*At my workplace there are staff that gets send for courses and additional training. Sometimes the courses last up to 3 months.*

Trainee

## 5 Discussion and conclusion

The findings from this study provide an overview of the process for developing an exploration model of learning transfers for skill training in Malaysia. Many studies on learning transfers have been conducted by international organizations but the topic is still unexplored in Malaysia. The learning transfer exploration model can help training institutions, employers and trainees to ensure sustainable learning transfers that can produce highly skilled workers in Malaysia. However, research needs to continue. This study is the first step in providing an exploration model based on findings from interviews with instructors, NOSS experts, employers, and current as well as former trainees.

The findings show that there are key factors that influence effective learning transfers. These include: trainee characteristics, work environment, training design and learning spaces. These findings support the model of Baldwin and Ford (1988), who defined three key factors for effective learning transfers, e.g. trainee characteristics, training design and work environment. This study further identified the learning space as a key factor. There is need for further research on additional factors, such as the learning space.

The following is a short summary of key factors that influence learning transfers and their respective sub-themes:

- Trainee characteristics include four sub-themes: self-efficacy, personality, motivation and trainee readiness;

- Work environment is made up of six sub-themes: negative personal outcomes, positive personal positive outcomes, peers support, openness to change, supervisor or employer sanctions, and support from the supervisor or the employer;
- Training design consists of six sub-themes: personal capacity for learning transfer, perceived training content validity, opportunities to use and apply the skills, transfer design, curriculum and training design, and transfer effort-performance;
- Finally, learning spaces consists of: social relationships, the use of digital/ mobile devices. Additionally, 'learning space' includes the use of digital technology which promotes web-based learning (Illeris, 2009; Oblinger et al., 2006);
- In addition, transfer of learning consists of two sub-themes: general applicability of skills and their maintenance, and retention of skills and continuous learning. These themes were also identified in previous studies (Baldwin & Ford 1988, Holton et al. 2000).

We recognize that these findings (factors and sub-themes) need to be further researched.

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