The Transfer of Learning

Participants' Perspectives of Adult Education and Training

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1 *Introduction*

This book is about the transfer of learning and how it applies in a number of different contexts. We argue that the transfer of learning is a pervading concept that is intrinsically linked to the way we lead our lives everyday. In a fast paced changing society, it is becoming increasingly important for people to embrace life-long learning and to be able to transfer what they have learned to a myriad of different situations. The case studies presented in this book draw on the authors' research in the areas of management, in-service teacher development and business education. These highlight the issue of transfer from the tertiary learner's perspective, an aspect, which to date, has been neglected in the transfer literature.

This first chapter will consider what transfer of learning is, why it is important, highlight the key elements involved in the transfer process, as well as consider contextual issues.

What is transfer of learning?

What is meant by the transfer of learning? When we talk about the transfer of learning we are interested in the extent to which learning is transferred from one context to another. Transfer of training is often used synonymously with transfer of learning. Within this book transfer of training is considered a subset of transfer of learning.

Transfer of learning has been discussed in a number of different contexts, including education, psychology and management and as such has been defined in a number of ways. Some examples are:

- The effective and continuing application by trainees to their jobs, of knowledge and skills gained in training – both on and off the job (Broad and Newstrom, 1992, p.6).
- Real transfer happens when people carry over something they learned in one context to a 'significantly different' context (Fogarty et al., 1992, p.x).
- Transfer is the application of knowledge learned in one setting or for one purpose to another setting and/or purpose (Gagne et al., 1993, p.235).
- Transfer of learning is a fundamental assumption of educators. We trust that whatever is learned will be retained or remembered over some interval of time and used in appropriate situations (Ripple and Drinkwater, 1982, p. 1947).
- In a sense any learning requires a modicum of transfer. To say that learning has occurred means that the person can display that learning *later* (Perkins and Salomon, 1996a, p.423).

The terms 'training' and 'learning' are often used synonymously, but they can also be taken to mean different things. Training elicits thoughts of working on particular skills and can appear very task-focused, the outcome being, of course, learning. Learning, however, seems to be a much broader term, encompassing not only specific skills, but also socio-cultural, cognitive

and behavioural characteristics. Despite the terminology debate, Cormier and Hagman (1987) argue that the term transfer of training equates to the term transfer of learning.

The very concept of transfer has also engendered considerable debate (Mestre, 2005). Some believe it rarely occurs (for example, Detterman, 1993), others deem it to be an unworkable concept (for example, Hammer et al., 2005) and to others it is ubiquitous (for example, Dyson, 1999). However, as Mestre notes, the problem in proving transfer is connected to the narrow and reductionist definition it is given and if a more generalist approach is adopted, and less emphasis given to the stimulus generalisation view, then the identification of transfer would be less problematic. For example, as Bransford and Schwartz (1999) observe, transfer is best defined in terms of preparation for future learning, not in terms of identical elements.

In general terms, transfer of learning occurs when prior-learned knowledge and skills affect the way in which new knowledge and skills are learned and performed. Transfer is deemed to be positive if acquisition and performance are facilitated, and negative if they are impeded (Cormier and Hagman, 1987; Marini and Genereux, 1995). Seen in the specific context of transfer, following an identified period of learning related to an individual's place of work, transfer is the process of applying skills, knowledge and attitudes acquired during a training programme to the work place. Their successful application leads to an improvement in job performance and has a lasting effect. McGeoch and Irion (1952 cited in Cormier and Hagman, 1987, p.xi) suggest that transfer of learning 'is one of the most general phenomena of learning and, by means of its influence, almost all learned behaviour is interrelated in complex ways'.

In the field of psychology there has been an interest in transfer of learning since the beginning of the century. However, it was not until the 1960s and 1970s that the methodology of transfer experiments was used in other areas of human learning. Marini and Genereux (1995) approach transfer of learning from an educational perspective. They suggest that in the past there has been a separation of the transfer process into task, learner and context, rather than taking a holistic approach. They argue that in order to optimise transfer, it is necessary to teach about content/conceptual knowledge, procedural/strategic knowledge and appropriate dispositions.

A differing view of transfer is suggested by Bereiter (1995), who considers transfer to be an ability or as a set of dispositions, not a process, with the potential for transfer lying with the learner, rather than in what has been learned. He argues that teaching should focus on character education, so that learners are able to think about situations rather than try and reproduce their learning. He supports the work of Lave and Wenger (1991) who argue that people learn by entering ongoing 'communities of practice' and gradually work their way into full participation. This of course underscores the importance of the social-cultural context.

Given the above discussion, transfer in the context of this book is regarded as a process, where the learner plays a key role. This transfer process may involve a number of participants, primarily the learner, the educator or facilitator and the colleague or manager, who play different parts in the various phases of the transfer process – before, during and after initial learning.

Why is transfer of learning important?

There is no more important topic in the whole psychology of learning than transfer of learning … Practically all educational and training programs are built upon the fundamental premise that human beings have the ability to transfer what they have learned from one situation to

another … The basic psychological problem in the transfer of learning pervades the whole psychology of human training … There is no point to education apart from transfer.

(Desse, 1958, p.213)

There is considerable debate about the nature and occurrence of transfer, as well as an unequivocal awareness of the central importance of transfer. We suggest that there are a number of reasons why this has occurred:

- There is recognition that transfer is a core concept in learning and relates to both process and outcome. It helps us learn by facilitating the storage, processing, remembering, and retrieving of information. Every time learning occurs previous learning is used as a building block. Not only is it the very foundation of all subsequent learning, but it is also important for other cognitive activities such as thinking, reasoning, planning, metacognition, decision-making and problem solving. It is therefore the very essence of understanding, interacting and creating. Furthermore, it is the ultimate aim of teaching and learning. Numerous reports on the state of education (see for example, Bennet, 1993; Bloom, 1987; Gardner, 1991; Hirsch, 1987) have identified transfer of learning as a fundamental issue and, increasingly, its importance in tertiary education courses has been highlighted (see for example, Assiter, 1995; Cargill, 2004; Halpern and Hakel, 2003; Lister, 2003; Thompson et al., 2003).
- In a world in which globalisation, technological advances and increased interdependence are required, there is an increasing acknowledgement that we need information and thinking that will transfer. As Haskell (2001) observes, the Information Age necessitates innovative responses and some (for example, Senge et al., 1994) see the need for organisations to reposition themselves as learning organisations to maintain high quality outcomes. A key prerequisite of this is, of course, transfer of learning. The rapid growth in knowledge, technology and scientific change combined with the frequent job changes of workers will favour those who have a broad-based and transferable set of behaviours and skills. Life-long learning has become a necessity and transfer of learning provides the vehicle for this to occur.
- The trainee and employer want transfer to occur, but there is a clear understanding that education and training is often too theoretical, and consequently there is a failure to integrate the learning and for the training to impact on-the-job (Haskell, 2001). This promotes disillusionment and frustration in trainees and management alike. Attention to the needs of the individual learner and the organisation require balancing, so that the transfer outcomes benefit both and enhance development.
- Improved accountability and evaluation systems have highlighted the importance of return-on-investment and the need to promote education and training programmes that do have impact (Phillips, 1996; Williams et al., 2003). Throughout the world, large amounts of funding are devoted to training and it is suggested that the impact is often minimal (Williams et al., 2003). Indeed, there is little empirical evidence to suggest that training is linked to improved job performance or employee attitude (Faerman and Ban, 1993).

Many educators believe the transfer of learning is the most significant issue for their practice (Bereiter, 1995; Cargill, 2004; Halpern and Hakel, 2003; Thompson et al., 2003). For employers and employees it is an issue of organisational sustainability and personal survival (Bresnen

et al., 2003; Broad, 2005; Broad and Newstrom, 1992; Noe and Colquitt, 2002; Thompson et al., 2003). At the adult and tertiary levels of education and training its central importance is now increasingly being related to job proficiency, personal employability and well-being (Berryman, 1993; Bransford and Schwartz, 1999; Lister, 2003; Misko, 1995; Thompson et al., 2003)

Overview of different levels and types of transfer

The levels of transfer are often referred to as positive and negative. In addition, there are both subtle and marked differences in types of transfer. Many of the differences lead to distinctions in how transfer is classified depending on the level of complexity of the transfer.

POSITIVE TRANSFER

When learning in one context improves learning or performance in another context this is called positive transfer. For example, if someone learning a new database package has background knowledge of databases or has used a different database package they are likely to benefit in terms of time taken to learn the new package. Or, for example, the previous experience of learning algebra facilitates learning statistics.

NEGATIVE TRANSFER

Negative transfer occurs when previous learning or experience inhibits or interferes with learning or performance in a new context. For instance, a person for whom schooling was an unpleasant experience may avoid 'classroom' situations. It is common for tourists accustomed to driving on the right hand side of the road to experience difficulty adjusting to driving on the left hand side in New Zealand and Australia. Bransford, Brown and Cocking (2000) suggest that previous experiences or learning can hinder the learning of new concepts. They provide the example of where the prior experience of learning to walk upright, on what appears to be a flat earth, hinders the learning of concepts in physics and astronomy.

SIMPLE VERSUS COMPLEX TRANSFER

Simple transfer happens when little or no effort is required to apply what has been learned in one situation to a new situation. In class, students are taught how to use a spreadsheet to create a budget. Later they need to create a budget for a club trip, and set up a spreadsheet for this. This is an example of simple transfer. However, if the same students were engaged in gathering data for a research project and thought about the ways in which the spreadsheeting program could assist with the data management and analysis, this would be an example of more complex transfer.

NEAR AND FAR TRANSFER

Another distinction used is between near and far transfer. Usually these terms distinguish the closeness or distance between the original learning and the transfer task, for example, learning to shift gears in a truck is an example of near transfer for someone who has already learned to shift gears in a car. Near transfer has also been seen as the transfer of learning within the school context, or between a school task and a very similar task. For example, when students

answer similar questions in tests to those they have practised in class. Far transfer is used to refer to the transfer of learning from the school context to a non-school context. For example, skills learned in mathematics such as taking care and checking all alternatives, when used in making investment decisions is an example of far transfer.

AUTOMATIC AND MINDFUL TRANSFER

When an individual responds spontaneously within a transfer situation, which is very similar to the learning situation then this is automatic transfer. For instance, learning to read English in one class, results in the learner automatically reading English language in another context.

Perkins and Salomon (1996b) use the terms low and high road transfer to differentiate the mechanisms of automatic and mindful transfer. Gradually, with time and practice, the automatic transfer effect will extend or 'reach out' over the low road. For example, the school student who is reading and writing in diverse subjects is slowly and gradually gaining expertise in reading English. In contrast, mindful, high road transfer is deliberate and involves conscious thought and intellectual effort, and occurs in situations where there are significant gaps or differences between the original and the transfer situations.

In an education or training course participants learn about a process in a controlled environment. The problems encountered in the educational setting tend to be well defined. In the workplace it may not always be obvious when, or even desirable to use the procedure. For example, there tend to be lengthy delays when a key person is absent, and a substantial backlog of work. The surface question is what could be done to speed up the process, and to automate it as much as possible. However, in real life other problems could arise: the staff member is proud of their existing system; the existing system is not documented; does the operating system used by the company support the software required; what about the compatibility between branches; what about staff training; is there money in the budget and will a transition period be required?

The transfer context

A CONCEPTUAL MODEL

The case studies in this book are based on participant perspectives of transfer in three different contexts – management, in-service teacher development and education. In order to find a conceptual model which encompassed these, we needed to identify the commonalities in the case studies. All involved adult learners who brought a range of experiences, knowledge and skills to the learning environment. Similarly, all were participating in order to enhance the particular situation they were in. We concluded that the key for all our participants was to be able to promote learning from experience and that for the transfer of learning to be maximised a number of important factors needed to be considered. These include: the participants in the process, the different time periods associated with transfer, the socio-cultural environment of both, the workplace and the learning context, as well as programme design.

Boud and Walker (1990) developed a model for promoting learning from experience where the personal foundation of experience and the intent of the experience are important concepts. Both of these were identified as commonalities in our case studies as discussed above. The model is shown in Figure 1.1 (Boud and Walker, 1990) and emphasises the importance of

the reflective process in learning from experience to facilitate the transfer of learning to new situations.

The focus in Boud and Walker's model is on the learner and the environment in which the learning takes place, as well as the skill set and preparation the learner brings with them to the learning experience. During the experience the learner will be, either consciously or subconsciously, making links to prior learning within their own lived experience, represented by the central part of the model shown in Figure 1.1. The reflective processes shown on the right hand side of Figure 1.1 represent the time post-experience and are crucial for the transfer of learning to occur in different contexts.

Summary

This chapter has introduced the concept of transfer and identified some of the key issues relating to understanding the process. Transfer is concerned with prior learning affecting new learning and it is introduced here not in an individualistic manner, but as a process that needs to be considered in holistic terms with reference to the learner and environment. However, as indicated, it is complex, multifaceted and at times a confusing process, but one that is important to understand because it is so intimately related to training and education and therefore pivotal in promoting learning. In the fields of education, psychology and management it is recognised as a central concept that facilitates all development and yet many people working in these areas do not adequately understand transfer technology. Furthermore, the global and technological society demands more than ever that a worker has the ability to transfer information, thinking and skills. Both employers and employees expect transfer to occur. The Boud and Walker model introduced in this chapter provides a most appropriate conceptual approach for understanding how we view transfer and for interpreting our case studies. In the following chapter a range of approaches and perspectives on transfer are outlined and provide the reader with a broad base for understanding transfer.
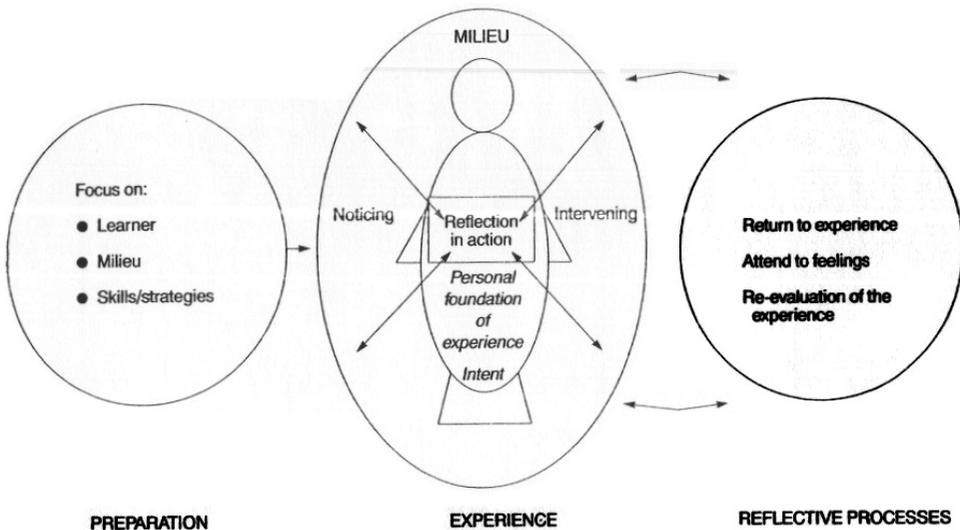

Figure 1.1   Model for promoting learning from experience (Boud and Walker, 1990, p. 67 – reprinted with permission of the authors)

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