**Learning by doing meets learning by working: concepts of experiential learning and the implications for vocational learning.**

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## Abstract

The study of learning by doing (experiential learning) has highlighted many significant issues related to how people make sense of their world. Underpinning the notions of experiential learning & transfer are a complex series of suppositions about the way people relate and use understandings across a broad range of life settings. This paper presents the findings of a 2002 study into student perceptions of the nature and transferability of understandings developed through involvement in an experiential programme in light of contemporary research and literature. Looking beyond the extent of the research undertaken, the paper discusses how contemporary understandings of experiential learning can: (a) improve student learning within vocational education; (b) increase learner understanding of their own cognition; and (c) provide vocational educators with greater insight of the techniques and strategies used to transfer understandings.

## Introduction

The ways in which people may transfer understandings from one situation to another is often considered central to learning (Bransford, Brown & Cocking, 1999). In this regard, Bransford et al. state, "It is especially important to understand the kinds of learning experiences that lead to transfer, defined as the ability to extend what has been learned in one context to new contexts" (p.74). The hope that people will transfer learning from one context to another, whether it be from school to home, an outdoor setting or the workplace, must certainly be one of the most enduring aims of education (Broudy, 1988). Particularly from an industry viewpoint, if transfer of learning is not achieved, what else have you got? Quite possibly, *"A waste of time, a waste of money, or a loss of motivation"* (Gass, Goldman & Priest, 1992).

Experiential approaches to learning have for many years provided valuable opportunities through which learning might occur (Garvey, 1995). These approaches vary greatly in format, combining a broad range of settings and experiences coupled with an equally broad range of teachers, teaching styles and students. However, all have the underpinning belief that direct experiences can provide an authentic platform for student learning, and in many cases an arena in which skills can be developed and transferable to other aspects of an individual's life. To date, experiential learning has encompassed activities like camps and field trips, however the basic tenet of the approach is easily identifiable in most industry training. While the precise definition of experiential learning varies across researcher and practitioner alike, there are subtle differences between experiential and more abstract learning which has, at times, been contrasted as learning in and out of school (Resnick, 1987: Brown, Collins, & Duguid, 1987: Biggs & Moore, 1993). While the specifics of each learning situation ultimately determine the nature of learning, the central tenet of experiential learning is that pupils learn best by doing. In doing so, students learn different things in different ways in comparison to formal schooling.

While there exists a raft of anecdotal evidence about the supposed benefits of experiential learning (Wurdinger, 1994), little attention has been given to the types of learning that have occurred and the benefits of these. Similarly, while the issue of transfer remains central to and affects virtually all vocational on and off the job training (Broad & Newstrom, 1992), the efficacy of vocational training in this regard is not well understood. Assumptions have been made about the possible effects and transfer of skills and knowledge learnt within a particular experiential setting to other facets of people's lives (Gass, 1995). Authors such as Smith & Priest (1998); Wurdinger, (1994); and Kolb, (1991) have suggested that a range of general skills and strategies learnt within experiential settings are transferable to other settings beyond the experience, without a lot of empirical evidence to support their conclusions. Accordingly,

the purposes of conducting research about transfer in experiential learning are threefold. In the first, fundamental links may be established between the learning processes that people undergo in experiential settings and mainstream education. In the second, which is a natural extension of the first, conclusions may be drawn about the implications, and the role of cognitive strategies within experiential learning. In the third, a better understanding may be developed of how cognition may assist the adaptation of understandings beyond experiential settings. In particular, conclusions that arise out of such research may serve to: (a) further illustrate the possible value of cognitive strategies in experiential learning; (b) provide some insight into the issue of transfer of strategies and knowledge from one setting to another; and (c) clarify how the outcomes of experiential learning may be enhanced through teaching styles which identify and enhance cognitive strategies that facilitate the transfer of understandings.

With specific reference to the study described herein, this paper considers student perceptions of transfer within and beyond an experiential education programme, namely an outdoor education course that is part of a pre-service teacher education programme. As pre-service teachers, those involved in the programme are likely to be required to adopt and incorporate experiential approaches when teaching pupils. With this point in mind, it is imperative that a programme of pre-service teacher education which uses experiential approaches incorporates appropriate pedagogy; and the pre-service teacher education students involved ought to consider the educational beliefs / principles behind the experiential programme and how these relate to their own practice.

## Literature Review

Discussion and research findings regarding transfer that are pertinent to this study are located in two related areas of literature. The first is, research and information pertaining to experiential learning. The second is the examination of transfer of learning under the broad umbrella of educational psychology, particularly situated cognition and knowledge. While not trying to over simplify the origins of either area, the former is largely contributed by research and commentary of the nature and delivery of experiential learning through adventure based outdoor programmes. The latter area features discussion of the nature of learning in the broader spectrum of mainstream educational practices, eg. Schools and vocational education.

### *Section One - Experiential Learning*

There are a range of terms used to describe programmes that incorporate experiential learning. Typically these include adventure education, experiential education, outdoor education, outdoor management development and outdoor training (Klint & Priest, 1998; Priest, 1998; Priest & Gass, 1997). All of these programmes typically use experiential learning as the underpinning approach to learning (Drebing, Willis and Genet, 1987; Chapman, McPhee and Proudman, 1992; Hattie, et al., 1997). Hattie, Marsh, Neill & Richards (1997), in their meta-analysis of 96 separate Adventure Education' programmes, confirmed the major aim was to develop within participants a range of skills and knowledge they could use beyond the scope and activities used. In particular most experiential programmes were designed to increase the participant's social responsibility. As Kielsmeier (1995) states, "people do respond remarkably when asked to do something real, to engage in something where they are needed" (p. 5). The point being, that through experiential / adventuresome activities people may develop a range of skills and knowledge while also working with others for success (James, 1990). In the case of the Outward Bound participants are challenged to solve problems and overcome group and personal obstacles as a team (Drebing et al., 1987). As such, the group participatory aspect of the programme is a central factor in facilitating successful use of understanding in other domains of people's lives. Stepping back from Outward Bound, the participatory aspect of learning highlights the current debate in cognitive psychology regarding transfer being a matter of moving parcels of knowledge from one domain to another, or learning to participate in interactions in ways that succeed over a broad range of situations (Greeno, 1997). Further discussion of this ideological position on transfer is provided later.

As an outcome of their meta-analysis of 96 studies of experiential based outdoor programmes, Hattie et al. (1997) defined experiential programmes as involving: (a) wilderness or back-country setting; (b) small group participation (usually less than 16); (c) assignments of a variety of mentally and/or physically challenging objectives; (d) frequent and intense interactions that usually involve group problem solving and decision making; (e) a relatively non-intrusive, trained leader / instructor; and (f) a duration of 2 days to 4 weeks. Similarly, Druian, Owens & Owen (1995) provide a general overview of the elements of experiential programmes, summarised in Table 1.

Table 1: Elements of Experiential Programmes

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| **1. Purpose:** clearly articulated purposes - interpreted similarly by programme participants. Stated purposes reflect needs of a group of learners and imply a certain programme content. |
| **2. Setting:** four essential factors - realism; challenge; an appropriate level of risk; and diversity. |
| **3. Characteristics of Participants:** Participants reflect all segments of the population. |
| **4. Learning Strategies:** common sequence of the learning process within experiential programmes is:<br>• Assessment and goal setting; • Negotiation and planning; • Engaging and experiencing;<br>• Reflecting and evaluating; • Application and generalising. |
| **5. Student Roles:** are extremely important in experiential learning programmes, also important to know whether students are learning from people with backgrounds similar to or different from their own. Differences and similarities in the extent and the conditions under which learners learn and transfer learning through responsibility for one's own actions. |
| **6. Instructor Roles**: helps students plan and carry out their activities while often serving as role models of active, involved learners. Monitor student progress; assess and feedback information to students, motivate and encourage students, demonstrating skills in planning, empathy, communications, and resource sharing. |
| **7. Programme Outcomes:** In general terms, the main outcomes of experiential education programmes are the development of leadership, self-concept, academic |

With specific regard to transfer of learning within experiential programmes, Gass (1995) identified three possible types of transfer: (a) specific transfer; (b) non-specific transfer; and (c) metaphoric transfer. While the concept of **specific transfer** between very similar settings seems relatively straight forward, **non-specific transfer** is not. Where there is significant difference between the learning situation and other performance domains, the student has to learn the common underlying principles from the experiential setting and generalise these principles and attitudes to a new learning situation. This ability to generalise by the learner is crucial for non-specific transfer to occur. Interestingly, research also notes that transferred non-specific understandings are predominately limited to relationship skills and perceptions of self-concept (Hattie et al, 1997; Priest, 1998). **Metaphoric transfer** also requires participants to generalise certain principles from one learning situation to another. However the principles being transferred in this instance explicitly use metaphor to make similarities between the learning environment and other areas of an individual's life. As an example, an experiential programme may use the metaphor of geese flying in a parabolic formation to illustrate connections between apprentices supporting one another's learning while attending a Block course and the co-operation needed to complete tasks in the workplace.

Metaphoric transfer has been developed further via the concept of isomorphism, that is “identical in form or structure (but not necessarily composition or function) to another idea, object, or description" (Gass & Priest, 1993, p. 178). Strong linkages (via isomorphs) increase participant motivation and usually enhance transfer of learning. One disadvantage of isomorphic framing, is that the learning experience can become too structured – whilst this may help to ensure that required learning outcomes are reached, other incidental or unplanned learning, which may be equally valuable and valid, may be suppressed. In addition to his comments regarding transfer, Gass (1995) indicated one of the major faults has been the lack of planning for the transfer in the selection and design of appropriate learning activities and teaching methodology. As such, it is necessary to select techniques and activities that will promote transfer applicable to the programme. This is particularly significant for vocational education where often considerable effort is given to providing quality learning experiences during 'off-the-job' training, educators must also teach for the transfer of skills to the

workplace. Revans' (1980) concept of Action Learning or *"learning to learn by doing"* is a good example whereby work-based problems are the focus of learning activity and the important connection to the workplace is a metaphoric one, whereby participants engage in an activity having to make *real* decisions with *real* consequences (Tuson, 1994). Research into how teachers assist transfer suggests a need to consider how participants construct and relate to the metaphors they use (Nadler and Luckner, 1992). Put another way, participants personally own the comparative terms they use. Hence, it is important for instructors to work with the cognitive associations that participants perceive rather than impose external associations for learners to adopt.

Along with the role of the teacher, the inclusion of significant others closely associated with the student's learning often increases the transfer of learning. Work with at-risk youth at the Centre for Adolescent Psychiatry, Austin & Repatriation Medical Centre, Melbourne is a particularly good example of this (Crisp, 1996). While working with 14 to 18 year adolescents referred by schools or social workers to the Centre, Crisp found that positive transfer of therapy outcomes was highly dependent on people significant to the patient, i.e. peers, parents, counsellors, social workers, and/or teachers being involved. In terms of transfer, Crisp points out that: (a) often learning activities are unnatural; and (b) people need more than metaphors and reflection to transfer understandings. By involving the Centre staff and people significant to his patients in the outdoor activities, hospital counselling sessions and home / school environment, Crisp found significant changes in behaviour occurred.

*Section Two - Situated Learning and Transfer*

While the literature discussion above highlights significant aspects of transfer when learning through direct experiences, it is not clear the degree to which knowledge is: (a) a construction of the group rather than the individual; or (b) confined to the experience itself. Recent research pertaining to situated cognition and associated issues of transfer provides some insight of psychological and pragmatic issues of experiential learning.

Greeno (1997) questions whether transfer is a matter of moving parcels of knowledge from one domain to another, or learning to participate in interactions that succeed over a broad range of situations. Sfard (1998) provides useful insight into this issue by suggesting learning theory related to transfer could be conceptualised by way of two differing metaphors (metaphor the language used to express meaning and the underpinning epistemological belief). First, is the acquisition metaphor, which is characterised by accumulation of knowledge as a product. Accordingly, acquiring knowledge is thought of as, "gaining ownership over some kind of self sustaining entity" (Sfard, 1998, p. 4). This view of learning and transfer has considerable support in educational literature (Anderson, Reder and Simon, 1996; 1997). The second metaphor Sfard proposes is the participation metaphor. As the title suggests, knowing is dependent on the learner's participation. Understanding is embedded within a setting constituting "situated-ness, contextuality, cultural embeddedness and social activity" (p. 4). Compared with the first, the learner is participating in a distinct social activity rather than accumulating knowledge as a commodity to be applied, transferred and shared with others. It is important to note that the difference between the two metaphorical views is not about the types of interactions that occur during learning. Both views may incorporate independent thinking and social interaction. The key point is that, unlike the acquisition metaphor, with the participation metaphor understandings exist within and because of specific events, contexts and interactions. Extending this proposition to transfer of learning, the acquisition metaphor presents the learner as a semi-independent agent, able to apply knowledge to a range of settings depending on the degree of similarity between the two and executive knowledge of the individual (Perkins and Solomon, 1989). Alternatively, with the participation metaphor transfer is about learning to participate in interactions in ways that succeed over a broad range of situations.

Sfard's (1998) discussion of the two metaphors calls into question the very nature of knowledge and how people learn. Unlike Gass (1995) and Bacon's (1984), the use of metaphor in this instance considers knowledge in a different way. This said, the literature

presents a common concern about the lack of clarity in this regard, for example Lave's (1998, cited in Sfard, 1998) comment of "transfer being seriously misconceived" (p. 39) and Hattie et al. (1997) finding that little is known about why the experiential programmes examined work most effectively (at transfer beyond the programme), both raise questions about how knowledge and transfer is conceptualised. By way of a possible path forward, Sfard (1998) calls for additional research to examine basic fundamentals of the participatory nature of learning. In this respect, further examination of the participatory influences on learning in experiential learning may illustrate that: (i) understandings developed through involvement in experiential programmes may have a high degree of situational dependency; and (ii) effective transfer is as much about people effects as it is about learning effects.

Apart from a metaphorical perspective, discussion regarding psychological aspects of situated learning has been ongoing. Resnick (1987) contrasts differences that may exist between the abstract learning characteristic of schools and learning in the "practical, everyday, real-world" (p. 13). Resnick makes the point that "Out of school...they [students] are continuously engaged with objects and situations that make sense" and " Mental activities make sense in terms of their results in a specific circumstance; actions are grounded in the logic of immediate surroundings" (p. 15). Resnick makes several key observations regarding the nature of learning outside of school:

1. learning is highly dependent on interactions with other people and the environment;
2. learning is often shaped around the tools used (practical and conceptual);
3. actions are connected to objects, events and reasoning; and
4 competence is often situation specific.

Resnick (1987) is very clear that a blend of learning in and out of school is desirable. The combined approach incorporates learning which: (a) involves socially shared intellectual work; (b) is organised around joint accomplishment of tasks; and (c) elements of skill take on meaning in the context of the whole. From an experiential learning perspective these recommendations are comparable with many successful strategies (Gass, 1995; Klint & Priest, 1997). Similar to Sfard (1998), there is a shared view that learning is highly dependent on context and associated interactions, in that, learning should incorporate shared work, joint accomplishment and situational context. Brown et al. (1987) take the position that situated cognition can provide for the development of "usable and robust knowledge" (p. 32) through the deliberate use of social and physical context for learning. Learning is dependent on the relationship between the concept of cognitive apprenticeship, situated cognition and the social construction of knowledge and related to real circumstances with real consequences. As such, knowledge is not independent, but situated in the activity, context, and culture in which it is developed. This view is shared by Wilson (1993) who states situated cognition is learning that is integrally situated in everyday activity, that enables more accurate understanding of learning, particularly in adults. Wilson also states that authentic activity, involving situations requiring actual rather than simulated cognitive processes, may be a better basis for adult education. As such, the cognitive tools learners use are an important part of developing understandings and are heavily influenced by the contexts used. Clearly, Brown et al. are of a similar view to Resnick in that, the nature of knowledge, as it relates to the context, has significant influences on how people learn and solve problems. Similarly, Greeno (1997) suggests that through examining the affordances and constraints that individuals perceive when adapting understandings from one context to another a greater understanding of the located nature of transfer might be achieved. With respect to applying abstract representations within contexts, Greeno suggests that greater attention be placed on the interpretative conventions that students use: and the ways that these conventions are often shared in social / situated learning environments.

The discussion thus far has clearly established common ground between experiential learning and situated learning. Along with this, questions and concerns common to the nature of situated learning are just as applicable to experiential learning. As such, Greeno's (1997) call to examine interpretative conventions of learning provides a useful focus for the ways people use, share and manipulate cognitive understandings in experiential learning. Also given the

points made by Sfard (1998), Brown et al. (1987) and Perkins and Solomon (1989), research into participants use of knowledge in experiential learning ought to consider: (a) the nature of learning activities; (b) specific ways that participants develop and use understandings; and (c) cognitive conventions that may facilitate transfer of understandings.

**Research Method**

This research focuses on student perceptions of the nature and transferability of understandings within experiential learning. Accordingly, this research asks the following questions in regard to participation in a specific experiential programme.

1. What are the principles, objectives and activities that make up the outdoor education programme that is the focus of the study?
2. What specific understandings do participants perceive they develop through involvement in the programme?
3. What understandings are perceived by the participants to be transferable within and beyond the programme?
4. How do participants perceive the transfer of understandings occurred.

The research was conceptualised as a combination of case study (Stake, 1995; Yin, 1989) and grounded theory (Strauss & Corbin, 1998). While the two approaches have similarities and differences, combining them provided for the analysis of data with regard to trends and generalisations (Davidson and Tolich, 1999). The case study provided both specific and general information about student perceptions within a bounded system and, subsequently, grounded theory assisted in the emergence of theory from the data.

Table 2: Pre Service Teacher - Outdoor Education Programme

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|---|---|---|---|---|
| Class Sessions | Week 1 | Programme Overview | Leadership | Trip Planning |
| | Week 2 | Risk Management | River Dynamics | Camping Skills |
| | Week 3 | Food and Nutrition | Management | Cycle Touring |
| | | | | |
| Activity Week | Day 1 | Road cycle 130 kms - moderate hilly terrain - 6 to 8 hours | | |
| | Day 2 | Road cycle 85 kms - very hilly terrain - 5 to 7 hours | | |
| | Day 3 | White Water rafting (grade 4) 6 hours | | |
| | Day 4 | White Water rafting (grade 4 - 5) 7 hours | | |
| | Day 5 | White Water rafting (grade 3 - 4) 6 hours | | |
| | Day 6 | Beach activities 4 hours | | |
| | | | | |
| Post Activity Week | In-class debrief / student assignment work (over 6 weeks) | | | |

The experiential programme in which the research was conducted has two interrelated aims. The first (which has two parts) is to develop students' in-depth and broad understanding of: (a) the concept of outdoor education; and (b) ways in which outdoor education can be incorporated within in-class and out-of-class learning. The second, is to promote the students' own personal, professional and social development. Programme participants were pre-service schoolteachers in their final year of study. The programme involved 39 students, all of whom opted to participate in the research. Of the 39 students, a smaller group were selected for focus group interviews. The Programme begins in February with classroom based planning sessions over three weeks prior to an activity week involving a range of outdoor activities, e.g. cycle touring, camping and rafting, culminating with debriefing sessions and a six week period for assignment work (Table 2).

The research employed a range of instruments to gather data within a three-stage approach. The first stage involved a questionnaire during the three weeks prior to the Activity Week; the second stage involved four focus group interviews and research field notes during Activity Week; and the third stage involved individual interviews with Focus Group members six weeks after Activity Week. Data from the stage one questionnaires provided base line data about the participant's familiarity with the activities. Stage two transcripts from each of the four focus group interviews were collated using a content matrix. Involving 20 distinct cells in total, the matrix comprised a two dimensional grid. The horizontal axis of the content matrix

was determined by the time frame to which the participant's comment related, i.e. Past Experience, The Present, Activity Week, and Beyond Activity Week. Participant's responses were categorised under the vertical axis as being about the: Specific Activity; Attitudinal & Emotional; Professional; Intrapersonal; or Interpersonal. Approximately six weeks following the activity week, individual interviews were conducted with four of the five Focus Group members (one member was unavailable). Selected responses from each individual were summarised in terms of the research questions.

**Findings and Discussion**

During the Activity Week participants considered and reported an extensive range of professional attitudes and personal beliefs about themselves and others. In a professional sense, students stated how the experiences might influence ways they would conduct professional relationships and consider organisational aspects of teaching. From an intra-personal perspective, students shared understandings about their own thinking, and perceptions of how other students dealt with and processed the demands of Activity Week. With regard to transfer, student awareness of their own thinking identified: the need for learning to be personally and actively experienced; personal confidence in one setting relating to another; and the relevance of personal relationships prompting connections between settings. The development of interpersonal relationships through communication and trust was an important element throughout the Activity Week, especially in regard to the challenge and intensity of experiences. In addition, student awareness of the emotional interplay between individuals and the experiences they shared emerged as Activity Week progressed. In comparison, the interviews following Activity Week revealed a wide range of beliefs about the outcomes of the Outdoor Education Programme - both positive and negative. While some individual's perceptions of growth and transfer reported in the focus groups meetings were not confirmed in the individual interviews, other individuals reported positive transfer of learning beyond the Activity Week. In a similar way, the use of metaphor and significance of personal relationships in assisting transfer was confirmed by some individuals and not by others. Overall, participants perceived different outcomes in regard to the value of the outdoor education programme. With particular regard to the research questions, participant perception of the transfer of understandings during and beyond Activity Week varied significantly.

*Links for transfer*

Results from the Stage One Questionnaire demonstrated the activities and the associated challenges were reasonably unfamiliar to the participants, particularly long distance cycling and river rafting. The importance of this finding becomes clear when considering the implications that prior exposure and confidence in outdoor activities may have for the transfer of learning. Crisp (1997) made the point that adventuresome activities were largely unnatural for the individuals he worked with, and that people need more than metaphors and reflection to transfer understandings. In a similar way, the participants in this study were unfamiliar with the activities, and the programme relied heavily on the use of metaphor to facilitate transfer of understandings. In addition, the Outdoor Education Programme did not incorporate the use of teaching staff or other significant people as a link between Activity Week and other aspects of the participants' lives.

Results from the focus groups during Activity Week demonstrate that students developed physical skills, relationships and personality skills that enabled them to meet the challenges they faced. In addition, the participants made specific connections between their participation in the activities and how similar experiences beyond the programme. For example, Peter's comment that, "Activity would cause teachers and children to work with and through each others differences" (PT, FG,2:32), implied more than just a desire to involve children in outdoor activities. The suggestion being, adventuresome activities could be used as an educative tool to address a range of curricula and interpersonal learning opportunities. Consideration was also given by the focus group participants of differences and similarities between learners. Neil's comment that, "this stuff [learning by doing] helps you to look for what is special in each case [learning situation] - not what is the same" (NL, FG, 2:26), and

Nikita's statement, "outdoor education highlights differences in people" (NK, FG, 2:33), are both examples of how the experiences of Activity Week appeared to develop both participants' awareness of professional practice beyond the programme. Participants also noted the reactions of individuals in demanding situations, i.e. "You learnt a lot about people - especially when things don't go to plan" (RH, FG, 3:2) and "Teams fell apart today - lots of pressure and stress" (PP, FG, 3:2). With particular regard to transfer, participants identified the possibility of transfer, "By doing stuff like this you are more likely to transfer understandings to other activities" (RH, FG, 3:17) and, "The whole idea and principles of safety, how you go about, the way people work and everything, that's something that transfers" (RH, FG, 3:18). Added to this, participants appeared to gain considerable confidence in their own ability to undertake and complete challenges, i.e. "after this week maybe I'm not limited to what I can do" (PT, FG, 3:19). This said, participants were not clear about how they may transfer learning, Pippa's comment of "I've been tested and challenged and like in six months time there will be something that happens that triggers and brings you back to today. You might be talking about someone or something that happened to them," (PP, FG, 4:38), clearly demonstrates the learners acceptance of possible transfer but not the reason or cognitive process behind it.

Overall, through the activities and experiences of Activity Week, students considered and reported a wide range of professional attitudes, personal beliefs and feelings about themselves and others. In this respect, student perceptions from Stage Two are summarised in terms of three themes that emerged from the data, namely, professional, intrapersonal and interpersonal. In a professional sense, students stated how the experiences of Activity Week might influence ways they would: relate to children, conduct professional relationships and consider organisational aspects of teaching. Connections were made between understandings developed through outdoor activities and the implications these may have for professional practice beyond the programme. From an intrapersonal perspective, students shared understandings about their own thinking, and perceptions of how other students dealt with and processed the demands of Activity Week. Trust was important to the focus group and facilitated the intimacy, depth and quality of student responses. With regard to transfer, student awareness of their own thinking identified: the need for learning to be personally and actively experienced; personal confidence in one setting relating to another; and the relevance of personal relationships prompting connections between settings. The development of interpersonal relationships through communication and trust was an important element throughout the Activity Week, especially in regard to the challenge and intensity of experiences. In addition, student awareness of the emotional interplay between individuals and the experiences they shared emerged as Activity Week emerged. The strong bond that developed between participants was based on: (a) personal achievement; and (b) the shared nature of the challenges, hence, participants developed skills and strategies to cope in and through a group setting. In addition, participating in the research focus groups appeared to assist individuals to link learning from one situation to another. As an example "The Focus Group has helped me understand my own feelings about my abilities." (PP, FG, 1:39) and, "Talking in this [Focus] Group has helped me understand what else was going on and how others were feeling." (NK, FG, 1:22).

While most participants acknowledged learning and transfer within Activity week, only some identified transfer to other domains of their lives. Results from the individual interviews six weeks after Activity Week showed perceived transfer ranged from very little to a moderate amount. While it is not clear the extent to which specific individuals used the support of others to transfer understandings, several participants considered: (a) learning within Activity Week was transferable between activities; and (b) selected learning was transferable beyond Activity Week to other activities, Table 3 shows comparatively positive comments by students between Activity Week and the Individual Interview six weeks following.

Table 3: Transfer of Understandings Between Activity Week and Individual Interviews

| Participant | During Activity Week | Six Weeks After |
|---|---|---|

| | | |
|---|---|---|
| Peter | After this week maybe I'm not limited to what I can do PT (FG, 3:19) | "Now I apply it when I want to give up.. you did it then, so you can do it now, which is the transfer of a skill" (PT-I, 12) |
| Pippa | "It [cycle] made me aware of the diversity of people. Now if you think about it, that's a normal classroom" PP (FG, 1:30) | "..when it does get tough as a teacher, you know, you can do it - you're done harder things during Activity Week" (PP-I, 8) |
| Rachel | "By doing stuff like this you are more likely to transfer the understandings to other activities" RH (FG, 3:17) | The river metaphor was cool in that you related you as a person to the river and the world around you. It made me think about some of the twists and turns I have made and the ones in front of me (RH-I, 4) |

Balanced against this, two students could not identify many instances of transfer during the Activity Week itself and reported no transfer from Activity Week in the six week individual interview. In considering this perception that transfer did not occur, it is worth considering whether transfer beyond a programme may be dependent on an individual first transferring understandings between activities. Accordingly, the research suggests that an individual's ability to perceive non-specific transfer may have influenced their ability to firstly establish cognitive links within a programme. In conjunction, it is important to consider the degree to which transfer of understandings is bound within an interpersonal construct. In all cases, the participant's perception of what was transferred was knowledge or skills that had developed in an interactive setting. In many respects, this conclusion points towards the significance that shared experiences have for learning and transfer. The extent to which linking strategies and the role of shared experiences may have assisted participant transfer of understandings, should also be considered in light of Sfard's (1998) comparison between different metaphors of learning. With respect to learning as acquisition, the participants appeared to gain ownership (Sfard, 1998; p. 4) over learning during the Activity Week sufficiently to apply it other adventuresome activities. From the viewpoint of learning as participation, students learnt to interact in ways that succeeded over a range of situations. Collectively both views of learning require participants to make deliberate cognitive links between one situation and another. Arguably, cognitive links must involve an acceptance on the part of the learner of a degree of plausible sameness between settings. In respect to transfer within Activity Week the sameness of activities is evident given the nature and setting. However, the degree to which participants were able to construct cognitive relationships beyond Activity Week appears to have been limited.

*Use of Metaphor to Assist Transfer*

The Programme relied heavily on the use of metaphor to assist student's development of understandings and the transfer of these within and beyond the programme. During the in-class sessions preceding Activity Week, students were introduced to the notion of using the river as a metaphor to assist making connections between Activity week and other aspects of their lives. During the activity week most students reported a regular identification with the metaphor during the Activity Week compared with a reduced level of metaphorical identification six weeks after. Given the limited amount of transfer beyond Activity Week, the discussion must question whether the usefulness of the metaphor as a learning / transfer tool was predominately limited to the challenges of Activity Week and the possible reasons why. People's perception of the outcomes of an experience play a significant role in the extent to which they 'buy into' the value and significance of what they are involved in. In simple terms, people have to see the sense of an experience to make some sense out of it. With respect to Druian et al. (1995) comments that successful experiential programmes feature clearly articulated purposes - the meanings of which are clearly understood by participants, it is not clear to what degree the participants understood why they were participating in Activity Week and the expected outcomes. This does not imply the Programme Objectives were not made clear to the participants, rather, it asks to what extent participants understood and 'bought into'

the activities and likely outcomes. In respect to the use of metaphor, participants were instructed in the role the river metaphor would serve during Activity Week, however, it is not clear whether they understood the role it might play in helping them transfer understandings to other areas of their lives.

Whether the river metaphor was consciously owned by the participants is a significant factor in regard to expected learning outcomes. While there was a clear expectation on the part of the Programme Director for the metaphor to perform this role and acknowledgement by the Focus Group members of metaphorical use during the Activity Week, limited transfer and reference to the river metaphor beyond the programme would indicate the metaphor had limited personal significance beyond Activity Week. In regard to how participants construct meaning in and from experiential settings Nadler and Luckner (1992) specifically call for participants to personally own the comparative terms they use. The inference being, had the Programme caused students to construct and consider their own comparative terms during the Activity Week, the degree of transfer beyond the immediate activities may have increased. It is interesting to consider the influence student ownership of metaphor and/or objectives may play in transfer from an acquisition and participatory viewpoint of learning (Sfard, 1998). In regard to learning as acquisition, transfer is highly dependent upon the learner being able to generalise beyond the immediacy of the learning situation (Strauss, 1987: Gick & Holyoak, 1987: Perkins and Solomon, 1989). Or as Greeno (1997) suggested from a participatory viewpoint, successful transfer comes from students examining how they interpret learning and focus on the ways people use, share and manipulate understandings. In both regards, the programme did not purposefully engage students in ways of constructing personal metaphors and the programmes objectives that would assist transfer beyond the Activity Week. The key point here is that, transfer is much more likely to occur when students create the cognitive frameworks and reasons why learning might transfer from one domain to another.

*Role of the Research Method*

The research process caused students involved in the Focus Group to: (a) give specific blocks of time during the week to consider their participation; (b) think out-loud about their experiences; (c) possibly share in the thinking of others; and (d) consider the implications of Activity Week in terms of all the students involved. The allocation of specific time for participants to consider their actions and perceptions of Activity Week, clearly provided an opportunity for reflection. This opportunity was reported by participants as a positive aspect. Aside from the opportunity for sharing perceptions, allocating time to reflect on the outcomes of the activities and personal challenges was arguably influential in participant learning. Apart from involving discussion between participants, programmes should incorporate specific opportunities for students to 'take time out' and consider the implications of the experiences undertaken. In the absence of active facilitation through a mentor, instructor or teacher, specific time for reflection could easily be enhanced or guided by written prompts in a diary form. Additionally, the Focus Group meetings caused participants to think out-loud about their experiences and possibly share in the thinking of others. Participants were able to draw conclusions about their perceptions with the assistance and shared thoughts of other group members. While it is reasonable to suggest participants could have drawn specific conclusions about the experiences themselves, whether they were involved in the Focus Group process or not, they would not have had the opportunity to 'test' their thinking in an open forum and adapt this accordingly. As such, it is possible that a form of cognitive reciprocity developed within the Focus Group in respect to collective understandings of what occurred. Balanced against this, it is also important to consider the degree to which this process may have caused participants to 'buy into' shared understanding that did not accurately reflect each individual's thinking. The point being, learners may agree with the shared understandings, the use of metaphor, and positive effects of a programme for a variety of reasons, such as: (a) the immediate nature of the activities; (b) positive reporting of learning by other Focus Group members; (c) conscious or unconscious alignment with the goals of the Programme and the Research; or (d) not wanting to appear 'out of step' with other group members.

*Overall Conclusions and Implications*

1. Design conditions for transfer before the programme starts. In doing so students should buy into the goals of the programme. People's perception of learning play a significant role in the extent they 'buy into' the value and significance of learning.

2. Use of metaphor as a cognitive link to transfer understanding found some acceptance with students. However, identification with the use of metaphor to assist transfer of learning beyond the Activity Week was limited. Transfer may have been enhanced by students creating their own metaphors / cognitive frameworks.

3. Transfer that did occur within and beyond the programme was interwoven with, and somewhat dependent upon emotional perceptions and personal relationships.

4. Within the programme there was little opportunity for students to practice transfer.

5. Programmes could consider the focus group approach as a educative tool to focus student learning and transfer prior to activities, during activities and after programmes.

6. Transfer within a programme increases the likelyhood of transfer beyond. Transfer of understandings beyond a programme is more likely when the experience is shared and discussed with others.

Educators who use hands on type situations to help students to learn, are charged with the responsibility of ensuring learning extends well beyond the limits of the programme. As such, this report recommends an approach to learning by doing that highlights the emotions, relationships, goals and thinking of individuals and groups in a reciprocal and dynamic way. With particular regard to vocational education, instructors should consider individual's learning to be a combination of three learning processes - cognition, emotions and behaviours (Mazany, 1997). The most powerful learning activities that people experience incorporate learning from all three processes. In addition, if transfer is to be successful, a conducive climate and culture must be created back in the workplace. A key element of this is to develop a learning partnership between managers, trainers and trainees to address transfer in organisations. Thereby all partners will be committed to making the training investment pay off.

A relatively new, yet pivotal agent, to assist in forging learning partnerships has been the introduction of industry training mentors at a trainee / apprenticeship level. As an example, under the banner of 'Modern Apprenticeships', since 2001 the New Zealand government and industry have developed the mentoring of industry trainees to the point where at 31 December 2003 there were over 6,259 Modern Apprentices in New Zealand working across 30 different industries, towards over 260 different qualifications. While the distinct role of each apprenticeship mentor is not specifically targeted to transfer, the very nature of ensuring apprentices, supervisors and employers make cognitive links between off-job theory / practical learning and different performance settings within the workplace, appears to improve overall learning, task performance in the workplace and, arguably, staff retention. Such an established mentoring relationship is one of the essential components that enables trainees to try out their new learning, by helping to create a supportive organisational climate.

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Authors note: The findings presented herein provide a brief summary of the research undertaken, further information, data and findings may be requested by contacting the author directly at nzfto@ihug.co.nz.