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The Perceived Complexity of Vocational Workplace Rehabilitation and its Implications for Supervisor Development

Ian Blackman
School of Education, Flinders University *ian.blackman@flinders.edu.au*

This study explored the factors that influence the perceived complexity of vocational rehabilitation tasks and the abilities of workplace supervisors and rehabilitating employees to carry out rehabilitation in the workplace. The research project was designed to explore whether there was a difference between the perceived complexity of 31 vocationally related rehabilitation tasks as understood by 272 workplace supervisors and 80 employees who were undertaking workplace rehabilitation. By using a probabilistic measurement approach

(Rasch model), the study also sought to explore if there was an underlying dimension of the work-related rehabilitation tasks and whether the ability to undertake workplace rehabilitation tasks was influenced by the status and gender of the participants. Additionally, the study sought to assess whether a scale of performance for learning could be constructed, based on the difficulty of the rehabilitation tasks and the self rated capacity of workplace supervisors and their rehabilitating employees. Outcomes of the study suggest that supervisors and rehabilitating employees differ significantly, both in how they view the complexity of vocational rehabilitation and their capacity to participate effectively in workplace rehabilitation. Recommendations are made for designing supervisor rehabilitation training programs in terms of their content and structure, in a bid to make workplace vocational rehabilitation more effective.

Rasch analysis, Partial credit model, Vocational rehabilitation,
Workplace rehabilitation, Attitude measurement

INTRODUCTION

Since the mid 1980s when various Australian state governments passed statutes influencing the management of employees injured at work, the success of workplace vocational rehabilitation has been debated (Kenny, 1994; Fowler, Carrivick, Carrelo and McFarlane, 1996; Calzoni, 1997). Factors that have served to detract from successful vocational rehabilitation in the workplace include confusion about how vocational rehabilitation can actually be measured, continued misinterpretations behind the real purposes of workplace rehabilitation, the utilisation of inappropriate models to inform vocational rehabilitation (Cottone and Emener, 1990; Reed, Fried and Rhoades, 1995) and resistance on the part of rehabilitating employees choosing not to participate in the rehabilitative process (Kenny,1995a; Rosenthal and Kosciulek, 1996; Chan, Shaw, McMahon, Koch and Strauser, 1997). Further exacerbating these existing workplace rehabilitation problems is an over-arching expectation that

workplace supervisors manage the rehabilitating employee when they are often ill prepared for this task (Gates, Akabas and Kantrowitz, 1993). While supervisors may well be capable of identifying the required skill level of an employee for routine work tasks, considerably more ability is needed on the part of the supervisor, to match successfully job requirements to the capacity of an employee who is rehabilitating in the workplace. Moreover, in the presence of a rehabilitating employee in the workplace, the supervisor may be ill-prepared to deal with any hostility that may arise from other employees, who may be asked to relinquish their usual work roles in deference to the rehabilitating employee.

Other logistical supervisory difficulties can occur when the workplace is used in a rehabilitative context; for example, what actions must the supervisor take to preserve confidentiality about the rehabilitating employee's medical condition while simultaneously needing to instruct other staff about an employee's limitations? Kenny (1995a p.62) suggests that neither employees nor their employers have sufficient knowledge to negotiate their way around the workers' compensation maze.

In recent times there has been, and continues to be, considerable industry restructuring where fewer numbers of supervisors have greater responsibility for larger numbers of employees and this in turn, puts greater pressure on the workplace supervisor to juggle the needs of the rehabilitating employee against an increasing supervisory burden generally. If there are inadequate communication pathways between those stake-holders who are involved in vocational rehabilitation in the workplace, supervisors themselves may struggle and in turn may become stressed resulting in workplace bullying (Dal-Yob, Taylor, and Rubin, 1995; Kenny, 1995b; Garske, 1996; Calzoni, 1997; Sheehan McCarthy and Kearns, 1998).

There is also a lack of agreement between how the supervisor and the rehabilitating employee regard the purposes and processes of workplace vocational rehabilitation. Employees are often more aware than their own supervisors of the need to modify the work environment for rehabilitation purposes (Gates, Akabas and Kantrowitz, 1993). There are significant expectations that supervisors must manage the injured employee in such a way that meets their needs, accounts for any medical restrictions, manages the expectations of other employees and the employer, and all within an appropriate legal context.

Rehabilitation training in a vocational context is seen therefore as one essential mechanism to facilitate the role of the supervisor in the rehabilitative process and simultaneously emphasises that workplace rehabilitation is an adjunct to the successful treatment plan of injured employees (Pati, 1985).

This study seeks to strengthen this nexus by identifying and ranking how easy or difficult supervisors and rehabilitating employees find their expected roles in workplace rehabilitation. It also seeks to demonstrate that different hierarchies of workplace rehabilitation complexity exists between the groups and gender which in turn should be considered as a foundation on which to build future supervisor training in workplace rehabilitation.

METHOD

Participants

A total of 272 supervisors and 80 injured employees undergoing rehabilitation were involved in the study. Just over two thirds of the supervisors surveyed were male and the number of years supervisors had been in their supervisory role ranged from less than 12 months to more than 40 years (mean=11years and SD=7.3). The number of staff each

supervisor was responsible for ranged from less than two people to over 400 employees (mean= 45 staff and SD=63). Most of the supervisors surveyed were employed in the public sector and were expected by the employer to attend supervisory training in workplace safety as part of the employers' adherence to workplace safety legislation. The rehabilitating employees were also employed by the public sector at the time of the study and were also currently undergoing workplace rehabilitation for what were essentially physical injuries sustained earlier at work. Employees who had not been injured at work were excluded from the study. Seventy-one per cent of rehabilitating employees were female and they had been employed in their work areas ranging from less than one year to 36 years (mean=14 years and SD=9). Surveyed employees tended to come from work areas that had on average 26 other staff employed in their work area.

Instrument

Participants were asked to complete a confidential questionnaire by rating their capacity to perform 31 individual workplace rehabilitation tasks of differing complexity. Thirty-one items or statements relating to the rehabilitative context were generated and informed by the South Australian rehabilitation statutes of 1985, with advice taken from vocational rehabilitation consultants. Two questionnaires were generated, one each for the rehabilitating worker and the workplace supervisor. The content of the questionnaire for each group was essentially the same, altered only in terms of to whom the questionnaire was addressed, that is as the employee or supervisor. The rehabilitation context of the questions included the following:

- suitability of return to work duties,
- ensuring confidentiality of information about medical information,
- contact between supervisor and rehabilitating employee,
- dealing with negative feelings about the workplace and rehabilitation,
- involvement in job re-training,
- other staff's acceptance and assistance when an employee requires rehabilitation,
- securing equipment to assist in rehabilitation,
- understanding legal requirements and entitlements related to rehabilitation,
- communication with others outside the workplace rehabilitation setting (eg rehabilitation consultant, doctor, spouses, unions, claims management departments),
- rehabilitation documentation within the workplace,
- budget readjustment secondary to changes in work roles,
- gaining support from within the organisation,
- dealing with language diversity in the rehabilitation context, and
- dealing with conflict in the rehabilitation context.

Assumptions behind the construction of the questionnaire

Each of the 31 rehabilitation questions was posed to respondents using a four point Likert scale. Each participant was asked to rate each item using a numerical range from 1 to 4 indicating his or her perception of each rehabilitation item as either being a very easy task to do (1), a simple task to fulfil (2), a difficult task to do (3), or, a very hard task to carry out (4). This scale from 1 to 4 is seen as a continuum of increasing rehabilitative complexity as perceived by the different respondents.

Traditionally, each rehabilitation item responses would be analysed by being summed and items having high scores would then assumed to be the most difficult. Alternatively, the Rasch model challenges this assumption and takes the view that distances between the steps

(called thresholds) of the rating scale (that is the spaces between rating 1 to rating 2, between rating 2 to rating 3 and between rating 3 to rating 4) are not equidistant for any one rehabilitation item on the questionnaire or between the other rehabilitation items estimated on the questionnaire (Bond and Fox, 2001). The Rasch model assumes that the thresholds of complexity of each rehabilitation item identified by participants will be different according to the complexity of the rehabilitation item and the ability of the respondents. Using this approach, a conjoint measure can be constructed which aligns perceived ability of the respondents directly with the perceived complexity of each rehabilitation task. In other words, using a vertical semantic scale, the differing ability levels of respondents to undertake vocational rehabilitation at the differing levels of complexity to carry out rehabilitation tasks can be plotted together hierarchically.

It was assumed that there would be differences between supervisors and employees in their perceived complexity and abilities of undertaking workplace rehabilitation tasks and these differences would serve to highlight what content and possible leaning processes would be included in future supervisor rehabilitation training. Supervisor responses would also serve as a baseline measure of ability and could be compared after supervisory training had taken place at some future date, to see if learning had taken place: namely, that supervisor ability had increased and rehabilitation workplace tasks had become easier.

DATA ANALYSIS

In order to analyse the rehabilitation data the QUEST program (Adams et al. 1996) was used to estimate the perceived differences in the ease or complexity of rehabilitation tasks between the two groups and their perceived abilities to carry out the rehabilitation tasks.

Fundamental to the Rasch analysis model is the estimation of whether the individual rehabilitation items used in the survey are meaningful and valid in terms of describing just what the actual construct underlying rehabilitation is. In other words, are the rehabilitation items that were constructed and used in this survey individually and collectively meeting the same criterion (also termed unidimensionality) that underlies the construct related to vocational rehabilitation complexity and participant ability? This notion of unidimensionality is satisfied when the rehabilitation data derived from the survey fits the Rasch model and when the fit values for rehabilitation items and for the respondent's ability do not depart significantly from their expected values. If these criteria are satisfied, the data one said to have goodness of fit and in turn suggests that the model chosen to estimate the construct of rehabilitation complexity is valid (Smith 1996; Hambenton, 1991; Linacre,1995). With reference to Figures 1 and 2 which represent the fit model of all rehabilitation items completed by workplace supervisors and rehabilitating employees respectively, all questions fit the Rasch model and have infit mean square values not greater than 1.30 or less than 0.77 (Adams et al; 1996).

These goodness of fit indices confirm that all the items used to estimate rehabilitation complexity and ability are valid and are individually and collectively describing the construct underlying vocational rehabilitation.

RESULTS

Differential item functioning between the groups: supervisor responses

Figure 3 displays the item ability estimates for supervisors. The logit scale, (a logarithm scale) which ascends next to the vertical line, indicates the level of complexity rated by the supervisors (for each of the 31 rehabilitation items). It should be noted that 0.0 on the logit scale indicates the average difficulty of the rehabilitation items and it is at this point that

there is an equal probability that supervisors would view those rehabilitation items as being seen as either easy or hard. As rehabilitation items ascend the logit scale, they are perceived as becoming increasingly difficult (from logit 0.0 to logit 4.0) by supervisors. Consequently, supervisors believe that they need more specialised rehabilitation skills in order to meet the demands of these rehabilitation tasks. Conversely, rehabilitation items that are charted on the lower levels of the scale (logit 0.0 to -4.0) are perceived by supervisors as becoming increasingly easy in ranking and supervisors believe less ability is required on their part, to meet these rehabilitation tasks.

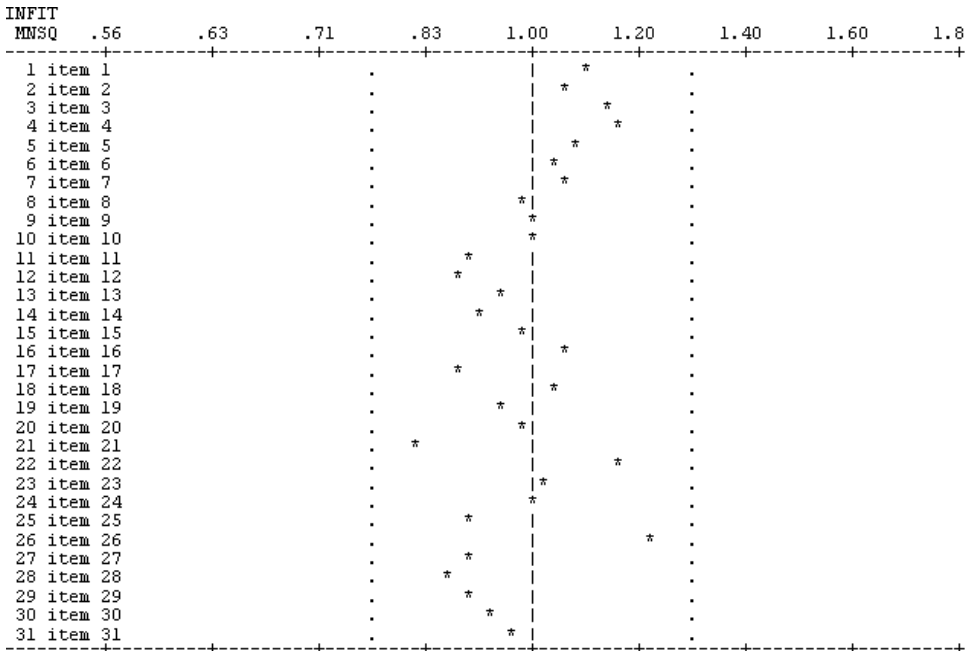


Figure 1. Fit indices for supervisor responses for all rehabilitation items

To the right of the logit scale are the rehabilitation items located in descending order from the most difficult rehabilitation items to the easiest. At the top of the logit scale (values of + 4.0 and above) are the workplace rehabilitation Items 13,19, 4 and 21 that attracted high scores and were seen as the most difficult of all rehabilitation tasks for workplace supervisors. In these instances, supervisors found it very difficult to find others in the workplace that could assist the rehabilitating employee (Item 13) and to report any difficulties they were having with vocational rehabilitation to their own supervisors in upper management (Items 19 and 12). There exists within the supervisory body a degree of negativity towards rehabilitation (Item 4) which they find very difficult to resolve personally. It is also very difficult for them to respond to complaints that rehabilitating employees may present to them (Item 21). Supervisors also find it difficult to find out what entitlements the rehabilitating employee would be entitled to (Item 8) and to find out what their organisation's policy was about rehabilitation (Item 18). Within this cluster of very difficult supervisory tasks are Items 11 and 23 which explore the complexity supervisors find in ensuring that a rehabilitating employee only does those work tasks that he or she is medically cleared to do and to liaise with the rehabilitation counsellor, respectively. Clearly supervisors from this study feel isolated and uncertain about their vocational rehabilitation roles particularly with respect to the needs of the employees and their own organisation. Item 2 examines the complexity supervisors experience in maintaining confidentiality about information concerning a rehabilitating employee and it illustrates the tension the supervisor must feel in having to preserve that confidentiality while simultaneously having to keep other employees and management informed of rehabilitation details employees are required to do.

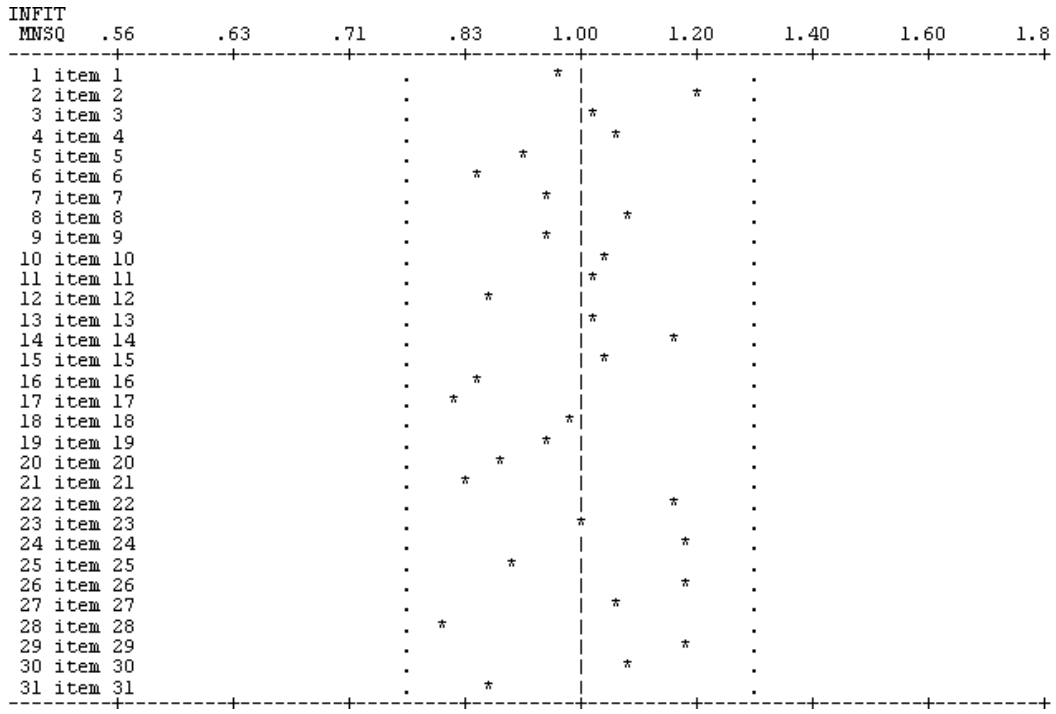
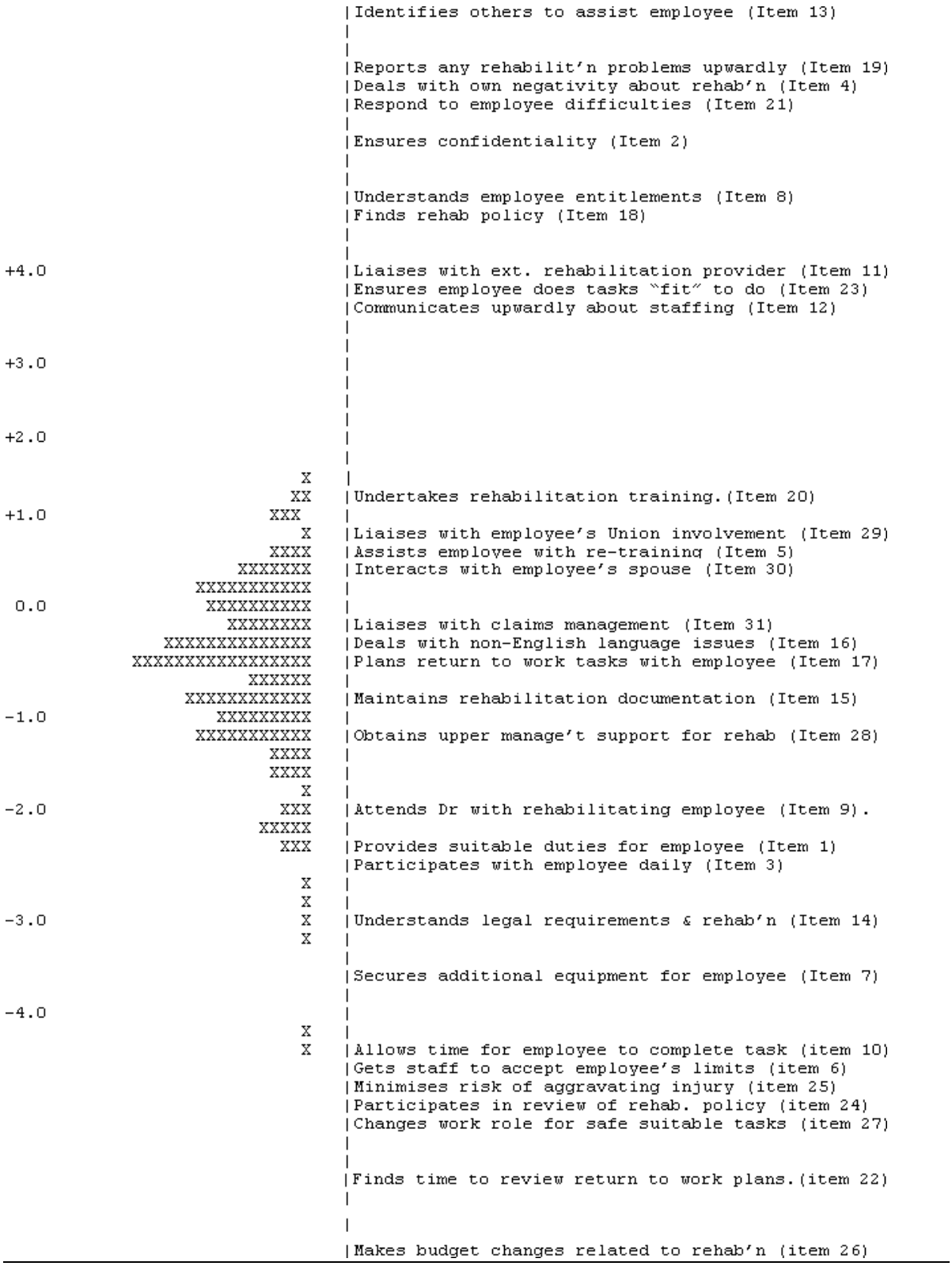


Figure 2. Fit indices for rehabilitating employees responses for all rehabilitation items

Rehabilitation tasks located between the +1.0 to -1.0 rankings are viewed by supervisors as becoming increasingly easier to undertake in the workplace. Participating in their own supervisory rehabilitation training (Item 20), providing the rehabilitating employee with work-based training (Item 5) and interacting with the employee's union and spouse (items 29 and 30 respectively) have a higher probability of being seen as becoming easier as the rehabilitation items are located between the 0.0 to the –1.3 logit ranking.

Supervisors can find their liaison with claims management quite easy (Item 31) as well as dealing with rehabilitating employees who come from a non-English speaking (NESB) background (Item 16). Maintaining rehabilitation documentation and formulating return to work plans with the rehabilitating employee (Items 17 and 15 respectively) are also viewed as being easy tasks by supervisors.

Rehabilitation tasks located from–2.0 to–4.0 on the scale are perceived by supervisors as become progressively easier as the items are listed down the logit scale. Supervisors would therefore believe that they do not require complex workplace rehabilitation skills in order to achieve these tasks. Items at this level would include having to see the rehabilitating employee's doctor (Item 9), providing safe, appropriate duties for the employee (Item 1), securing additional equipment if required (Item 7) and briefly reviewing the employee on a daily basis (Item 3). Supervisors are reasonably comfortable with their understanding of the legal requirements associated with vocational rehabilitation (Item 14). The remaining seven rehabilitation items are located below the –4.0 logit scale and this suggests that there is a higher probability that supervisors find these tasks to be simplistic. Allowing the rehabilitating employee extra time to complete work tasks (Item 10), changing staff and job roles around to ensure the rehabilitating employee does not aggravate their existing injury (Items 6, 25, and 27) and finding time to review the employee's return to work plan (Item 22) are all seen as very easy rehabilitative tasks for supervisors. Making changes to their budgets to account for the presence of a rehabilitating employee is perceived by supervisors as the easiest of all the 31 rehabilitation tasks.



Each X represents 2 workplace supervisors. (N=272)

Figure 3. Workplace rehabilitation item estimates as rated by supervisors

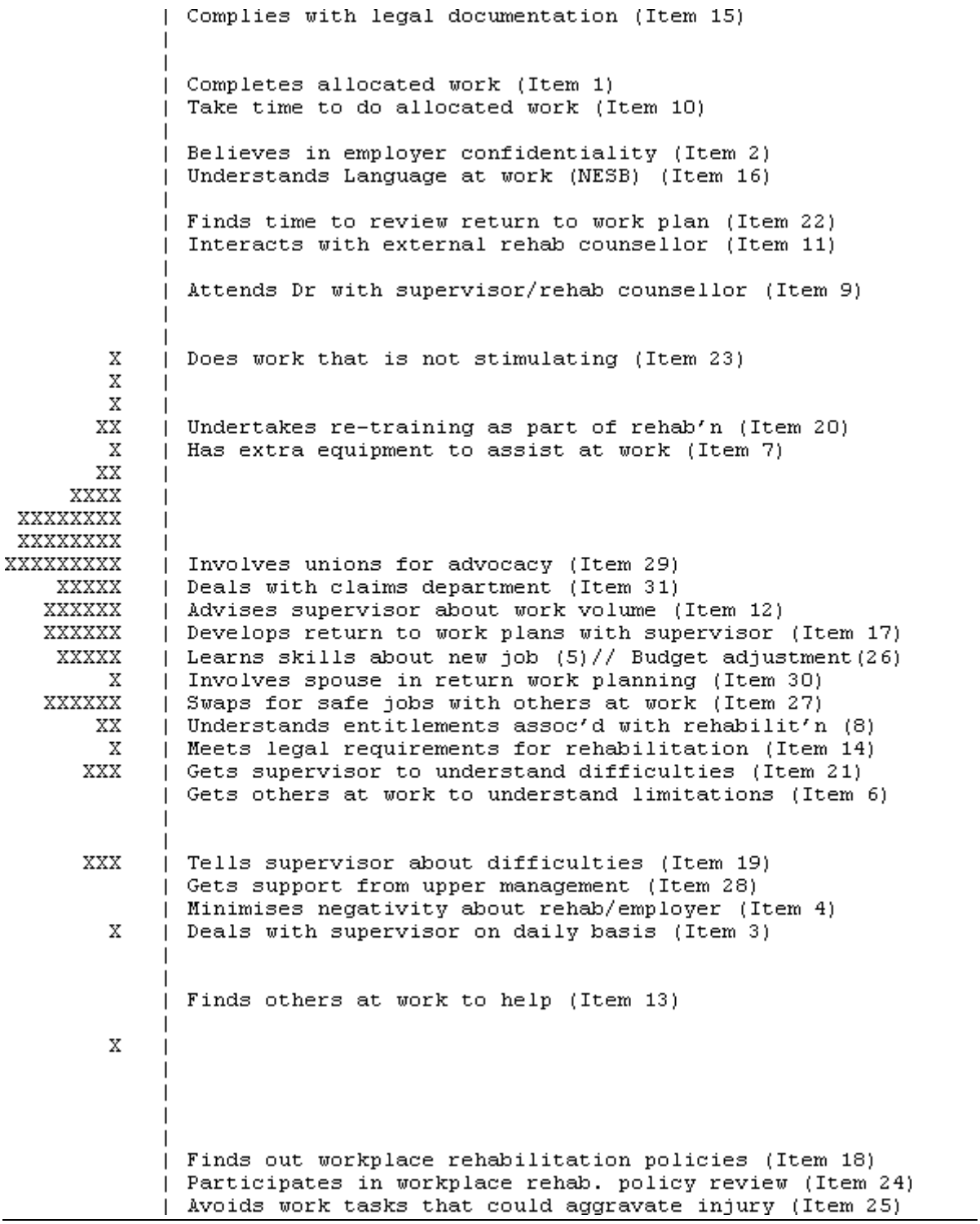
Differential item functioning between the groups: rehabilitating employee responses

Figure 4 indicates how rehabilitating employees rated the complexity of their workplace rehabilitation. Alongside and above the +2.0 logit area are workplace rehabilitation items 15, 1, 10, 2, 16, 22, 9 and 11, which were viewed to be the most difficult tasks. Rehabilitating employees found it most difficult to ensure they had all the necessary documentation associated with their rehabilitation, ongoing salary and re-imbursement of costs incurred for their employer (item 15). Items 1 and 10 reflect the rehabilitating employee's capacity to undertake the work tasks and do them within a certain time allocation during rehabilitation, were the next most difficult tasks. A cluster of most difficult rehabilitation tasks experienced by rehabilitating employees essentially revolves around communication expectations between employer and rehabilitating employee. Items 2 and 16 are rated as difficult, as employees are not confident that details about their rehabilitation will be kept confidential. Also if the rehabilitating employee uses English as a second language, it is believed that the workplace rehabilitation process is rendered even more difficult than it is for employees for whom English is a first language. Items 22, 11 and 9 are also rated as difficult for rehabilitating employees as they involve essential liaison with parties outside of the work place. Meetings with the medical officer and rehabilitation counsellor are a regular requirement for workplace rehabilitation and this can be problematic for the rehabilitating employee, particularly if the medical officer and rehabilitation consultant is not the choice of the employee, but that of the employer.

Rehabilitation items located between the 0.0 and the logit level of +1.5 are viewed as being easier than those located at the higher logit levels, however rehabilitating employees have a high probability in finding work that is not stimulating (Item 23), undertaking re-training (Item 20) and securing extra equipment to help while working (Item 7), to be difficult rehabilitation tasks overall.

Eighteen rehabilitation items are located from the logit ranking of 0.0 down through to the –3.0 logit level, which reflects either increasing ease on the part of the rehabilitating employer to complete these tasks and a belief that less ability is required on their part to do them. Ten items are clustered closely around the logit level of 0.0 to –1.5 and suggest that almost 30 per cent of the rehabilitation tasks are perceived as being easy for rehabilitating employees. Dealing with unions and claims management (item 29 and 31 respectively), interacting with their own supervisor (Items 12, 17 & 21), making changes to personal budgets (Item 26), being able to change work roles and ensure that others in the workplace recognise that rehabilitating employees have limitations (Items 27, 5 & 6) are seen as being relatively easy tasks. Rehabilitating employees in this study do not experience significant problems advising management on problems they are experiencing at the workplace (Items 19, 28, 3 & 13). Two remaining rehabilitation tasks are viewed by rehabilitating employees are simple tasks and essentially involve knowing the organisational policies about rehabilitation and participating in efforts to modify them (Items 18 & 24).

The easiest of all rehabilitation tasks for rehabilitating employees was to keep themselves safe at work by avoiding work tasks that could aggravate their initial injury (Item 25).



Each X represents 1 rehabilitating employee (N = 80)

Figure 4. Workplace rehabilitation item estimates as rated by rehabilitating employees

Comparing Group Differences

Figure 5 shows how each workplace rehabilitation activity is differentially perceived by workplace supervisors and rehabilitating employees. Eighteen rehabilitation items are perceived to be significantly different ($p=<0.05$) in terms of their complexity according to the status of the respondent i.e. whether the respondent was an employee or a supervisor.

These items fall outside the –2 to +2 indices depicted in Figure 5 and indicate that they have values greater than two standard errors from the mean of a normal distribution.

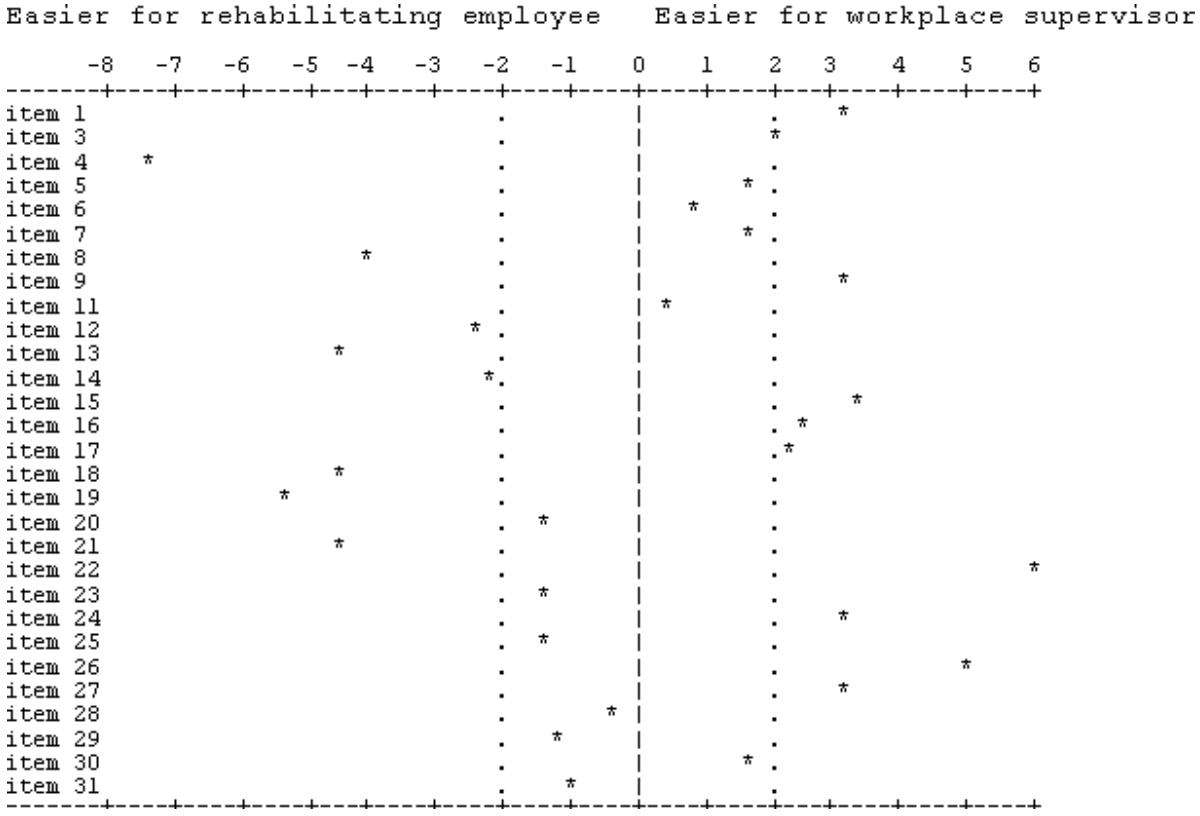


Figure 5. Plot of Standardised Differences between Workplace Groups and Rehabilitation Task Complexity

Easier Items for Rehabilitating Employees than for Supervisors

Again with reference to Figure 5, eight workplace rehabilitation items have a greater probability of being seen as significantly easier for rehabilitating employees than their supervisors. Item 4 considers the complexity with which the rehabilitating employee and the supervisor deal with their own negativity toward their workplace and workplace rehabilitation. The essential difference between the groups was that supervisors found it more difficult dealing with their own negativity toward the rehabilitating employee than the employee did toward the workplace where they had incurred the injury in the first place. Item 19 examines the complexity that both groups experience in communicating upwardly when workplace rehabilitation is not effective and rehabilitation difficulties are being experienced in the workplace. There is a greater probability for supervisors to be more reluctant to report rehabilitation difficulties upwardly to their own supervisors than do rehabilitating employees. The focus of Item 13 involves finding other people in the workplace who can assist the rehabilitating employee. The data suggest that there is a greater probability that supervisors would see this task as being more difficult to carry out compared to the rehabilitating employee. Item 18 considers how difficult it is for both groups to refer to the organisation's policy toward rehabilitation. This task was much easier for rehabilitating employees. Supervisor ratings were statistically different to that of rehabilitating employees in that they experienced greater difficulty in finding out just what the rehabilitation policy of their organisation was towards workplace rehabilitation and where they would go to refer to it for guidance. The relationship between the supervisor and the rehabilitating employee was the focus behind Item 21. When a rehabilitating employee

was having trouble at work and conveyed this to management, supervisors found it very difficult to respond to their need. Indeed, this was a most difficult task identified by supervisors but was less difficult for the rehabilitating employee. Significant also, was the fact that supervisors knew less about rehabilitation entitlements (Item 8) than the employees themselves. In terms of understanding the impact relevant rehabilitation statutes has on workplace rehabilitation, Item 14 demonstrates that rehabilitating employees have a greater probability of seeing this as an easier task than supervisors. Item 12 examines the complexity of dealing with the volume of work (productivity) and staffing needs when an employee is undertaking rehabilitation. Supervisors have greater difficulty asking their own upper management for more staff to compensate for the presence of a rehabilitating employee, than employees would of their own supervisors.

Easier Items for Supervisors than for Rehabilitating Employees

Figure 5 also indicates that ten workplace rehabilitation tasks had a statistically greater probability of being perceived as easier for supervisors than for rehabilitating employees. Item 22 is concerned with finding the time and the ability to review the work place rehabilitation contract on a regular basis. There is a high probability that supervisors would find this easier to do than rehabilitating employees. Budgetary and financial concerns are the focus of Item 26. Supervisors had a significantly higher probability that they perceive making adjustments to their own budget lines as being an easier task to deal with than the rehabilitating employees have in dealing with their own financial affairs when rehabilitating. The complexity of maintaining appropriate rehabilitation documentation is involved in Item 15. The findings suggest that rehabilitating employees have lower probabilities of seeing this activity as being very easy when compared to their supervisors. The complexity of involving themselves in reviewing what rehabilitation policies are used within their organisations is considered in Item 24. There was a higher probability for supervisors to view this activity as being either easy to very easy to do. Rehabilitating employees found this activity hard or very difficult to do in comparison. A similar pattern of responses was evident in Item 27, which measured the perceived difficulty of the group's ability to organise other employees to do different work to what they usually did, so that the rehabilitating employee could undertake safe and appropriate duties. While both cohorts showed similar response patterns overall, there was a higher probability for supervisors to view this task as being a very easy task, compared to employees.

Item 1 measures the relative ease or difficulty of finding and doing appropriate jobs that have been medically sanctioned for rehabilitating employees. Supervisors showed a greater probability for this task to be seen as either simple or quite easy. Employees undergoing rehabilitation disagreed significantly and found it more difficult actually to do the work that was allocated to them during rehabilitation. The meeting of the key players in the rehabilitation process was the focus of Item 9. There was a greater probability for the supervisor to perceive the task of meeting with the rehabilitating employee together with his or her doctor(s) as a very easy task. Dealing with language diversity in the rehabilitation process was perceived by workplace supervisors as being a significantly easier task than for rehabilitating employees. Item 16 examines the complexity of being understood in the workplace if a rehabilitating employee uses English as a second language. Employees believed that being understood in a rehabilitative context in the workplace would be a predominantly difficult task. The ease with which a supervisor consulted with a rehabilitating employee about developing a return to work plan differed also for Item 17. In this case there was a higher probability that the supervisor would find this an easier task than the employee who was rehabilitating. Daily contact with each other when undertaking workplace rehabilitation (Item 3) was perceived as being significantly easier for supervisors.

Gender Differences

Figure 6 examines the effect gender has on the capacity of the supervisor to deal with different workplace rehabilitation tasks. Four rehabilitation items are significantly different ($p=<0.05$) in terms of their perceived complexity according to the status of the respondent i.e. whether the supervisor was male or female. These rehabilitation items fall outside the – 2 to +2 indices and suggests these items were greater than 2 standard errors from the mean of a normal distribution.

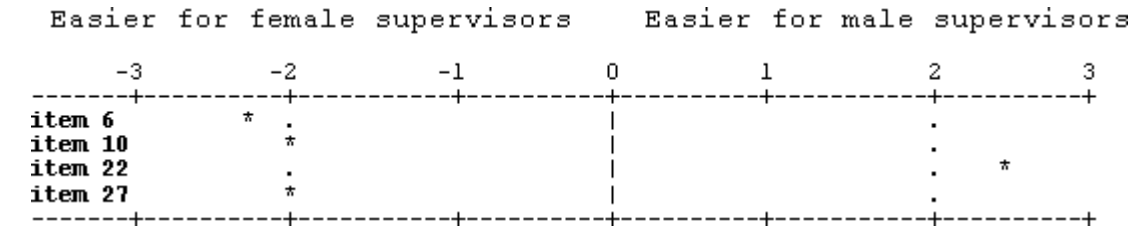


Figure 6. Plot of Standardised Differences between Supervisor Gender and Workplace Rehabilitation Task Complexity

Item 6 is concerned with the complexity of getting the rest of the work group to accept that a rehabilitating employee will have some limitations in terms of the types of work that can be done. This can often mean that all other employees in the workplace too may have to accommodate for the presence of a rehabilitating employee in their immediate area of work. The gender of the supervisor is significant here because women supervisors find this task easier to deal with.

Similarly with Item 10, female supervisors differ significantly from males in allowing the rehabilitating employee a greater degree of flexibility in the time taken to do work tasks. They also perceive the ability to negotiate with workplace staff to give up their traditional job roles to allow the rehabilitating employee to do their safe and suitable duties as an easier task. Male supervisors on the other hand, rate the task of finding time to review regularly the formal return to work program (Item 22) as being significantly easier than their female counterparts. This process (as prescribed by related statutes) requires the employer to meet with the rehabilitating employee for the purpose of negotiating appropriate workplace duties and a contract (a return to work plan) is generated. In dealing with union representation that supports the rehabilitating employee (Item 27), female supervisory staff have a significantly greater probability of seeing this as an easier task than the male supervisor.

DISCUSSION

Different learning needs and strategies required for supervisor development

The focus of future rehabilitation training for supervisors is clearly indicated by the outcomes of the surveys from both groups of respondents. It is also likely that different teaching and learning strategies would be necessary to maximise supervisor learning, depending on the nature and the perceived complexity of the individual rehabilitation item being considered. In the case of the supervisors who find it difficult to deal with their negativity towards rehabilitating employees, there needs to be opportunities for their stereotypical views about rehabilitation to be challenged. It is particularly necessary for those supervisors who find it difficult to respond to employees who are having rehabilitative problems in the workplace, to have opportunities to discover ways to respond to their employees. A recent United States study of rehabilitation supervisors indicated they were very confident of this task and the study does support the idea of supervisors doing

leadership development for this purpose (Fabian et al. 2001). Unlike their supervisors, rehabilitating employees in this study indicate that it is easy for them to state their difficulties to their supervisor so supervisor training programs need to emphasise and encourage the supervisor to develop a repertoire of strategies that can be used in dealing with employee complaints. Such strategies might be as simple as using greater application of listening skills or knowing when to refer the rehabilitating employee to another person for assistance or encouraging the rehabilitating employee to take more control over the rehabilitating process in the workplace by fostering empowerment. These are examples of training issues relating to the relationship between supervisor and the rehabilatee and didactic teaching practices would only have limited value here. Learning processes that encourage the supervisor groups to reflect on successful strategies would be one of many possible alternatives.

Knowing what entitlements a rehabilitating employee was reasonably allowed was difficult for supervisors in this study. This reflects an absence of fundamental rehabilitation knowledge that can be easily acquired. As the law informs most vocational rehabilitation practices, training about relevant statutes would be seen to be important to counter this difficulty. Since the data have suggested that supervisors have difficulty attending training, essential rehabilitation information can be delivered externally such as with external learning packages or by employing the Internet and be delivered over a short duration but offered frequently, to capture as much of the supervisor population as possible. Unless the rehabilitation training program meets the supervisor's needs and has credibility (grounded in the realities of the workplace) supervisors are not likely to attend, diminishing opportunities for them to increase their rehabilitation effectiveness. Training around areas of significant differences of opinion between the two groups is critical. These differences become areas for potential conflict, which in turn might diminish the effectiveness of workplace rehabilitation. While the data show that supervisors have little difficulty in allowing the rehabilitating employee to take time to do work tasks, these responses were in marked contrast to rehabilatees who felt this was a considerably difficult task.

Supervisors also stated that they would have little difficulty in managing their own workplace budget including accounting for the costs of rehabilitation. This was not the case with employees where any actual or threatened partial loss of salary or prolonged waiting for financial re-imbursement from the employer was a major concern for rehabilitating employees. These examples serve to illustrate that potential areas of friction can be minimised by increasing supervisor awareness during rehabilitation training.

Addressing legal aspects of rehabilitation needs to be considered in any future rehabilitation training. It has already been identified that supervisors experience difficulty in understanding the nature of an injured employee's entitlements when undertaking vocational rehabilitation. This picture is consistent with recent British studies, where occupational rehabilitation has been neglected because there is very little guidance to be derived from statutes and where "the legal people were fighting among themselves, one to try to get the most money, one fighting to give away the least and the injured person was left to the NHS" (Merfield, 2001; Tanner, 2001).

In certain instances, the rehabilitating employees' perceptions of the rehabilitation process can be viewed as a valuable learning resource to inform rehabilitation training for supervisors. Supervisors indicated that it was difficult for them to identify support mechanisms among the work team to assist the rehabilitating employees. Rehabilitating employees on the other hand, stated that this was an easy task and future training programs could therefore incorporate some of the employee's ideas and strategies using a problem solving approach.

Supervisor gender was an important variable influencing workplace rehabilitation as several rehabilitation tasks were seen to be easier for women supervisors than for men. Generally, the data suggest that women in this sample tend to be more comfortable with the relationship skills associated with workplace rehabilitation, such as dealing with unions, spending time with a rehabilitating employee in discussion about rehabilitation and encouraging them to work more at their own pace. This finding is also supported by a recent Canadian study where female supervisors seemed relatively more comfortable than male supervisors in dealing with the emotive issues associated with the rehabilitating experiences in the workplace (Kirsch, 2000). Rehabilitation training programs would be well advised to explore how male and female supervisors could be employed better in the workplace in the rehabilitation context by using experiential educative approaches, such as getting supervisors from both genders to reflect on how they deal with conflict in the workplace using group method approaches.

Four other rehabilitation items remain important for consideration for incorporation into any future rehabilitation training program. Item 5 examined the complexity with which both groups perceived their abilities to retrain or develop new skills through the rehabilitation process. The data suggest that this is not a major priority for either the supervisor or rehabilatee. The possible reason for this might be because workplace rehabilitation, which involves workplace training, is viewed generally as being beyond the skills of most workplace supervisors. Alternatively, another explanation could be that the rehabilitation process is best served by keeping the rehabilitating employees engaged in simplistic workplace tasks which do not require them to undertake any additional training or maximise their existing potential. These ideas need to be explored as a fundamental part of supervisor training because these practices serve only to hamper rehabilitation as the employee is not engaging with work tasks that are better matched to their rehabilitative capacity and other work staff are possibly being under utilised.

The complexity of interacting with or employing a rehabilitation consultant was one focus of the study and these personnel work in conjunction with the employer and the rehabilitating employee. Supervisors who are essentially middle line managers may not be aware of this resource or not in a position of authority to engage one. Rehabilitation training programs could focus on explaining the advantages of the rehabilitation consultant, especially in assisting the supervisor to deal with rehabilitation tasks that are seen as difficult for them. This initiative would also lead to more effective work place rehabilitation.

While both the supervisor and the rehabilitating employee agreed that it was easy to refrain from doing things at work that would be seen as ‘risky’ or could exacerbate the original injury, there was no agreement between the groups related to identifying, allocating and actually doing the work. Rehabilitation training programs need to encourage supervisors to be flexible in identifying suitable and safe work tasks. This notion is also supported from recent studies in the United States, where supervisor participants who engaged in a short course of leadership skills development (as applied to rehabilitation) became more active in and vigilant towards the needs of their team members and less laissez-faire toward the rehabilitation process (Corrigan, Lickey, Campion and Rashid, 2000). Another strategy that could be employed in any rehabilitation training program would be to encourage supervisors to explore how a greater diversity of job choices could be generated which rehabilitating employees could undertake during rehabilitation. Alternatively, supervisors might need more assistance in determining what workplace tasks are best suited to a rehabilitating employee as they progressively improve.

There is increasing recognition that an employee injured and undergoing subsequent vocational rehabilitation at work will have limitations not only at work but also socially.

Vocational rehabilitation impacts not only on the employee but also on any employee's personal relationships and the complexity of involving spouses or partners in a return to work program can also be complex. Future rehabilitation training programs can encourage supervisors to reflect on instances and practices where family involvement could be helpful for the vocational rehabilitation process as spousal support is usually significant for rehabilitative success (Kenny, 1995b).

CONCLUSION

This study explored the factors that influence the complexity of vocational rehabilitation tasks and the abilities of workplace supervisors and rehabilitating employees to carry out rehabilitation in the workplace. The research project employed the probabilistic model to analyse the workplace supervisors' and employees' responses and locate the perceived abilities of both groups with respect to the complexity of the vocational rehabilitation tasks on the same scale. This approach of conjoint measurement identified a hierarchy of rehabilitation complexity particularly as applied to the two workplace groups and provides a tangible framework from which to propose a meaningful rehabilitation training program for supervisors. Additionally, the model used for data analysis measured unidimensionality, goodness of fit of the rehabilitation tasks, and ability parameters of both the supervisors and rehabilitating employees in order to maximise the validity and reliability of the results. The outcomes of the study suggest there were significant differences in the rehabilitation abilities of both groups and this diversity should be employed to inform any future rehabilitation training program for supervisors, both in terms of its content and learning processes.

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Mature Women and the New Zealand Qualifications Framework. Realising the Potential of Recognising Prior Learning

Annelies Kamp
Graduate School of Education, Deakin University *annelies_ter_brake@hotmail.com*

Against a background of 'second-wave' lifelong learning in Aotearoa New Zealand a new framework for post-compulsory national qualifications was introduced. The resulting competency-based system was argued to present a number of benefits for mature women including flexibility in curriculum and delivery and portability across educational sectors. Competency-based education was to include provision for recognition of prior skills and knowledge gained in formal learning environments and the workplace as well as informal learning environments such as the home and the community. Such recognition was a significant factor in gaining support from women's groups given the potential to recognize and value the domestic labour of women and the skills and knowledge that flow from it. This article explores the rhetoric around recognition of prior learning and discusses approaches to realise its potential. It then draws on research undertaken in Aotearoa New Zealand to suggest that the potential of recognition of prior learning is yet to be realised.

Competency, Women, Recognition, Education, Assessment, Prior Learning

INTRODUCTION

As always, I listened to Radio National this morning as I commuted through the rush hour traffic to my Melbourne office. One small, but significant, item caught my attention: a major bank has commenced a recruitment drive for mature women to take up front-line positions. Why? Because the skills they have acquired in undertaking their domestic responsibilities equip them particularly well to deal with customers. While this item may have gone unnoticed by many listening to the airwaves this morning, it resounds for me as a public endorsement of what many women privately understand.

I relate this story to frame up some thoughts on competency based education for mature women in Aotearoa, New Zealand. James and Saville-Smith (1989) argue that all cultures have maintained a central motif. Britain's central motif was class, South Africa's central motif was race. In New Zealand, the central motif was gender. A gendered culture was derived from the complex interaction between indigenous and colonial structures early in the colonization process. The colonial household and its basis in subsistence production was undermined by pressures on land availability and waged labour opportunities for men. This brought men increasing independence and women increasing dependence on either a man, or where men abandoned their dependants, on the State. This change in the nature of interdependence, coupled with the need to control the social disorder associated with single men, resulted in the State "reinforcing the family in new ways. It emphasized the social control role of women as wives and mothers and, in doing so, set the context for the

systematic expression of a gendered culture which has dominated New Zealand ever since" (ibid p.29).

While Keynesian welfarism was overt in defining women in New Zealand society by their work in the home and emphasizing this as a rational life trajectory for all women, recent policy directions have covertly shifted this perspective. While still assuming the naturalness of women's domestic responsibilities more recent discourses have cast these responsibilities as irrational and an impediment to women's ability to compete as individuals in the labour market (O'Neill 1995). In this context, the policy response became one of better equipping those who are excluded to compete for limited opportunities in the labour market by providing them with skills by way of 'second-chance' education and training paid for by the State. One such response is the Training Opportunities Programme, established in 1993 to "break patterns of disadvantage" (Te Puni Kokiri 2001 p.5). Training Opportunities was based in an argument that access to quality training programs would help disadvantaged individuals take the first step on the staircase to further education and, ultimately, employment. It provides full-time fully funded training to people who meet specific eligibility criteria and are registered with the Department of Work and Income or Workbridge[1]. Training Opportunities has also been a lead mechanism in the New Zealand Government's implementation of a competency-based national qualification regime. The qualification regime was intended to offer disadvantaged groups portable, recognized qualifications that would enable enhanced opportunities to break through employment barriers.

THE NATIONAL QUALIFICATIONS FRAMEWORK AND MATURE WOMEN

Subsequent to educational administrative reforms in 1989, the New Zealand Qualifications Authority (NZQA) was set up in 1990 to establish a comprehensive framework for all post-compulsory national qualifications. The new National Qualifications Framework (NQF) was to cover all general, academic and vocational qualifications from senior secondary school to degree level. Three nationally recognised qualifications would be available – National Certificate (levels 1 to 4), National Diploma (levels 5 to 7) and Degree (levels 7 and 8). Within this eight-level framework, all qualifications would relate to each other and increased flexibility would be apparent in the gaining of qualifications and the recognition of competency already achieved (NZQA 1991). The building blocks of the NQF are unit standards, which use standards-based assessment and are aligned to one of the eight levels. Each unit is constructed of learning outcomes (called 'elements') that must be achieved to gain credit towards the qualification sought; achievement in each of these elements is assessed against performance criteria which state the standard required to demonstrate competency. The new framework was mooted to offer improved accessibility to internationally understandable qualifications, increased responsiveness to social, economic and technological change and fuller participation by groups traditionally disadvantaged in gaining higher qualifications (ibid).

The National Qualifications Framework (NQF) which resulted was initially seen to have a number of beneficial characteristics for mature women, including the ability to collect small chunks called 'credit' and build these into qualifications. Every learner gaining credits on the NQF would receive an annual Record of Learning (ROL) that listed all unit standard and achievement standard credits, National Certificates and National Diplomas achieved in the previous year. A ROL provides an evolving record for the learner to use in planning and

[1] An employment placement agency for people with disabilities.

accessing their future learning as well as being a resource to present to prospective employers.

The competency based model fostered flexibility and was argued to enable an approach which accommodated the individual histories of learners as well as their differing wants and needs through allowing them to construct individual programs of learning. Lifelong learning opportunities would be enhanced as opportunities for gaining credit would not be tied to specific educational organizations or courses. The standards-based methods of assessment would enable assessment procedures to take many forms, all concerned with actual performance against clearly defined standards. Furthermore, the role played by industry in setting standards would ensure useful learning that would link more directly to employment opportunities (Sissons 1995, Mersi & Smith 1996, NZQA 1991).

Solutions to women's inequality which lie in education and individual empowerment often draw on arguments that explain inequality in terms of traditional attitudes and socialization yet ignore the role of the State in creating and reproducing certain gender relations (Ghosh 1996). The same gender motif underlies inequities in employment as underlies those in the home, these inequities arising through discourses which categorise as skilled, and therefore valued and rewarded, only that work that takes place in paid employment (Cox and Leonard 1994). The resulting gender inflectedness of the word 'skill' seems to lead many women to deny it relates to what they do and reinforces the process whereby women categorise their skills as personal qualities. Yet research has demonstrated that the skills that are denied in women are often sought in executives: patience, stamina, flexibility, empathy (Acker 1989; Byrne 1993 cited in Willis and Kenway 1996). This issue is central: the denial of women's skill by employers and by women themselves affects their process of entering employment. These factors contribute to lower average wages for women, which reinforce women's secondary role in paid employment, and in turn reinforce women's primary association with the domestic sphere (Connell 1994). Thus the gender motif remains and, notwithstanding their level of qualification, structural barriers to women's participation in the labour market persist.

As such, it is no surprise that opportunity for recognition of prior learning[2] was seen to be of central importance to mature women. This recognition was to be the mechanism by which the structures that render unpaid domestic labour invisible through its identification as 'natural' (for women) and, therefore, unskilled would be challenged (Cox and Leonard 1994, Sissons 1995). Recognition of prior learning was to include all learning regardless of where, when or how it was gained, as well as learning undertaken in formal environments and in the workplace (NZQA 1991). Processes would be available to align women's evidenced skill to the elements of competency standards and to formally recognise those skills in the formal of credit towards qualifications. Undergoing a process of identifying and applying for recognition of their skill was argued to have benefits in and of itself including the potential to enhance motivation and raise self esteem by fostering the learner's appreciation of their own experience and expertise. It would also develop skills in evaluation, communication and team-working as the evidence of competency is brought together (Stephenson & Weil 1992).

[2] I prefer the term 'recognition of prior learning'. However some writers use the term 'recognition of current competency'. In other instances both terms are included with recognition of prior learning being used to refer to prior learning evidenced by qualification and recognition of current competency being used where no such evidence is available.

RECOGNITION OF PRIOR LEARNING

Although opportunity for recognition was a key component in promoting the NQF to women's groups, implementation in Aotearoa, New Zealand, as in other countries that have attempted it, has proved problematic. While NZQA originally had a role in assessing prior learning to enable recognition, it is now expected that all assessment has benefited from the development of practice and accredited training providers arrange recognition to suit their own contexts and learners (NZQA n.d.). While there is no fixed cost involved, applicants must usually be enroled with a training provider to access the opportunity. In other words, a learner must enrol in a program before they can ascertain how much of the program they will actually need to complete. The approach to assessment will depend on whether there is evidence of the prior learning.

Some examples will illustrate how the process ideally works[3]. An adult has been competent at something for years but has no qualification. They have been employed by an advertising agency or working with a volunteer organization so they can prove that they are competent. They can produce samples of their work, letters of validation from peers and supervisors, etc. There may be no need for formal assessment tasks as the samples of work and testimonials become evidence that can be evaluated against unit standards. The learner can provide evidence of prior performance.

Sometimes there isn't any evidence to consider. Learners arrive at an institution ready to enrol for a program. They look at the work to be covered and realise that they can already perform some or all of it. A word processing student has been doing audio transcriptions to record his grandparent's life story. Other learners have read intensively about history or economics and have accumulated a depth of knowledge. These learners have not been demonstrating their skills or knowledge within an established organization so they will not be able to produce convincing evidence of their competence. In this instance, learners need to be assisted to identify the parts of a program in which they are already competent and assessment arranged, probably by the tutors running the program. In some cases learners then attend only relevant parts of the program; in other cases they complete the remaining unit standards on individual programs. At times, they may be referred to a different training provider who can better meet their learning needs.

These examples alert us to the potential power of recognition of prior learning for mature women who seek learning opportunities after years of managing homes, rearing children, co-ordinating family activities, working in full-time, casual or part-time roles, volunteering for community positions and so on. While most men do not experience the same level of responsibility for domestic labour, the argument and process are equally applicable. Australian research suggests a number of factors must be addressed if women are to benefit from recognition of prior learning. First, clear information about provisions and processes must be provided and this must occur well before enrolment. Secondly, counselling must be readily available to ensure that women understand the concept and the procedure to apply. Thirdly, systems must be improved to ensure it is timely, happens prior to commencement of a course and in time for women to make an informed decision about applying. Fourthly, any assessment that takes place in relation to recognition must take into account the lack of confidence many older women will experience regarding formal assessment. Finally, issues of cost, for providers and learners, must be overcome (Burns et al 1997). However, even where recognition is occurring there is some evidence that it is following a norm-orientated, reproductive philosophy that does little to encourage applicants to reflect critically on either

[3] These examples are drawn in part from NZQA.

their experiential learning (Jones & Martin 1995) or the structural constraints they face. Given the centrality of this concept to the new qualification regime in general, and to women in particular, its thorough implementation is of singular importance.

THE REALITY

Early in 2002 I undertook a research project involving a small group of mature women involved in the Training Opportunities Programme in Aotearoa, New Zealand. The six women who took part in semi-structured interviews were aged between 30 and 50 years and came from wide-ranging backgrounds and life experiences: one woman was Samoan, one was Maori. One was English, but had been raised in New Zealand since childhood. Two had no children, two had children still at home and one had an active caring role as a grandparent. Three had some form of disability, including deafness. All the women were relatively new to competency-based approaches to education and training, however they all had broad life experience including previous experience in paid and voluntary employment. A number had prior formal qualifications. The common characteristic for these women was their desire to be out there; their intent to get as much as possible from their learning experience.

The research was concerned with the broader question of whether competency based models were able to provide for more reflective forms of learning. The contention that competency-based education must undermine reflection and constructive learning was not supported. The participants demonstrated a conscious pursuit of learning; all indicated they felt privileged by the opportunity they had to attend the program and were determined to pursue every opportunity to learn. The women did not feel they were held to a pre-determined path of learning and opportunities for reflection occurred in both formal and informal environments. As well, the use of role-play in both learning and as a component of assessment created a forum where stories could be told and perspectives explored. Access to a liaison tutor as an additional resource was greatly valued and ensured support, academic and personal counselling. The findings supported research that links competency-based education and informal and incidental learning; it is precisely the flexibility within the model that enabled the women to walk their own path in a way, and at a pace, that met their needs. The value of unit standards for the women lay in being able to check back on what ‘competent’ meant. The information around what they had to do to demonstrate competency was clear and accessible at all times; they found it both useful and reassuring to be able to draw on this information. A wide range of assessment was occurring, opportunities for assessment were flexible, yet thorough. In summary, the women were finding their program to be both relevant, and rewarding.

However, the findings supported suggestions to date around the difficulties of gaining access to recognition of prior learning. Despite a wealth of life experience, and claims by participants to broad life experiences and a good number of pre-NQF qualifications, none of the woman appeared aware of the opportunity to recognise their current competencies. Indeed, even the concept that they had been making a contribution while acquiring those skills was not apparent to them:

> It was very important for me to get back into the workforce and um make my contribution to society and give back some of what I’ve, you know, give back some of what I’ve been receiving.

Across the participants there was such a range of prior learning both with and without evidence that it was somewhat surprising to find no reference to a process of recognition at commencement and before an individual training plan was put in place. For one woman, her prior experience with the NQF had been fraught. Having completed a competency-based

program, she had arrived at her current training provider without any credit on her ROL for the skills she had gained:

> Well, none of my stuff was put onto NZQA from my other course. … It was unit-standard based and what I didn't get at the time which was before I came here of course was that it was up to me to go to NZQA and put all my units on and I didn't actually, yes, so I didn't do that, I didn't understand that and didn't do it.

As a result of this incorrect advice from a prior training provider, this woman was re-doing material she had already learnt and for which she had already been assessed as competent. Another woman who had gained Trade Certificate many years before, had raised a family and worked in both paid and voluntary roles for many years had no recognition of having learnt anything before arriving at the program.

This situation is disappointing, to say the least. Regardless of the implications of this sort of occurrence for the implementation of a competency based regime, three very costly consequences result for the learner. Firstly, the confidence they have gained in their ability is diminished. Where as once they were "good" at something, now they apparently have no skills, despite their program being in an area of employment they have previously operated in. Secondly, they do not get the opportunity to critically reflect on their experiences to date and their aspirations for the future. Finally, they do not come to understand the rationale behind the implementation of the new qualifications regime; this means they are less likely to understand how they can use the NQF to their benefit as they reach for those aspirations.

CONCLUSION

What is the central issue in this situation? Not that these women did not get credit on their ROL for their prior learning. A process of recognition does not guarantee that credit will be awarded. Even where a recognition process is undertaken there will be instances where, for example, competency is only evidenced in some elements of a particular unit standard and credit cannot be awarded until competency is evidenced in all elements.

What is disturbing is that there was no process of recognition in place that gave opportunity for the women to critically evaluate their prior experiences and the expertise gained by way of those experiences. This appeared to be the situation despite the training provider having a commitment in their Mission Statement and having put actions in place to empower their learners through their learning process. On other aspects, the training provider demonstrated a thorough understanding of the principles of competency based education and of the processes required in assisting learners to taking charge of their learning. Yet on this central feature of identifying and recognising prior learning there was no evidence of any process, let alone one that would foster the women's appreciation of the value of their experience and expertise. In my ongoing professional work I continually encounter anecdotal evidence to suggest this situation is far from isolated.

In closing, I reflect again on the news that a major bank is seeking to acquire the 'informal' skills of mature women. Actions like this provide an ideal opportunity for a renewed focus on formal recognition of mature women's prior learning. This must not only take place at the policy level but also at the level of practice where discussion, debate and professional development must be widely facilitated to realise the potential of competency based education for mature women.

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Development of an instrument for measuring familial influence on Thai students' choices of International Education

Nattavud Pimpa
Monash Centre for Research in International Education *nattpimpa@yahoo.com*

This paper reviews the construct and measurement of familial influence on Thai students' choices of international education. It explains the development of the Familial Influence Scale (FIS) to measure five aspects of familial influence (finance, information, expectation, competition, and persuasion) on five choices of international education. The scale was tested for content and construct validity, and reliability (internal consistency). The three factors, 'family communication', 'family interaction', and 'family fiscal influence', were supported by varimax factor analysis and had reliabilities from 0.79-0.95. Use of the combined scales, as a general 'familial influence scale', was supported by principal components analysis; reliability for the combined scale was 0.92. Finally, the internal consistency of the scale was calculated by employing a test-retest method to identify the reliability. The results indicate that FIS yields high internal consistency. Therefore, this scale is appropriate for the measurement of the influence of family on Thai student's choices of international education.

Reliability, Validity, Choices of International Education, Family Influence, Thailand

INTRODUCTION

Research on marketing of Australian education suggested that Australia should prepare for competition in the global market (Smart and Ang, 1993). Many studies have attempted to investigate the choices of international education in order to improve marketing strategies (AIEF, 1997; Lawley, 1997). Given that there is an established correlation between attitudes and behaviour (Ajzen, 1988; Shrigley, 1990), it follows that families may influence younger members' behaviour to study abroad. Previous studies suggest that interpersonal influence and recommendation from family members are among the most important sources of information and influence for students decisions in international education (Mazzarol and Soutar, 2002). However, interpretation and comparison of studies involving choices of international education are confounded by the lack of adequate validation and reliability reporting for tests used in some studies.

This paper describes the development and testing of an instrument called the Familial Influence Scale (FIS). The stimulus for developing FIS was the need for an instrument to assess Thai students' attitudes towards various types of familial influence on their choices of international education, in order to evaluate the degree of influence from family and other factors. This scale may be beneficial to people involved with marketing of international education to Thailand. The researcher found, at the literature review phase, that available instruments did not appear to cover adequately the relevant dimensions of familial influence on students' choices of international education. Moreover, there was no single instrument

designed to evaluate the choices of Thai students. A new instrument, thus, needed to be developed.

DEVELOPMENT AND TESTING OF THE INSTRUMENT

Conceptualisation of the Scale

In order to identify various types of familial factors influencing choices of international education, three focus group interviews were conducted with Thai students in Australia. Each group had nine participants. The first group of participants was recruited through Thai students associations in Victoria. Then, a snowball technique was employed to recruit the participants of the second and third groups. The researcher was the moderator of the interviews. After a general introduction, in which the group's discussion was described as a study of 'the influence of reference groups on Thai students', participants were asked to discuss choices of international education, and how these were influenced by their families.

Regarding the choices of international education, Thai students revealed that they made five basic choices prior to studying abroad: the decision to study abroad (instead of studying at home), and the choices of country, city, academic course, and university. Their comments regarding the influence from family appeared to fall into five categories; 'finance', 'information', 'expectation', 'competition', and 'persuasion'. The five choices and five influencing factors formed the basis for the FIS.

The Instrument Design

Drawing from the range of comments made by Thai students, six Likert-type attitude statements were written for each of the five familial influencing factors, to which subjects were asked to respond on a five-point scale (strongly agree, agree, not sure, disagree, strongly disagree). Responses were scored from 1 ('strongly disagree') to 5 ('strongly agree). The scales are listed in Table 1. Added to these were seven biographical items, seeking information about the respondents. The instrument was translated into Thai in order to help the respondents and encourage them to complete the questionnaire.

STAGE 1: SCALE REFINEMENT

Validity measures the degree to which items on the research instrument actually relate to the content of the area or issue under investigation (Gable 1986). The content validity of the research instrument used in this research relates to the extent to which it examines the influence of family on Thai students' five choices of international education. Wiersma (1991) suggests that the best way in which to ensure content validity is to subject the instrument to judgemental validation by experts in the area. In this case the experts were the researcher's supervisors, three groups of Thai students in Australia, research fellows at Monash Centre for Research in International Education, and international students support officers. Their feedback, both positive and negative, helped shaped the final version of the questionnaire.

STAGE 2: VALIDITY AND RELIABILITY MEASUREMENT

The Sample

The sample for this study consisted of 50 Thai students in universities throughout Victoria, Australia. Of this group, 60 per cent of the respondents were male. 50 per cent were 21-25 years. 52 per cent undergraduate students, 42 per cent master's students, and 6 per cent were enrolled in Ph.D. programs. Regarding their fields of study, 28 per cent were enrolled in

business programs, 26 per cent were enrolled in information technology programs, and the remainder in other academic programs. Half of the respondents had family members who had studied overseas. Of these family members, 80 per cent were of extended family, 14 per cent belonged to nuclear families, and 6 per cent were from other types of families. 54 per cent of the respondents came from urban regions.

Table 1. 30 items in familial influence scale

Familial Financial Influence

1) My family financially supported my plan to study abroad.
2) Familial financial support influenced my
   - 2.1 decision to study abroad instead of at home
   - 2.2 choice of country
   - 2.3 choice of city
   - 2.4 choice of academic program
   - 2.5 choice of university

Familial Informational Influence

3) I received information related to studying abroad from my family
4) Information received from the family members influenced my
   - 4.1 decision to study abroad instead of at home
   - 4.2 choice of country
   - 4.3 choice of city
   - 4.4 choice of academic program
   - 4.5 choice of university

Familial Expectation Influence

5) My family expected me to study abroad
6) Expectation from my family influenced my
   - 6.1 decision to study abroad instead of at home
   - 6.2 choice of country
   - 6.3 choice of city
   - 6.4 choice of academic program
   - 6.5 choice of university

Familial Competition Influence

7) There was competition among family members to study abroad
8) The competition among family members influenced my
   - 8.1 decision to study abroad instead of at home
   - 8.2 choice of country
   - 8.3 choice of city
   - 8.4 choice of academic program
   - 8.5 choice of university

Familial Persuasion Influence

9) Some of the family members persuaded me to study abroad
10) Persuasion from the family members influenced my
   - 10.1decision to study abroad instead of at home
   - 10.2 choice of country
   - 10.3 choice of city
   - 10.4 choice of academic program
   - 10.5 choice of university

Item Analysis

Frequency data for individual items were examined to test the spread of responses. Coulson (1992) indicated that items that produce a narrow range of responses, as indicated by a low standard deviation, are of little use in discriminating between respondents with differing attitudes. The results indicated that none of the scales show a reliability coefficient below 0.70, the cut-off point as recommended by Gable (1986). The item correlations, ranged from 0.36-0.81 for Scale 1, 0.46-0.78 for Scale 2, 0.37-0.82 for Scale 3, 0.63-0.90 for Scale 4, and from 0.60-0.89 for Scale 5.

Internal Consistency

Standard deviations, means, and reliability values for the five scales (estimated by Cronbach's alpha coefficient) are indicated in Table 2. The standard deviation values are satisfactorily close to the expected values for a normal distribution of responses, and the Cronbach's alpha values are all well above the minimum recommended criterion of 0.70 (Pallant, 2001), providing strong evidence for internal consistency of the scales.

Table 2. Mean scores, standard deviation and reliability values (cronbach's alpha) for the five scales

Scale	Cases	Mean	Standard deviation	Reliability
Finance	50	19.30	5.64	0.79
Information	50	15.02	7.72	0.95
Expectation	50	16.70	6.32	0.88
Competition	50	12.16	6.47	0.95
Persuasion	50	12.67	7.04	0.93

CONSTRUCT VALIDITY

Varimax Factor Analysis identified groups of items that had variance in common to check whether the items clustered according to the intended scales. Data in Table 3 indicates that items clustered around three factors: Items 3, 4.1-4.5, 9, and 10.1-10.5 with Factor 1 (family communication); Items 5, 6.1-6.5, 7, 8.1-8.5 with Factor 2 (family interaction); and Items 1 and 2.1-2.5 with Factor 3 (family fiscal influence). The great majority of items had their highest loading on their associated scale, and the pivotal items for each factor (items with the highest loadings on that factor) were from the appropriate scales. The results indicated that all three factors performed very well, with all items having loading on the intended scales of at least 0.40. Although the two items from Factor 2, items 6.4 and 6.5, loaded quite strongly on Factor 2, they shared some loading on Factor 1. It could be argued that family expectation, particular for international academic course and university, might be interpreted as both family 'interaction' and 'communication' for some Thai students.

Principle Component Analysis, which examined whether there was one general factor underlying all the items in an instrument, indicates that all 30 items had a substantial loading (0.40 to 0.92) on one principal component. It indicated that the instrument could justifiably be used as a single measure of general familial influence on Thai students' choices of international education. The Cronbach's Alpha reliability coefficient for the total instrument was 0.92.

Further Test of Reliability

The final stage of instrument development aimed to test the scale stability, which is the extent to which individuals tend to obtain a similar score, relative to other individuals, upon retaking the same instrument. If the scores are relatively stable across repeated testing separated by a time interval, it may be concluded that the instrument is measuring something in a consistent and generalisable (across time) manner (Wiersma, 1991).

The test-retest method was employed to test the scale stability. One week after the 50 respondents completed the questionnaire, they were contacted and requested to fill in the same questionnaire. The total scores of the two sets of questionnaires were analysed by means of the Pearson's correlation coefficient to identify the relationship between the two administrations of the instrument.

The data indicate that there is a strong correlation between the scores of the two administrations, as suggested by the value of the Pearson's correlation coefficient (r), which is 0.96 ($r = 0.96$, $n = 50$, $p < 0.01$), with a high association of the scores of the two tests. It indicates that the questionnaire is reliable in the sense that it is 'stable'. It shows that the factors of time and memory did not interfere with the reliability of the instrument as the

respondents received almost similar scores when given the same instrument on different occasions. Hence, this instrument is reliable and has a strong level of stability.

Table 3. Exploratory factor analysis of familial influence scale

	Factors		
Item	**1**	**2**	**3**
Family Communication:			
3) I received information related to studying abroad from my family	0.85		
4) Information received from the family members influenced my			
4.1 decision to study abroad	0.82		
4.2 choice of country	0.84		
4.3 choice of city	0.80		
4.4 choice of academic program	0.72		
4.5 choice of university	0.76		
9) Some of the family members persuaded me to study abroad	0.85		
10) Persuasion from the family members influenced my			
10.1 decision to study abroad	0.87		
10.2 choice of country	0.88		
10.3 choice of city	0.80		
10.4 choice of academic program	0.82		
10.5 choice of university	0.60		
Family Interaction:			
5) My family expected me to study abroad		0.40	
6) Expectation from my family influenced my			
6.1 decision to study abroad		0.63	
6.2 choice of country		0.45	
6.3 choice of city		0.43	
6.4 choice of academic program		0.48	
6.5 choice of university		0.64	
7) There was competition among family members to study abroad		0.84	
8) The competition among family members influenced my			
8.1 decision to study abroad		0.90	
8.2 choice of country		0.88	
8.3 choice of city		0.89	
8.4 choice of academic program		0.91	
8.5 choice of university		0.89	
Family Fiscal Influence:			
1) My family financially supported my plan to study abroad			0.46
2) Familial financial support influenced my			
2.1 decision to study abroad			0.40
2.2 choice of country			0.82
2.3 choice of city			0.80
2.4 choice of academic program			0.70
2.5 choice of university			0.75

CONCLUSION

The study demonstrates the development of an instrument for the measurement of familial influence on Thai students' choices of international education. The process ensured the reliability and validity of FIS, and confirmed that it was appropriate to use as a research instrument to identify five factors on students' choices of international education.

The strength of a variable using a scale and multiple items assessed, so that the reliability and validity could be established. As the choices of international education were complex, the use of complex measures was required. Richins and Dawson (1992) stated that it was no more reasonable to measure the value of "warm relationships with others" with a single item than it is to measure attitudes toward something with a single question on a survey.

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Critical Thinking and the Use of the Internet as a Resource

Paul G. Paris
Flinders University *pparis@bigfoot.com*

Information on the Internet, such as World Wide Web sites can be written by anyone. Since there is no quality control for information published on the Internet, it becomes our responsibility, as individuals, to judge what is right, wrong, immoral, illegal, biased or totally incorrect. This form of judgement can be taught and learnt. This decision making process is called 'critical thinking'. This research study involves 35 students and seeks to investigate what kinds of critical thought processes are engaged when accessing and using information from the Internet. The results indicate that there is a need for learners to be more critical when using information from the Internet; hence educators and learning institutions need to address this matter before extensively using the Internet for learning.

Internet, Critical Thinking, Online, Web

INTRODUCTION

> What's the difference between a little kid with a web site and a major corporation with one? Nothing. That's the problem. (Part of an IBM advertisement).

Adult re-entry students at a Senior Secondary College in Adelaide use the Internet to gather information as an integral part of their learning process. In order to meet the demand from students, the learning institute has its 240 computers linked to the Internet every hour of the day. It now encourages students to maximise the use of Internet information and prides itself in its ability to be able to provide this additional resource to all its members. Regardless of motive, students engage in important decision-making processes that help them determine which web site to read and gather information from.

Lee (1988) expresses concern that members from across Australian school communities are accepting information obtained from the Internet without any apparent reflective scepticism.

> Critical literacy is our main concern. Anybody can put anything on the Internet. We need to empower our children to question the information they receive. (Lee, 1998, p. 5)

The purpose of this study is to investigate what kinds of critical thought processes students engage in when they access and use information from the Internet.

CRITICAL THINKING AND THE INTERNET

Critical thinking involves logical thought processes that lead to praise or blame, acceptance or non-acceptance, the appreciation of achievement or limitation for surrounding or confronting stimuli. Above all, critical thinking provides reasons why a decision was made.

> A critic who practices his profession effectively is able to give reasons for his favourable or adverse judgments (Black, 1952, pp.7-8).

On the contrary, de Bono (1990, p. 164) states, “Anyone who makes errors of logic in his or her thinking is regarded as a poor thinker…”. Black (1952, pp.7-8) states that critical thinking involves ideals and principles where the ideals provide critical thinkers with standards involving “…the discrimination of good from bad…” and principles that involves “…chains of reasoning…”. Gagnè et al. (1993, p. 107) claim that teaching critical thinking has not been very successful. They believe that critical thinking skills are hard to teach because:

> …the procedures that underlie these skills have so many variables that can change, depending on what domain (any defined area of content) we are trying to think critically about. Consequently, procedures for critical thinking are hard to teach because the context in which the procedure can be used keeps changing.

Brookfield (1987) discusses his views and theories on strategies in developing critical thinking and observes that “...critical thinking in adulthood... (had) ...been greatly neglected in the educational literature...”. In his book, Brookfield includes strategies, theories and methodologies on how lack of attention to critical thought can be altered by educators within their curriculum offerings. However, more than 10 years later, educators are concerned that there are students in our learning institutes who are not thinking critically, especially in dealing with information presented by the Internet. Splitter and Sharp (1995), for example, highlight:

> The importance of good judgement as a determinant of how we live our lives cannot be understated. It is fair to say that errors of judgement are at the root of many of the difficulties, problems and even tragedies which confront young people. Strengthening their capacity to make good judgements should be seen as an area of vital concern to education involved in teaching for better thinking.

Another researcher, Brookfield (1987), concurs:

> When we think critically, we come to our judgement, choices and decisions for ourselves, instead of letting others do this on our behalf. We refuse to relinquish the responsibility for making the choices that determine our individual and collective future to those who presume to know what is in our own best interest. We become actively engaged in creating our personal and social worlds. In short, we take the reality of democracy seriously.

Internet

Communication networks have evolved with globally accepted protocols. A standard set of protocols allows every computer to potentially become an active node forming an international network, or Internet. With appropriate computer hardware, software, and a TCP/IP connection (Transmission Communications Protocol/Internet Protocol), anyone, anywhere, anytime around the world today can communicate with others. Though many communication protocols have been in existence and in use by individual companies and institutions since the 1960s (as with the Internet), it has only been since 1994 when Andreesen and Clark (Oliver & Oliver, 1997, p. 6) formed Netscape Communications Corporation, that the Internet became the commercial communication international standard.

As Anderson and Poole (1998, pp. 60-61) point out, the Internet has become the world’s greatest library.

> ...the linking of computer networks across countries makes available an enormous information resource, the World Wide Web...

Those who freely access the Internet through communication application programs such as Browsers, Net Newsgroups, IRC and E-mail (Iseke-Barnes, 1996) are already accepting this fact, seemingly without question. Schrock (2000) points out:

> It is important to understand that there is no single authority governing the explosion of resources on the Internet. In fact, the Internet itself is a network of networks which have different origins and purposes...anyone can be a 'publisher' on the Net, thoughtful teachers and students' will want to consider the source of any information they obtain. The skills students acquire in recognizing different types of publications can be applied to Internet sources as well.

Anderson and Poole (1998) hint at a warning that should concern all when they state that even though the Internet contains a vast amount of information we should also be aware that, "...the Web [also] contains an immense amount of trivia, much information is transient, and some is biased or inaccurate". Iseke-Barnes (1996) adds to the concern:

> The Internet is quickly becoming the dominant mass communication medium in society. As such it has educational impact. What is the nature of this impact? In particular, its usage for computer-mediated communications and information searching and retrieval in educational contexts must be explored.

To try to answer some of these concerns expressed by educators, this research study addressed the following research questions.

1. Do learners engage in critical thought processes when they access information from the Internet?
2. If so, what critical thought processes are being applied; if not, what are the implications for educators?
3. What critical thought processes can be identified as being relevant when dealing with information from the Internet?

DEVELOPING CRITICAL THINKING STANDARDS FOR INTERNET INFORMATION

Schrock (2000) developed a set of critical standards (Table 1) solely for judging Web pages. Schock's critical standards are often cited in the research literature and accordingly were taken as the starting point for this study.

Schrock provides four critical standards that a user should consider when using information from the Internet. However, Schrock's suggested questions for identifying these standards tend to overlap. For instance, for measuring the 'Reliability' of Internet information, Schrock suggests we ask the questions "If the information was obtained from a commercial site, what is the site designed to sell?" or "Does that goal affect the quality or objectivity of the information provided?" Then again, one could easily apply similar questions for the measure of 'Objectivity'. Furthermore, asking the question "What is the source of the information: did it come from an academic, government or commercial site or a Usenet newsgroup?" on its own does not determine the 'Reliability' of the information on a web site. To help overcome this problem, as well as the term 'Reliability', the indicators of domains of critical thinking were develop (see Table 2).

Table 1. Schrock's Critical Standards Guide for Educators

Critical Standards	Suggested Questions
Reliability	What is the source of the information: did it come from an academic, government or commercial site or a Usenet newsgroup?
	If the information was obtained from a commercial site, what is the site designed to sell?
	Does that goal affect the quality or objectivity of the information provided?
Authority	Postings to Usenet newsgroups frequently reflect the author's individual opinion. What do you know about this author's credential?
Objectivity	Is the information presented objectively, or does it reflect the biases of its author or web site?
	How thorough is the coverage compared to other sources?
Relevance	If information about your topic is changing rapidly, how current is the information?
	How recently was the web site updated?
	Does the information you retrieved from the Internet add a significant perspective to your research?

Table 2. Critical Thinking Domains and Indicators when using Information from the Internet

Domains	Indicators
When critically thinking about the *trustworthiness* of the information of a web site, one measures the contents:	accuracy, honesty, stability, support and logistics.
When critically thinking about the *authority* of a web site, one measures the writers:	source, qualifications, credentials, experience and level of articulation.
When critically thinking about the *objectivity* of a web site's content, one measures its:	motive, neutrality, detachment and non-opinionatedness.
When critically thinking about the *relevance* of a web site, one measures the contents:	recency, pertinence and suitability, lawfulness and maturity.

When comparing Table 1 and Table 2, it is seen that the term 'trustworthiness' has replaced the term 'reliability'. The term 'reliability' has strong statistical connotations with an emphasis towards something 'tried and true', and 'predicable'. For this research study the term 'trustworthiness' is preferred, to refer to the first domain of critical thinking adopted. This term and its indicators of accuracy, honesty, stability, support and logistics are considered more appropriate in reflecting Schock's first critical standard.

METHODOLOGY

Two instruments were used in the research study. The first instrument examined how students used the Internet information presented to them. The second instrument examined what students thought about the information on the Internet and what processes were actually used.

The first instrument used a series of Restricted Response (RR) questions (Gronlund, 1976). Thirty-five students read information from two web sites and were asked to provide written responses to a series of questions. The questions were designed to force the uncritically thinking student to generate responses from a specially developed Web Site (Web Site #2). Web Site #2 consisted of incorrect information and is referred to as the Inaccurate Web Site (IWS). To help critically thinking students with an alternate response, an alternate Web Site (Web Site #1) had been developed. This site is referred to as the Factual Web Site (FWS). Hence, for each RR question, students were given a choice of two Web Sites to respond from, plus the choice to

respond from prior knowledge/experience. These choices were articulated and emphasised to students prior to the commencement of the exercise.

The second instrument was a Written Questionnaire (WQ). The WQ was designed to bring to the forefront varying aspects of critical thinking not otherwise picked up from the first instrument. It was intended to give insight into how students personally rate the importance of various critical thinking domains.

Testing and Analysing the Data

Restricted Response Questions

In the analysis of RR questions, Table 3 highlights that students' responses had to come from one of three response categories.

Table 3. Student Response Categories (RC) for Restricted Response Questions

Category	Response Type
RC1	The student response came from the Inaccurate Web Site (IWS).
RC2	The student response came form the Factual Web Site (FWS).
RC3	The student response did not come from the IWS or the FWS. It came from some other source.

It was expected that an uncritical thinker would generate responses to the RR item utilising response category RC1 and that a critical thinker would generate responses from either response categories RC2 or RC3 (see Table 3). The RR questions had been designed with elementary 'on-line comprehension' in mind, as opposed to the higher levels of 'between-the-line comprehension' or 'beyond-the-line comprehension'. That is, the RR questions had portions of text taken literally out of the IWS and the student only needed to complete the text or find key words used in the question and locate them in the text (on-line comprehension). This is different to questions that require students to compare what they are reading to personal experiences (between-the-line comprehension) or questions that require students to speculate the 'why's', the 'what's' and the style of the text being read (beyond-the-line comprehension).

For each of the critical thinking domains and indicators in Table 2, a series of questions were prepared to record learners' engagement in critical thinking processes, when accessing information from the Internet (see Table 4).

LIMITATIONS

The research study was limited to students who were familiar and felt comfortable with the use of the Internet and the Internet software. The language used in both the IWS and the FWS limited students to senior secondary computing students.

Other limitations to the study included students who did not respond to RR questions — putting them into a response category RC3 (Table 3). There was no way of knowing whether a blank response was due to the process of critical thinking because a student could not come up with a response to the question due to lack of information provided by both the IWS and FWS, or whether a student did not comprehend the question. This categorisation placed a bias towards critical thinking.

Table 4. Indicators of Critical Thought Processes when Accessing Information from the Internet

Code	Indicators of Critical Thought Processes
T1	Do learners cross reference, and do they consider cross-referencing internet information using more than one web site and/or other reference materials?
T2	Do learners evaluate, and do they consider evaluating internet information in light of prior knowledge?
T3	Do learners consider and/or apply deductive reasoning when reading and accepting internet information?
A1	Do learners consider and/or check where the source of the internet information comes from?
A2	Do learners consider and/or check the qualifications, credentials and/or experience of the author/s of the web site?
A3	Does the lack of known specialised language in web sites alert learners' to question the authority of the information from a web site?
O1	Do learners consider why the web site was established - for instance, the potential gain to the web site authors by having users read their page?
O2	Do learners consider the neutrality (personal/impersonal stance, facts versus opinions, biases) of the information presented on web sites?
R1	Do learners determine the currency or frequency of the updates of the information from a web page?
R2	Do learner' consider the appropriateness of the information from a web page for use in their research?
R3	Do learners consider the legalities, moralities and ethics of society when using information from a web site?

T—Trustworthiness A—Authority O—Objectivity R—Relevance

RESULTS

Restricted Response Questions

As may be seen in Table 5, 35 students generated a total of 350 responses to 10 questions. Two hundred and fifty of these responses (71%) were of the response category type RC1 (Table 3). Forty responses (11%) were of the response category type RC2, and sixty (18%) were of the response category type RC3.

Table 5. Total Student Responses (N=350) to the Restricted Response Questions

Uncritical thinking responses	Critical thinking responses	
RC1	RC2	RC3
71%	11%	18%

Table 5 indicates that 71 per cent of the total student responses were judged as uncritical thinking responses. Similarly, since response categories RC2 and RC3 indicate responses that were critically thought about, then 29 per cent of the total student responses were judged as responses deriving from the FWS or from some other source.

While Table 5 looks at the perspective of the total student responses, Table 6 looks at the perspective of students (not responses) who generated responses from the IWS. For instance, it can be seen that 13 individuals (7 males, 6 females) responded to all 10 questions of the RR item using only the information from the IWS. Therefore 13 students (37.1%) are judged as uncritical process when answering questions from the questionnaire.

The data in Table 6 indicate, for example, that 4 students (11% — 2 males, 2 females) responded to 6 questions out of a potential of 10 RR questions using information from the IWS. Another way of looking at it is that these 4 students responded to 4 RR questions from the FWS, and therefore

are deemed as critically thinking about the questions presented to them. It may mean that the students had not recognised, nor comprehended, the information provided to them by the IWS and therefore sought information elsewhere. At best, we could say that at least 11 per cent of the students responded to 6 questions out of 10 uncritically because a blank response (of which there were 2) was counted as being an indication of a critical thinker. Hence the final analysis and results indicating an uncritical thinker could be higher.

Table 6. Number of Restricted Response Questions (N=10) answered by Students using Information from the Inaccurate Web Site (IWS)

No. of Questions	10	9	8	7	6	5	4	3	2	1	0	TOTAL
Males	7	2	1	2	2	1	0	0	2	0	2	19
Females	6	3	2	0	2	0	0	1	0	1	1	16
No. of subjects	13	5	3	2	4	1	0	1	2	1	3	35
	37%	14%	9%	6%	11%	3%	0%	3%	6%	3%	9%	101%*

* 1% discrepancy due to rounding off in MS Excel 97

The Written Questionnaire Item

Thirty-five students attempted the WQ item but not all students answered all questions. Table 7 shows the breakdown per question.

Table 7. Number of Students (N=35) who Provided a Response to Each of the Questions in the Written Questionnaire

Questions from the Written Questionnaire			
Q1 - 34	Q5 - 35	Q 9 - 35	Q13 – 34
Q2 - 34	Q6 - 33	Q10 - 33	Q14 – 34
Q3 - 31	Q7 - 32	Q11 - 33	Q15 – 35
Q4 - 34	Q8 – 35	Q12 - 34	Q16 – 35

Table 7 shows that students chose not to respond to certain questions in the Written Questionnaire. For instance, question Q3 “Which author did you feel was more qualified?” or the fixed alternate response of question Q7 “Web Site #2 (IWS) had accurate information” were, according to some students, difficult to answer because there was little information provided by either Web Site in this regard. This indicated that only some students were thinking critically about the author and the accuracy of the information presented to them, whereas the majority did not seem to consider these. Regardless of the apparent lack of critical thinking processes exhibited by the majority of the students, when asked about knowing who the author(s) of a Web Site is (are), 82 per cent of the students believed that knowing the experience and expertise of the author in a subject matter was important and 80 per cent of the students felt that the accuracy of information presented on Web Sites is important. This would indicate that though students believed that knowing the author and having accurate information was important, they did not see a personal responsibility in questioning the information presented to them in the Written Questionnaire.

One student commented that, “any information given on a web site should be verified. I don't know how one can ensure this any more than ensuring that absolute accuracy in the content of

daily newspapers". Another made the comment that we should "have government personnel watching it (Web Sites) and (allow them to) make any changes".

Comments from students gave insight into their thinking processes in answering the Written Questionnaire For example, "Factors such as having a photo of the man with dates of his existence made it seem more accurate" was one of the comments made by a student who mainly used information from the IWS. "Seemed to be more feasible concerning the years" was a comment made by another student who mainly used information provided by the FWS.

When asked whether they saw any differences between the information provided by each Web Site, 88 per cent of the students stated that they did. Once again, this is inconsistent with the fact the 77.1 per cent of the students were uncritical when generating responses to questions in the RR item. It can be assumed that a high proportion of students are accepting of information presented to them on Web Sites. One student responded that he used the information provided from Site #2 because the information was "...proved information. Web Sites use this information". In fact, the student was making reference to the IWS, or the Inaccurate Web Site. This IWS was an external Web Site accessible to all students via the Internet. As an Information Technology student, the student had detected this and from her perspective, the idea that the IWS was on the Internet (the FWS was placed on the Intranet) made the difference between accepting, or not accepting, the information regardless of having detected discrepancies in the information being presented.

When examining the results generated from the Written Questionnaire and comparing these to the results of the RR questions, other inconsistencies were revealed. For instance:

- In the WQ only 40 per cent of the students stated that they thought the author of the IWS was more qualified on the subject matter. Yet from the results produced by the RR item, as high as 77.1 per cent of the students used the information from the IWS to generate responses to answer the questions.

- Knowing where the source of the Web Site originated from was an important factor before accepting information from Web Sites, according to 72 per cent of the student responses generated from the WQ item. However, when asked to provide just a general source for the two Web Sites (such as *the Web Site information came from an educational site* or *the Web Site information came from a government site*) 70 per cent of the students could not say where the IWS information came from and 75 per cent could not say where the FWS information came from. When further prompted, at best only 3 per cent of all the students deduced that the IWS's information must have come from a commercial site and 16 per cent of the students realised that the FWS's information came from an academic site. There is a strong indication here that few students engage in the safe practice of seeking out the source of the Internet information even though 72 per cent in the WQ item viewed this as being an important factor.

- Although 51 per cent of the students knew the century in which Europeans discovered North America, 65.7 per cent (RR item) of these students still used the bogus information provided by the IWS. Similarly, 37 per cent of the students knew what century the first steam engine was built yet again 65.7 per cent (RR item) used the bogus information provided by the IWS. This is clear evidence that there are students who accept information published on a Web Site even if it is contrary to the acquisition of prior knowledge.

Mapping Results to Indicators of Critical Thought Processes

Table 8 maps students' responses, when accessing information from the Internet, as being either Critical (C) or Uncritical (U) against the indicators of critical thought processes identified in Table

4. What is interesting is that students claimed to be far more critical in (Table 8b) than what actually occurred (Table 8a).

Table 8. Mapping Student Responses to Indicators of Critical Thought Processes

(a) From the Restricted Response Item: What students did

Trustworthiness						**Authority**				**Objectivity**								**Relevance**			
T1		T2		T3		A1		A2		A3		O1		O2		R1		R2		R3	
Response Total Possible		Response Total Possible		Response Total Possible		Response Total Possible		Response Total Possible										Response Total Possible			
315		140		175		70		245										175			
U	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C
222	93	104	36	125	50	52	18	172	73									130	45		
70%	30%	74%	26%	71%	29%	74%	26%	70%	30%									74%	26%		

(b) From the Written Questionnaire Item: Student Values and Opinions

Trustworthiness						**Authority**				**Objectivity**								**Relevance**			
T1*		T2**		T3**		A1**		A2*		A3*		O1*		O2**		R1**		R2*		R3*	
U	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C
12%	88%	68%	32%	56%	44%	67%	33%	35%	65%	24%	76%	21%	79%	21%	79%	79%	21%	53%	47%	24%	76%

U-Uncritical Thinkers C-Critical Thinkers

* The percentages shown for these indicators are based on student values.

** The percentages shown for these indicators are based on student opinions on what they did.

Table 8a maps student responses from the RR questions 1, 2, 3, 4, 6, 7, 8, 9 and 10 to indicator T1, "Do student's cross reference web site information with other web sites and/or other reference materials?" As can be seen, out of the 315 responses (35 students responding to 9 questions equates to 315 responses), 70 per cent of the student responses did not demonstrate the critical process of 'cross-referencing' before accessing and using information from Web Sites.

The RR questions 2, 3, 5 and 6 are mapped to indicator T2, "Do students evaluate the information on a Web Site in light of their prior knowledge?" Out of a possible 140 responses (that is 35 students responding to 4 questions), 74 per cent of the students did not evaluate the information in light of prior knowledge, this is assuming that all students had prior knowledge to address the questions. In fact this is not the case. For instance, only 51 per cent of the students indicated prior knowledge of European discovery of America and only 37 per cent of the students indicated prior knowledge of the discovery of the Steam Engine. Thus the result 77 per cent is inflated. When excluding students who did not indicate prior knowledge, and only taking into account students who indicated in the WQ item that they did have prior knowledge, then the response drops down to 66 per cent. Thus 66 per cent of the student responses did not demonstrate the critical process of prior knowledge when accessing and using information from Web Sites.

The RR questions 1, 3, 4, 6 and 9 were mapped to indicator T3, "Do students consider and/or apply deductive reasoning when reading and accepting information on a Web Site? Out of 175 student responses (that is 35 students responding to 5 questions), 72 per cent of the student responses did not demonstrate the critical process of 'deductive reasoning' when accessing and using information from Web Sites.

Table 8b maps student responses from the WQ item to each of the indicators of critical thought processes. These responses are based upon student claims of what they did in the thinking

processes to address questions in the RR item. Table 8b also examines student perception of what is valued and what is important.

When prompted what can be done to check the 'Trustworthiness' of the information published on Web Sites, 88 per cent of the student responses indicated cross-referencing as a possible process (T1). Sixty-eight per cent of the student responses indicated that they did not consider using prior knowledge or personal experiences (T2) when accessing information from the IWS and FWS. A further 56 per cent of the student responses indicated that students detected no discrepancies, and hence did not apply deductive reasoning (T3), in the information presented by the IWS and FWS.

To find out whether students thought about the 'Authority' of Web Sites, the WQ item revealed that 67 per cent did not check, nor considered checking, the source of the information from the Web Sites (A1). However, 65 per cent of the student responses considered that the author's qualifications, credentials and experience is important (A2). Seventy-six per cent of the student responses indicated that the language used (A3) would influence them to accepting or not accepting the information from a Web Site.

To ascertain whether 'Objectivity' of Web Sites was considered, students were prompted for views on the potential gain to the author for having users read their Web Page (O1) and the neutrality of the information presented on the Web Sites (O2). Seventy-nine per cent of student responses indicated importance in spending time thinking about the author's gain and 79 per cent of student responses indicated consideration for facts, opinions and exaggerations by authors, while 21 per cent of the students' responses did not consider objectivity an issue.

In determining whether students considered the 'Relevance' of information published on Web Sites, students were prompted to determine whether they noted the time, date and recency of the information (R1), their views on accuracy of Web Site information (R2), and their views on honesty and decency of Web Site information (R3). Twenty-one per cent of the student responses indicated that they checked the recency of the information provided by both Web Sites. Forty-seven per cent of the students indicated accuracy of Web Site information as being significant (R2) while 76 per cent of the students viewed honesty as being significant (R3).

In summing up, students are generally overly trusting of the information presented on Web Sites and do not check from where or whom the Web Site information came from. However, they are critical about its objectivity, especially when it comes to biases and fairness of the information presented on Web Sites. Strangely, students say they are not overly concerned about the level of accuracy of the information on Web Sites but are concerned about its honesty – it would seem that near enough is good enough.

Discussion

The critical thought processes identified for this study, adopted and modified from Schrock's Critical Standards (Table 1), have been categorised into four domains: trustworthiness, authority, objectivity and relevance. Within each of these domains, a number of indicators were specified and used to aid in the identification of critical and uncritical thinkers (Table 4).

Learners Engagement in Critical Thought

The study indicates that most learners, even though they are aware of a range of critical thought processes, do not apply all of these processes when accessing information from the Internet (Table 8). Judging from the responses provided in the questionnaire, it would appear that there are two distinct reasons for learners not being overly critical in the acceptance and use of information from the Internet. The first reason is that learners are unaware of the total freedom and relative

ease in which anyone can publish Web Sites on the Internet, and; secondly, they are overly trusting of authors of Web Sites, especially Internet Web Sites as opposed to Intranet Web Sites.

Critical Thought Processes Applied by Learners: Addressing Research

Results of the study suggest that some critical thought processes take place (mainly in the objectivity domain) for most students but generally students are not overly critical especially when judging the Web Site's information source, the relevance and recency of the information, and the accuracy of the Web Site.

Being critical about the Web Site's objectivity could be the result of the current Australian social climate where citizens are constantly reminded of our egalitarian and non-discriminative society. Nevertheless, it would appear that generally students are quite accepting of what is being communicated to them via the Internet because they are not sufficiently sceptical about authors' motives and the information source.

Implications for Educators

Most students in this study are overly trusting of the information published on the Internet and are not overly sceptical of the authors that produce the information. The implications for educators are that learners may be misinformed, mislead or abused by others. To help learners become equipped with processes to think critically and become active critical thinkers in Internet information gathering, the following considerations are put forward as suggestions to be examined and/or implemented in the interim:

- Educators working with Internet information;
- Educators using rating structures;
- Learners declaring URLs, and;
- Learners guide to critical thinking processes.

Educators working with Internet Information

This study indicates that learners are uncritical towards Internet information. While this appears to be true for at least some of the learner population, it is suggested that educators attempt to trap potential misuse and/or misinformation by closely examining their programmes, assignments, tasks and learner notes used in the curriculum delivery. Though educators may not be using Internet information themselves, they need to accept the their learners will. Indications are that the number of learners who use the Internet for research will increase. Therefore, educators need to examine their resources from the perspective of the learner.

A simple strategy for preventing learners who have not yet developed good critical thinking processes (such as the very young) and to secure them from poor quality Web Sites is to make available a list of appropriate Web Sites that they can use (it might be a good idea to discuss with the learner why the Web Site(s) was/were deemed 'good').

Educators Using Rating Structures

Another teaching methodology, to be considered by educators for learners who have not yet developed critical thinking processes, is the use of rating structures. That is, educators and/or learning institutions need to establish and agree upon criteria for measuring the quality of the content of a web site. These criteria (or ratings) will need to be known to learners. However, it means that educators will need to examine and visit Web sites prior to learner usage.

Learners declaring URLs

If a learner was to use a web site for information gathering that goes outside what has been listed or recommended by the educator, then it should be mandatory that the learner provide correct URL addresses for these web sites on a reference page so that an educator has the option of revisiting the site if they wish to do so. Younger learners, however, should be discouraged from using web site information outside those listed by the educator without supervision.

CONCLUSIONS

This research study has attempted to examine the *degrees of acceptance* of information obtained from Web Sites by adult students because Web Sites are now becoming a normal part of current day living in modern societies. It was not an investigation into critical thought processes as such even though critical thought processes played a vital role in this research study on the Internet.

The major finding is that 37.1 per cent of the students answered all questions from a web site containing inaccurate information and as many as 77 per cent of the students answered 6 questions or more (out of 10) from an inaccurate web site (Table 6). This indicates that there is a portion of adult students who are overly accepting of the Internet information and are therefore potential candidates in making critical 'life' decisions based upon untrustworthy, unreliable, non-sourced and non-objective material. If this finding is replicated, it points to a serious problem. Implications for educators are presented and, as starting points, suggestions are made for remedying the problem for students from an individual and organisational perspective.

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Professional Preparation and Development of School Leaders in Australia and the USA

Zhixin Su
California State University Northridge, USA *zsu@csun.edu*

David Gamage
University of Newcastle, Australia

Elliot Mininberg
California State University, Northridge, USA

INTRODUCTION

Educational reformers and researchers in Western countries have discussed the role of the school principal as the key decision-maker, facilitator, problem-solver, and the agent of change at the school site, (see, for example, Edmonds, 1979; Clark, Lotto, and Astuto, 1984; Smith and Purkey, 1983; Adams, 1987; Gamage, 1990 & 1996c; Barth, 1991; Sergiovanni, 1991; Thomson, 1993; Caldwell, 1994; and Cranston, 1996). However, research studies on the demographic characteristics and professional development of educators have focused more on teachers than on school administrators. Little information is available about the profiles and preparation of school leaders to meet the new challenges in the twenty-first century schools.

In recent years, with the increasing collaboration and communication among educational institutions in different nations, comparative and international education scholars in Australia, the United States, China and Britain have initiated a series of research projects to examine and compare the professional education and experiences of school leaders. Initially, Sharpe (1976) conducted a study of the profiles of high school principals in Australia and the United States. Subsequently, in a study funded by the Federal Government, Chapman (1984) prepared extensive profiles of Australian school principals. More recently, Daresh and Male (2000) designed a small-scale exploratory study of selected first-year British head teachers and American principals.

Meanwhile, Su, Adams and Mininberg (2000) initiated a survey study of selected American and Chinese school principals as a part of the collaborative training and research programs in the International Professional Development Academy (IPDA) at California State University, Northridge (CSUN). The IPDA was created to:

- develop an awareness of the goals and responsibilities of educational administration for schools in the twenty-first century;
- broaden perspectives on the current school reform issues in the international context;
- compare theories and their application in practices in educational administration at different levels of schooling and across national borders; and
- develop friendship and understanding among international scholars and practitioners in educational administration.

Furthermore, the IDPA planning to establish an international foundation in the pre-service and in-service curriculum for educational administrators, helped the current and future education leaders to develop broad and comparative perspectives on critical issues in educational reform, and to improve their knowledge and understanding of education and schooling in a global context. In keeping with this goal, key researchers at the IPDA shared their findings from the United States-China comparative study of school principals at international conferences and began to work with educational scholars in Australia, South Korea, Taiwan, and Norway to replicate the principal study in their regions in order to shed new lights on the profiles and preparation of school leaders in a multi-national context. Findings reported in this paper represents the collaborative efforts between Australian and American scholars.

RESEARCH METHODS

The comparative survey study of school principals was first conceptualized and designed by researchers at IPDA in 1997, and survey data were first gathered from a group of Chinese and American school principals in 1998 and 1999 (Su, Adams, Mininberg, 2000). The American sample consisted of school principals and assistant principals in Los Angeles County and adjacent counties and many members of the sample were enroled in post-graduate programs at CSUN as California school administration practitioners seeking the second level (Tier II, Professional Administrative Services Credential) of administrative certification necessary for continued employment as school leaders. Altogether 111 survey records were gathered from American school principals and assistant principals.

During the Northern winter of 1999, when an Australian scholar visited the College of Education at, CSUN IPDA decided to collaborate with the University of Newcastle by replicating the principals' study in Australian schools. The Australian data was collected from 102 principals and deputy principals within the school districts of Newcastle, Lake Macquarie and Maitland. In the Northern summer of 2000, two researchers from IPDA travelled to the University of Newcastle in Australia in connection with the study. Together, they visited schools, interviewed representative principals to collect additional information and seek clarification on the data collected in the empirical survey from 102 Australian school principals and deputy principals. The American and Australian school principals are comparable in that all of the respondents came from major coastal and urban areas in their nations. About two thirds (71%) of the Australian school principals surveyed were primary (K-6) school principals and one third (29%) were secondary school principals. In the American sample, half were secondary school principals and half were from elementary schools. In this discussion and analysis, it is necessary to bear in mind that Australia and the United States have different historical, political and social backgrounds and take into consideration such differences in the interpretation of the data collected.

The survey questionnaire contains both structured and open-ended questions and was based on the research model in the American National Study of the Education of Educators (Sirotnik, 1988) and on the principals' knowledge and skill base as identified by the National Policy Board for Educational Administration (Thomson, ed., 1993). It covers four parts: Part I on participants' background information; Part II of participants' pre-service and in-service training experiences; Part III on participants' views on the principal's job and responsibilities as well as their fundamental beliefs in what schools should be for; and Part IV on participants' perceptions of the goals and tasks of school reform and the role of the principal in reform. In addition to survey questionnaires, the researchers interviewed selected school principals both in the Unites States and Australia. The interview questions

covered similar grounds as the survey questionnaire, but allowed selected respondents more time and freedom to explain and describe their views and perceptions.

It is important to add that in collecting the survey data from the American school leaders, the target group was the ones who were seeking second level credentials by undertaking professional development programs in educational administration at university campuses. However, the Australian data were collected from practitioners serving in three school districts, who were not undertaking university level professional development studies at the time of the survey.

FINDINGS AND DISCUSSIONS

Two research reports have been prepared on the findings from the Australian-American comparative study of school principals. A comparative analysis of findings on the basic beliefs and values of school principals, which regard education and schooling, their views on school reform and the role of the principal in reform, as well as their visions of the ideal schools for the twenty-first century will be presented in another article. This article focuses on the profiles and entry perspectives of Australian and American school principals, and on the pre-service and in-service training programs in which they have participated. Implications for change in the recruitment and training of school principals are advanced in this article.

Profiles of Australian and American School Principals

Data from the survey of school principals present interesting profiles of the Australian and American school principals. Figure 1 shows that of the Australian principals surveyed, 62 per cent were male, and 38 per cent were female, whereas for the American principals surveyed, 58 per cent were female and 42 per cent were male. It seems that there is more gender equity among the American school administrators. This is also true for elementary level school administrators in the United States. If we look at the secondary school principals only, then 61 per cent in the American sample were males. This figure is closer to the data gathered by the National Center for Education Statistics, which shows that the majority of the American public school principals were men (65.4%), and only 34.5 per cent were women (National Center for Education Statistics, 1997). The American national data also indicate that there has been an increase in the proportion of new women principals: from 41 per cent in 1987-88 to 48 per cent in 1994-95. Even in Australia, current trends show that the numbers of women occupying principal positions both at primary and secondary levels are on the rise. For example, in the school districts of Newcastle, Lake Macquarie and Maitland out of total of 176 principals 46 or 26 per cent were women principals whereas 74 per cent were male principals. However, in Newcastle, which is the most urban district, out of 66 principals, 30 or 45 per cent were women principals, showing new trends in the Australian system.

Figure 1 also presents information on the age distribution of principals in the two countries. The Australian principals were older than their American counterparts. While 22 per cent of the American principals were under the age of 40, only 2 per cent of the Australian principals were under this age. In fact, 60 per cent of the Australian school principals were between the age 41 and 50 in contrast to 42 per cent of the American principals in the same age bracket. Thirty-five per cent of the Australian principals versus 31 per cent of the American principals were between the ages of 51 and 60 years. Based on data from the school visits and interviews, we learnt that prior to 1989, the Australian principals, particularly in New South Wales' (NSW) were appointed on the basis of Seniority Lists maintained by the system using information from the comprehensive evaluations conducted by the school inspectors. As those lists only identified people entitled to be appointed to principal positions, sometimes people had to wait for years until a vacancy arose. This explains why

many Australian school principals were in a higher age bracket when they were compared with the American principals. However, it is important to note that the school systems in the Australian Capital Territory (ACT) and Victoria started the selection and appointment of school principals on merit with the introduction of school-based management in the mid 1970s (Gamage, 1996b; Gamage, Sipple & Partridge, 1996). In New South Wales, it was the introduction of the Scott reforms with community participation in school management that paved the way for the selection of principals on merit enabling the appointment of younger people to these positions (Gamage, 1992; 1996c). Consequently, the Australian principals generally had longer service (average of 16 years) as teachers before they became school administrators than did the American principals (average of 13 years). The American national statistics indicate that all principals had come to their assignments with an average of 10 years of prior experience as teachers (National Center for Education Statistics, 1996a) and that the average age of all new principals had increased from those under 35 years (13%) to those in the 45 to 49 year age group (32%). Therefore, more American principals are entering their positions at an older age (National Center for Education Statistics, 1997). Whether it is better to have older, more experienced than younger (or visa versa) principals in schools needs to be further investigated.

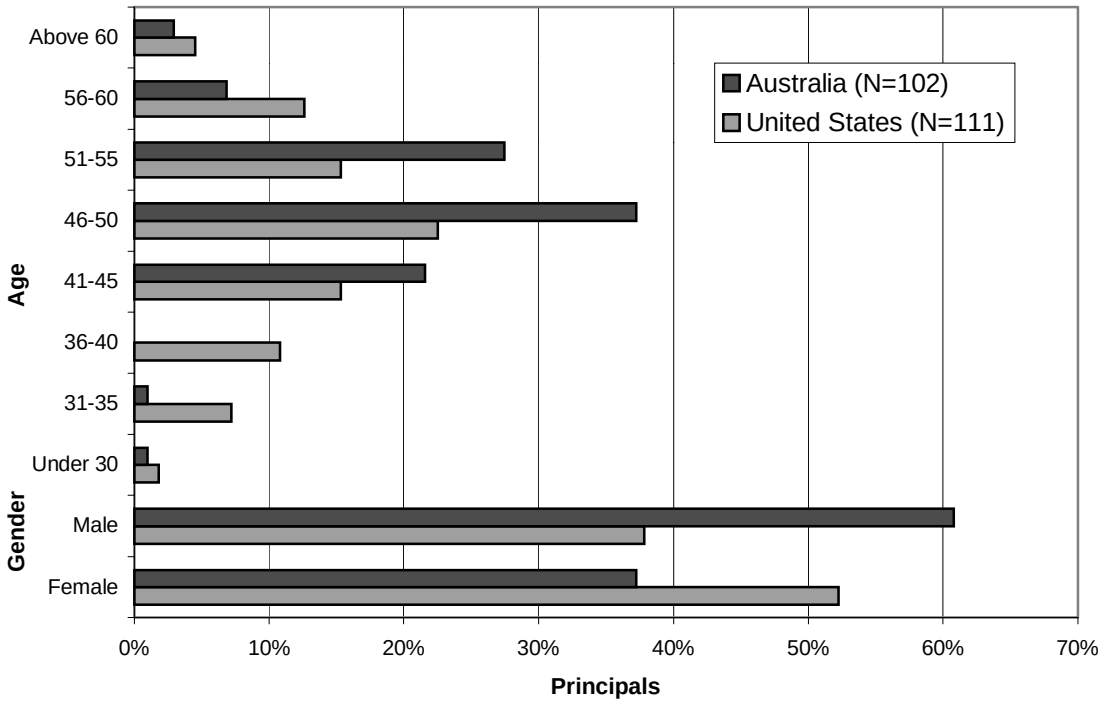

Figure 1. Age and Gender Distribution of American and Australian Principals

There is also a great difference in the academic degrees held by Australian and American school principals. As shown by Figure 2, while 17 per cent of the Australian principals had less than a bachelor's degree, 45 per cent hold bachelor's degrees, 34 per cent have master's degrees and only 2 per cent have doctoral degree while 2 per cent preferred not to respond to the question. Nearly all of the American principals in the sample had higher degrees, with 90 per cent holding master's degrees and nine per cent with doctoral degrees. One explanation for this difference is that in the United States, in almost all states, one of the key criteria for appointment to a position of principal is a master's degree in educational administration (Baltzell and Dentler, 1983; Bennett, 1987; Barson, 1990; Richardson and Prickett, 1990). In Australia, the academic and professional qualification required for principal remains a four-year bachelor's degree or equivalent. However, under the merit

selection system introduced since 1989, selection panels are giving preference to higher degree qualifications. In 2000, all three vacancies in high school principalships in the Hunter area of New South Wales were filled by graduates holding master's degrees in leadership and management in education (MLMEd) of the University of Newcastle, which is a clear sign of the current trends. The national data from the United States also indicate that more than 60 per cent of public school principals held master's degrees and more than nine per cent held doctoral degrees (National Center for Education Statistics, 1996b). In fact, it has become very common for American school teachers to pursue master's degrees. Many earn them in evening programs while teaching full time in schools during the day.

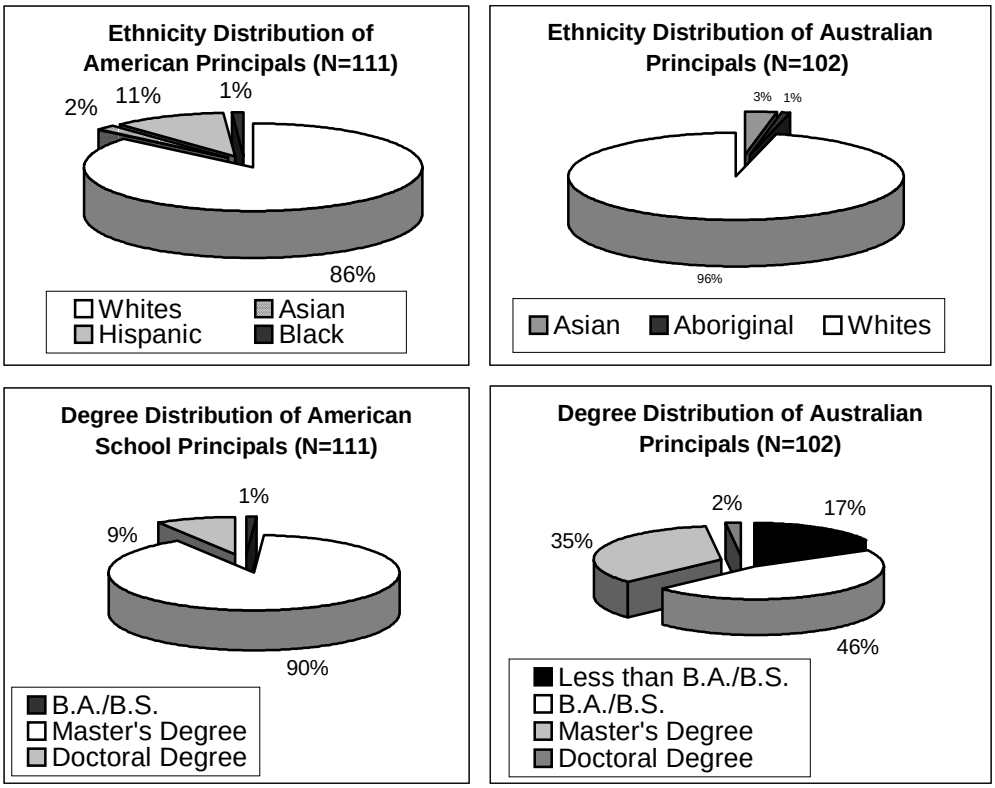

Figure 2. Ethnicity and Degree Distribution of American and Australian Principals

Although the Australian school principals have lower level degrees than their American counterparts, more and more Australian universities today offer a wide array of courses and graduate programs aimed specifically at the school administrators - courses and programs in school management, educational administration, leadership, educational policy, school organization, business administration and so on. They are available at graduate certificate, graduate diploma, masters, master's honours and doctoral levels. The latest, teacher training inquiry instituted by the NSW Government, in its report (Ramsey, 2000), has emphasized the desirability of recognizing qualifications in leadership and management in education for appointing candidates to principal's positions. With this trend, it is expected that Australian school leaders are more likely to seek higher levels of training and degrees in the future.

Both the United States and Australia embrace increasing diversity in their school population. In California, for example, more than half of the students are from minority backgrounds. However, the professions of teaching and educational administration are still dominated by the mainstream/Caucasian group. More than 80 per cent of the American teachers are still white. In our sample, 86 per cent of the American school principalswere white, and only 14 per cent were minorities (11% Hispanic, 2% Asian, and 1% black). This is very similar to that revealed by the American National Center for Education Statistics: 85 per cent were white

and 15 per cent were minorities (National Center for Education Statistics, 1997). Calls and efforts for change have been made to recruit and train more minority teachers and educational administrators to meet the needs of the diversified student population (Dillard, 1994, and Su, 1997).

The Australian school principals in our sample were also predominantly white (96%), with only three per cent Asian and one per cent Aboriginal backgrounds. These figures seem to be closely related to the homogenous nature of the student population in the sample area. According to the 1996 official statistics, in Newcastle 91 per cent, Lake Macquarie 95 per cent, and in Maitland 96 per cent of the student populations consisted of Caucasian backgrounds.

Entry Perspectives –Why did you want to become a Principal?

There have been some studies on the entry perspectives of teachers (see Su, 1993, 1996, 1997; Choy, 1993; King, 1993; and Gordon, 1994), but there is very little research on those of educational administrators. Entry perspectives comprise a set of subjective reasons involved in a career choice. They include preferences for intrinsic or extrinsic rewards, preferences for certain occupations, and the development of a commitment to a career choice. Extrinsic rewards include what we usually think of as the earnings attached to a role and involve salary or money income, a level of prestige, and power over others, while intrinsic or psychic rewards for teaching consist entirely of subjective valuations made in the course of work engagement (Lortie, 1975).

Data from the current study of American and Australian school principals reveals interesting similarities and differences. We asked them to consider the importance of a series of reasons for becoming school principals. As indicated by findings presented in Figure 3, while the Australian principals considered “to have a personally satisfying job” and “to provide effective leadership” as the most important reasons, the Americans regarded “to help children and young adults,” “to make a contribution to society,” “I like children and youth,” plus the two most important reasons identified by the Australian principals as the most important. It seems that the Australian principals were less concerned about the purely altruistic reasons than the American school leaders, who appeared to be more idealistic. One reason for this discrepancy might be due to the fact that most of the American education administrators made their own decisions to become school principals and undertook training for this position. Another reason might be that the targeted American principals, were the ones who were undertaking their level two accreditation programs at university campuses. These principals would have been more articulate in defending their decision to provide a more unselfish motive. On the other hand, the Australian group, not being a specially selected group who had had the experience of working together for a considerable period of time similar to the American group, were perhaps, more forthcoming in expressing their inner feelings.

One thing in common in the views of the Australian and American principals is that they all considered intrinsic reasons as much more important than extrinsic reasons. Both rated “to have a high paying job,” “to have job security and a steady income” and “I was influenced by others” as not very important. In both the United States and Australia, teachers’ salary was known as one of the lowest among all the major professions in the society, and principals’ salary was higher than the average for teachers but still lower than most other professions in the society. A few American principals in our sample mentioned that they did get into educational administration for higher salary and more income because the teacher salary cannot support and satisfy their families’ financial needs.

Even in Australia, there is a clear distinction between the salaries of the classroom teachers and principals. The step one of a classroom teacher in 1999 was $27,258, rising to $50,000 after 13 years of service on the basis of annual increments. The lowest level, primary principal started with $55,548 while the larger primary school principal's salary was $77,894. In the case of smaller high schools, the principals received a salary of $77,894 while the larger size high school principals were paid a salary of $81,299, illustrating a significant gap between teachers' salaries and principals' salaries (NSWDET, 1996).

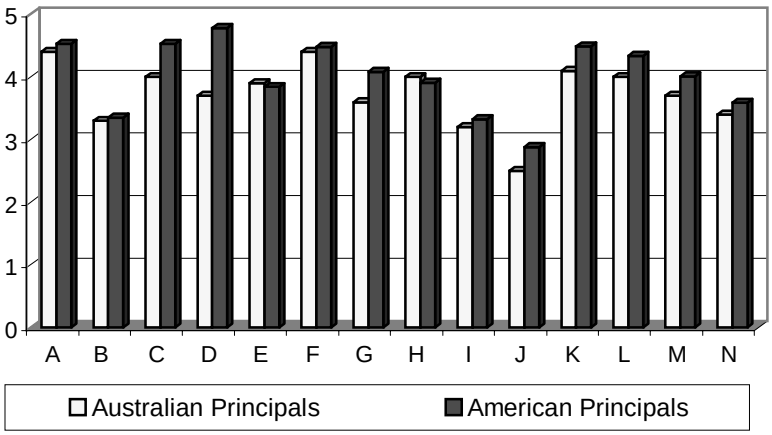

Figure 3. Reasons to Become School Principals

Another commonality in Australian and American school principals' entry perspectives is the emphasis they placed on school reform. Both rated "to work with teachers in school improvement efforts" and "to have an impact on school restructuring" as among the more important reasons for becoming school principals, although they did not give "to help transform society" equally high ratings, perhaps recognizing the limitation of their impact on the society. In comparison, the American principals gave these reasons higher ratings than their Australian counterparts.

The written responses to the open-ended question of why they wanted to become school principals reveal interesting differences between the Australians and the Americans. Most of the American principals mentioned that they came into education administration because of their belief in the value of public education, an opportunity to enjoy working with children and people, need to exert a significant influence on school change, and desire to make a positive difference in the lives of those involved in their schools.

Within the Australian sample, a significant number indicated that they became school leaders because they wanted to take the challenge and help to improve schools and student outcomes. They expressed confidence in the job and wanted to implement the educational philosophies that they believed in, to share their ideas, to give all students the best possible education, and to make them into good Australian citizens, who can improve society. A few Australian school leaders in the sample stated very practical reasons for becoming principals: a career change encouraged by peers and improved salary. One frankly stated, "Ego, to get a promotion, not to do play-ground duty and a challenge." Another was bold enough to state "money" as the major cause to get into principalship.

Some Australian principals described their visions for school reform and they considered becoming principals as an opportunity to realize their visions. They wanted to use their knowledge and skills to improve educational outcomes for pupils on a whole school basis. One stated that he could influence change as he had something to contribute. Another wanted to make a real difference to students and stay in the education process by applying

the knowledge and skills that he had acquired to build a better school than the one he worked in. These principals believed that they could influence the implementation of policy and educational practice and that they had developed sufficient skills to allow them to serve as effective leaders.

When asked in the survey if they planned to stay as school principals for the rest of their careers, the American and Australian principals expressed mixed feelings. More than 42 per cent of the American principals surveyed intended to remain in their positions and they considered the principal's job as "stimulating," "challenging," and "satisfying." However, about 34 per cent of them gave a resounding "no" to this question, and 24 per cent were "not sure" or uncertain. About half of these principals would like to move into administrative positions at the school district level later on in their careers, but the other half cited "stress level" and "work load" as the major reasons for them to leave the principal's job. One American principal felt that "it begins to eat me alive and I want to be out - almost to do anything else." Another one complained that the load was so "overwhelming" that she was "peddling" as fast as possible but all she was hearing was "requests and demands for more." Such feelings of frustration and being spread too thin appear to be very common among American school principals (Portin and Shen, 1998; and Richardson, 1999).

A recent study (Adams, 1999) related to the growing shortage of applicants, both in California and throughout the United States, for administrative positions, surveyed a population which had completed requirements for administrator certification to establish why qualified educators were choosing not to seek positions, and why those who currently hold administrative positions were considering leaving the field entirely, or seeking return to classroom teaching assignments. Respondents from this research sample of 109 certified educators cited the following factors affecting their decisions not to seek or to remain in administrative posts:

- increased demands to layer on new responsibilities not readily seen as related to teaching and learning,
- erosion of their authority to effect change in their organizations,
- escalating expectations for accountability, lack of support,
- statutes and mandates which dictate practice,
- compensation which is not commensurate with their responsibilities,
- long hours which leave little time for family or personal renewal, and
- a pervasively stressful political environment for school leaders.

Findings from the current study have lent further support to these observations. Australian school principals feel similar stress as their American counterparts. They see themselves as working in environments of constant change and uncertainty. For some, the result is a sense of powerlessness and loss of control. Stress among some has occurred as a result (Cranston, 1996). There is also a shortage of qualified school principals in Australia. A concern exists in a number of states where there is a decline in the number of applicants for principal positions in general, and in country and remote locations in particular (Scott, 1999). In this study, the vast majority (80%) of Australian participants indicated that they preferred to stay on as principals as they enjoyed the challenge and variety associated with the job. However, some wanted to make changes or move up in the administrative ladder. A teaching principal indicated that he would prefer to get into a non-teaching principal position while a deputy principal wanted to become a principal. Another principal would like to move upwards to a position of Superintendent or Chief Education Officer.

A small number of Australian principals in the study were planning to leave their positions. One explained that he had been the principal of three schools and preferred to have a change. A female principal confirmed that she did not want to stay in the job but preferred to undertake travelling and doing volunteer work. One principal gave a definite and negative answer when asked if he would stay as the principal, "No. I do not have a death wish, the stress levels and lack of support threatens principal's health." Another lamented, "Not sure. I believe change is important to maintain enthusiasm, interest and challenge." A few of them felt that they had stayed in one position too long and wanted a career change. A few more stated that they were closer to retirement and plan to retire as principal. Clearly, serious measures should be taken to reduce the stress level of principal's work and to address the professional development needs of principals in order to renew their commitment to their work and to retain the best school leaders in the education system.

Pre-Service Training

In addition to variance in their profiles and entry perspectives, the Australian and American principals in the sample had very different experiences in pre-service training, both in length and in content. Figure 4 shows that the majority (76%) of American school principals in the sample, participated in two or more years of formal training programs, 20 per cent attended one-year programs, and only four per cent received just a few months of training. In sharp contrast, 66 per cent of the Australian principals in the sample did not have any pre-service training before they became school principals. This outcome appears to be the result of not having any pre-service requirements by the system except being a good practising teacher. Of those who did, four per cent received only three months of training, two per cent had half a year of training, five per cent received one year of training, nine per cent had two years and 14 per cent, four years of training. It is obvious that those who have indicated as having one or more years of training have interpreted their own university level professional studies as pre-service training as the system did not either provide or require that type of training.

As has been noted by scholars in other comparative studies (Daresh and Male, 2000), there is a long history of formal programs for principal preparation in the United States. Since the end of the nineteenth century, there have been efforts to develop programs of study on university campuses, that would enable individuals to enter the field of school management and administration (Culbertson, 1990). Principals must have at least three years of teaching experience, university master's degrees, and they must have completed mandated programs of study leading to the receipt of licenses or certificates to serve as school principals in their respective states.

In contrast, Australia, Britain, China and many other countries, have been using the traditional apprenticeship model where future school leaders have been prepared mostly by moving up the ranks from classroom teachers to master teachers to heads of departments and to school principalship, although there has been a shift in recent years in these countries to create and require some formal pre-service training for school administrators (Daresh and Male, 2000; Su, Adams, and Mininberg, 2000). In England, a new central government initiative for improving the management and leadership skills of head teachers and other senior professionals has been launched. The Labour government has recently published in its White Paper, *Excellence in Education*, its intention for all prospective head teachers to undertake formal preparation for the position. The emphasis placed on professional development is such that newly appointed British head teachers are entitled to a grant of 2500 Pounds Sterling, within the first two years of their appointment for the purpose of obtaining professional development, preferably at university level. The demand for educational management programs has increased to such an extent that in 1999, the

University of Leicester (a medium size British University) had over 1300 candidates enrolled for its MBA in Educational Management (Gamage, 2001). Australia, which followed the British model in the past, has also begun to stress the importance of appropriate training, selection, development and rewards for principals and other school leaders (Caldwell, 1994).

In China, where formal principal training was nonexistent only a few years ago, the National Ministry of Education now requires all the principals to obtain certificates of pre-service training, at least for a few months, before they take leadership positions. Educational administration has also emerged as a formal teaching and research area in a few leading Chinese institutions of teacher education. Nevertheless, all of these new developments cannot be compared to the well-established certificate and graduate programs for educational administration in American colleges and universities. The Chinese school principals participating in the International Development Academy at CSUN were quite impressed with the breadth and depth of the educational administrator training programs in California.

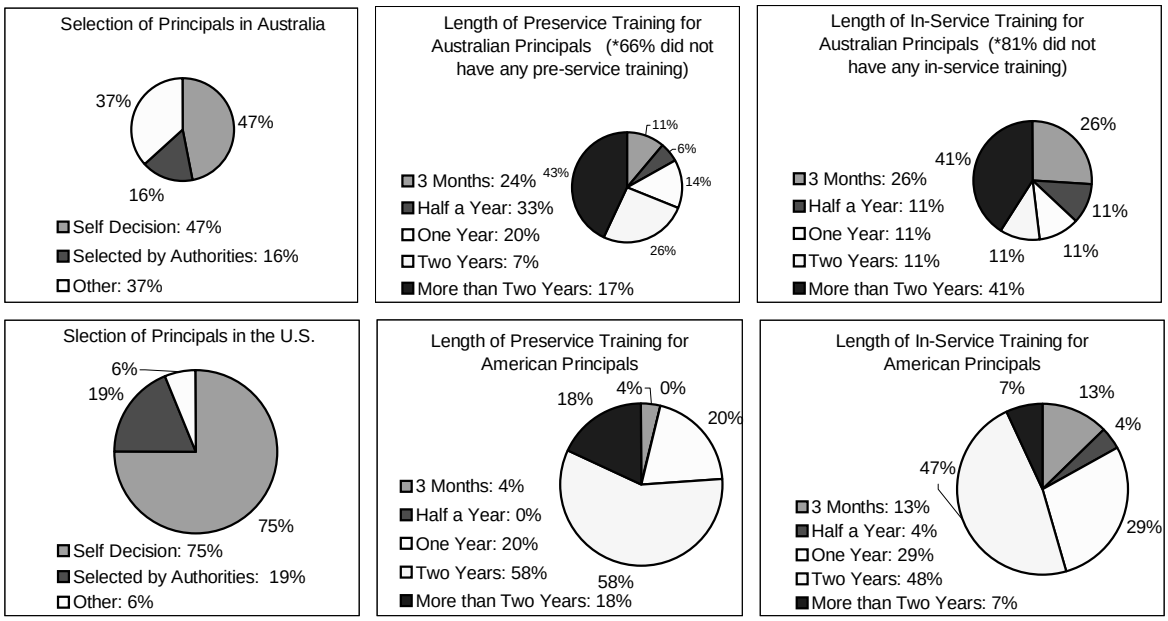

Figure 4. Selection and Length of Training Programs for American and Australian Principals

We asked the principals to rate the importance of a list of topics covered in their pre-service principal training programs, based on the first tier general requirements in California's education administrator preparation program. Figure 5 shows a comparison of views held by Australian and American principals. The American principals considered "legal aspects of educational administration," "principles and practices of curriculum development" and "organization and administration of elementary and secondary schools" as the most important topics. They also gave other topics relatively high ratings. As indicated by findings from another survey study in California (Adams, 1999), school administrators here felt that their programs of university course work and supervised field experiences had prepared them well in such areas as supervision, curriculum, law, finance, and school and community relations.

In comparison, the Australian principals assigned much lower ratings - only one item was rated slightly higher than three on a five-point scale - to all of the topics than their American

counterparts. The Australian principals also gave "field work" the lowest rating--less than one point on the five-point scale. As we have seen from the data presented earlier, about two-thirds of the school principals in the sample did not have any pre-service training before they took the leadership posts. Of those who took some pre-service training, 76 per cent did not have any fieldwork requirement. Many of the other principals covered by the American curriculum were also conspicuously missing from the pre-service training programs experienced by about one-third of the Australian principals in the sample. In some ways, the Australian school leaders have to learn their job on the job, by being a principal. Even at the follow up interviews, the principals emphasized that they were not either provided or required to undertake any pre-service training. However, some, on their own have undertaken university level studies in educational administration and leadership and in considering merit, the system has recognized such qualifications for appointments to principal positions.

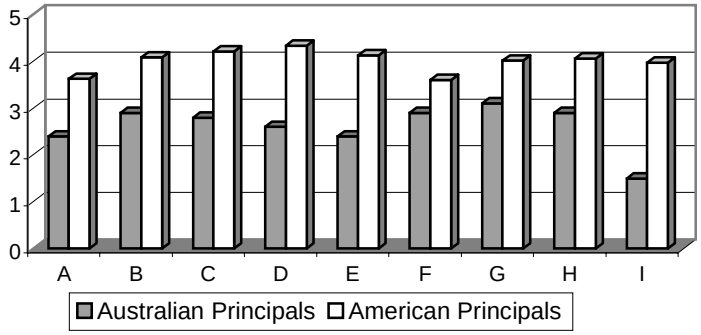

Figure 5. Importance of Topics in Pre-Service Training Programs

In the research and reform literature, there have been strong arguments and empirical evidence as to the importance of good field experiences. Many future teachers even consider field work and their field mentors as the most significant sources of influence on the development of their fundamental education beliefs, attitudes and values (Su, 1992; Reiman and Theis-Sprinthall, 1998). Improving field experiences and internships with competent mentors and role models have been recommended as important measures to improve graduate education programs for educational administrators in the United States (Daresh and Playko, 1993; Schmieder, 1994). In California, for example, since 1997, entry-level administrators have been required to identify a university adviser and a practitioner mentor with whom to work in the development and implementation of a professional growth plan of 12-24 months duration. Doing that requires the establishment of a close relationship between the universities and those in the field (Cairns, 1995), which is often a weak point in the preparation of teachers and education administrators in the United States.

In fact, when asked to make recommendations to improve the existing pre-service training programs, both American and Australian principals placed heavy emphasis on the importance of connecting theory learning with internship and fieldwork, especially observation of exemplary education administrators. They wanted to have "more hands-on experiences," "more mentoring by experienced site administrators," "more emphasis on practical skills and realistic issues and problems that a principal may face," "more shadowing and mentoring," "more in-basket activities in every course," "more case studies of principal's work," "more observation of exemplary principals," "longer commitment to fieldwork," and "stronger link between the university and the school district." The Australian principals pointed out the non-availability of such programs but emphasized the need to require current and prospective principals to undergo comprehensive training in educational administration and leadership with incentives provided by the system. These

suggestions have strong implications for restructuring the pre-service training programs for educational administrators both in the United States and Australia.

The American principals in our study also wanted to add more computer education and application experiences to their pre-service training curriculum. Moreover, they would like to receive more training on diversity, evaluation, personnel, budget, and special education issues, matters that the Australian school principals did not mention in their recommendations. In view of the fact that no pre-service requirements were laid down by the Australian system, the principals suggested that there should be well-structured comprehensive pre-service training programs for the principals.

One aspect in common between educational administrators in the United States and Australia is that becoming a principal is a personal career choice and the candidates have to pay for all the training costs and spend their own time to complete the study. Now, because of the adoption of merit selections and the implementation of school-based management by almost all Australian school systems, many current and more specifically the prospective school leaders are undertaking university level professional development programs. These programs are followed either by distance learning mode or by attending university campuses in the evenings after school. Since 1998, in most university campuses, the course-work graduate level programs are being offered only on the full-fee paying basis. In both systems, seeking promotional positions is purely a personal decision. In this context, the Australian participants too have no alternative but to pay for their own professional development. However, in 2001, the Federal Government in Australia announced its plans to establish a fund to award interest free loans for those who wish to undertake such programs. In contrast, in countries like China and Korea, becoming a principal is largely an assignment or appointment by the higher authorities, and pre-service training is also arranged and paid for by the government authorities. The Chinese candidates can study full-time with full pay and full benefits. Therefore, they have the advantages of time and money over American and Australian school principals.

In-Service Training

Apparently, American school principals have received much more in-service training than their Australian counterparts. To begin with, the majority of the Australian school leaders, 81 per cent in our sample did not have any in-service training. As shown by data in Figure 4, the majority of the American principals, 83 per cent in our sample, had more than one year of in-service training. In fact, nearly half of them received two years of in-service training.

In Australia in the past, the beginning principals were provided with a two-day induction program at the beginning of the year, but those who had to take up their positions in midyear had to miss out on this program. Currently, no such program exists but the training and development directorate has organized a number of relevant programs and these are provided on-line to be followed by the current and prospective principals, if they choose to do so. However, depending on the Government's prioritized agenda for the year such as child protection legislation, creation of learning organizations, getting the foundation right, excellence in teaching and learning, partnerships in public education, a fair go for all; the principals are in-serviced at the district level, requiring them to provide in-service to their staff at schools.

In contrast, the American in-service programs are more formal, more structured and developed, often located on the university campuses. In addition, much of the in-service training in the United States has been provided by professional organizations, state and county agencies, and the administrators' own school districts. For example, in California,

educational administrators are required to take a second tier administrative credential program, which is a pre-requisite for entry-level administrators. It generally covers ten different topics of study as shown in Figure 6. These topics are encompassed within five thematic areas which are mandated for program inclusion by the state certifying agency, the Commission on Teacher Credentialing. The five thematic areas under which all topics and courses of study are subsumed include:

a) organizational and cultural environment,

b) dynamics of strategic issues management,

c) ethical and reflective leadership,

d) analysis and development of public policy, and

e) management of information systems and human and fiscal resources.

When asked to indicate the relative importance of these ten course topics, the Australian and American principals held some different views, as shown by Figure 6. Again, the Australians assigned much lower ratings to almost all of the topics than their American counterparts, as some of the Australians had not had in-service training in these areas. The American principals considered "leadership for information management and change" and "ethics, morals, and values for educational leaders" as the most important topics of in-service training, whereas the Australians regarded "an induction plan" as more important than others.

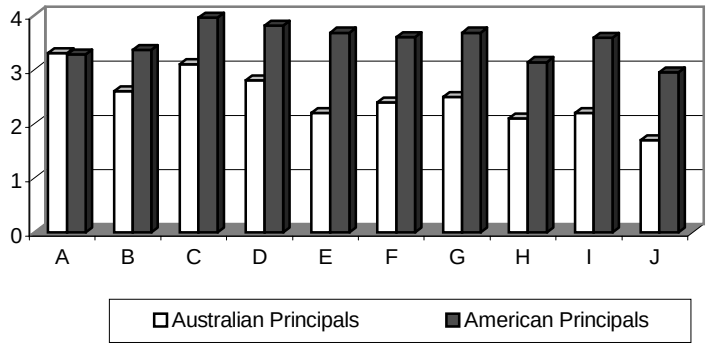

Figure 6. Importance of Topics in In-Service Training Programs

Interestingly, "organization and administration of multicultural programs" was considered as one of the most important topics by American principals, but it was ranked as the one of the least important by Australian education administrators. This might be due to the lack of diversity among Australian educators and students, although education for aboriginal students is a concern for the school principals we interviewed. In contrast to most areas in the United States, the student and teacher and educational administrator population is quite homogeneous in the Newcastle area, therefore educators there may find much less pressure to deal with the multicultural and diversity issues, although they also teach about minority cultures and other cultures in the world in their general curriculum.

In making recommendations for improving the existing in-service training programs, the American and Australian principals reiterated their recommendations for the pre-service preparation programs, again with an emphasis on the importance of quality fieldwork: "more practical with actual school situation and cases," "more nuts and bolts of site organizational structure and change," and "better connections between theory and practice." Furthermore, the American principals demanded that university in-service courses be taught by professors

who had been principals over the last five years in order to address current problems in schools. They also wanted the university to eliminate redundancy of requirements for the first tier and second tier programs.

Our participants' observations and suggestions are not new. Reformers in the U.S. have repeatedly recommended "pairing" and "mentoring" of novice principals with experienced and exemplary administrators on the job (Blumberg and Greenfield, 1986; Daresh and Playko, 1991; Elsberry and Bishop, 1993; Adams, 1999), where leadership and management skills are taught along with counselling in times of trouble, creativity is nourished, and advice is provided on job and career decisions (Parks, 1991). They also point to the need to include in the in-service training for educational administrators more on-site content, careful choice of the contexts, and systematic planning by school systems and universities (Hart and Weindling, 1992). Moreover, some researchers have argued that in-service training of educational administrators should focus more on life situations than on academic subjects (Richardson and Prickett, 1994) and that it is critical to offer in-service training in context-laden situations so that novice administrators can learn to devise solutions relevant to local conditions (Murphy and Hallinger, 1987).

In a cross-national study, Coleman and his associates (1996) reported that while mentoring is often part of the pre-service administrator-training process in the United States and Singapore, in the United Kingdom it takes place as in-service education for the new principal already in a position. In such cases, the new English principal tends to place high value on the support obtained from a trusted peer. Another study in Australia also found successes in a peer assistance program involving training, observation, and feedback (Brady, 1996). Adams' recent study (1999) in California indicates that such support is increasingly the norm in that state's districts, where not only is designation of a mentor, and of a defined induction program, developed collaboratively with a university adviser, required by the state's certifying agency, but also in districts, which are establishing comprehensive in-house institutes and academies to aid new administrators and increase the likelihood of their success in meeting district goals. Our participants' responses clearly support the findings, conclusions, and recommendations made by these scholars.

Recognizing the fragmented nature, the short duration and the lack of their in-service training, the Australian principals suggested that the future programs be organized in a more consistent, structured and comprehensive manner and with more emphasis on up-to-date knowledge and on practice. They also wanted to have more opportunities to share information with colleagues both at home and abroad, and they were particularly interested in lessons of school reform from other nations. We anticipate and expect more and more exchange and communication between educational administrators in the United States and Australia through the efforts of comparative education scholars.

CONCLUSION

In summary, both the Australian and American school principals in our sample had chosen to enter leadership positions primarily for altruistic and intrinsic reasons, although the Americans seemed to be more idealistic and more reform-oriented than the Australians. At the same time, the American principals were more stressed out than their Australian counterparts and as a result, one third of the Americans in our sample intended to leave educational administration. Although the majority of the Australian principals in our sample plan to remain in their positions, they also expressed feelings of powerlessness and stress. Currently, there is a severe shortage of principals, particularly in the United States. It is important for educational policy makers to reflect on findings from this and other related studies and develop strategies to recruit and retain high-quality school leaders.

Another major finding from the study shows that the Australian school principals tend to be more senior in age and teaching experiences but lower in academic degrees than their American counterparts. Apparently, seniority bears more importance in the selection and appointment of school leaders in Australia, whereas formal, graduate-level, and university-based credential program is a must for the selection of school principals in the United States, regardless of the candidates' age and teaching experiences in schools. All American principals must have completed formal credential training on a university campus before they could apply for the leadership positions in schools. In contrast, most of the Australian principals have little or no pre-service training before they took their positions. The American colleges and universities also offer extensive second-tier or graduate level in-service professional development programs to school principals, whereas the majority of the Australian principals do not receive any formal in-service training from the university.

For years, scholars in different parts of the world have debated the issue of whether or not people could receive adequate professional preparation for the principalship through academic experiences on the university campus. The Australian, British and Chinese view in the past has been that there is no better preparation for leadership than on-the-job experience as a head of department, member of senior management team, and deputy headship. They did not feel that pre-service training is something that should necessarily take place on a university campus. The contrasting American position has also been fixed. It maintains that the route to the principalship is one, which can only take place through the completion of university courses, academic degrees, and governmental licensure (Daresh and Male, 2000). Increasingly, the Australian and British educational system are encouraging candidates for principalship to have higher degrees. The Teacher Education Inquiry established by the New South Wales Government expects that more and more Australian universities will offer formal and graduate-level training programs in educational administration (Ramsey, 2000).

Moreover, findings from this study reveal that the Australian and American principals differ in their views of the importance of various subject areas for pre-service and in-service training, especially regarding field experiences. The Australian principals have placed much less importance on field experiences in formal training programs because most of them have learned to become principals on an apprenticeship model, immersing themselves in real school field experiences everyday. However, in making recommendations for the improvement of pre-service and in-service training programs for school principals, the Australians and Americans are in total agreement and both want to place heavy emphasis on connecting theory with practice and especially on the observation of exemplary educational administrators. The principals' views and voices have strong implications for developing and restructuring the existing training programs for school principals and call for a much closer link between the school and the university.

Findings from this project and other recent comparative studies of school principals demonstrate that nations continue to differ in both theories and practices in preparing their educational leaders although they have all recognized that principals are at the center of school improvement efforts. Educational policy makers and reformers should draw some useful lessons from this comparative study in their efforts to recruit and prepare more and better principals, who are committed to meeting the challenges of the twenty-first Century and demands of changing societies. After all, the effective principals are the ones who create effective schools where all students can learn.

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Teaching Chinese to English Background Primary School Students

Shiqin Hu
Flinders University, School of Education *shiqin39@hotmail.com*

One of the controversial issues in connection with learning Chinese as a second or foreign language is the time at which it is most appropriate to introduce the language and to teach the Chinese characters to young school students. By conducting a case study, the present investigation has provided both quantitative and qualitative support to the hypotheses that primary school students are well able to learn the Chinese language so long as they are schematically made ready to accept the new language, and that Chinese characters could well be introduced to young students at an early stage of learning.

Teaching Chinese, English Background Primary School Students,
Second Language, Case Study

INTRODUCTION

One of the controversial issues in connection with learning Chinese as a second or foreign language is the time at which it is most appropriate to introduce the language and to teach the Chinese characters to young school students. *National Chinese Curriculum Projects* (Department of Education, 1994) suggests that "There are clear advantages in beginning as early as possible. The difficulty of the Chinese script should not be seen as a deterrent. In fact, it is often the dominant factor in learners' enjoyment of Chinese". However, some educators advise that students mainly learn to read pinyin and acquire substantial spoken Chinese before attempting to read and write characters (e.g., Everson, 1998).

Still other educators, such as Kirkpatrick (1995), argue that the so-called difficult Asian languages - Modern Standard Chinese, Japanese and Korean - should not be taught at the primary school level or even at lower secondary school level to non-background speakers. He argues that these languages have scripts that are radically different from English and require the learning of many characters, and that they are not cognate with English and therefore take the learners around four times as long to attain basic proficiency as learners of easier languages such as French.

These questions were, and are still raised, discussed and explored among Chinese teachers and educators: Should the Chinese language be introduced to primary school students? Should Chinese characters be introduced to primary school students, and if yes, at what stage of learning? By conducting a case study, the present investigation has provided both quantitative and qualitative support to the hypotheses that primary school students are well able to learn the Chinese language so long as they are schematically made ready to accept the new language, and that Chinese characters could well be introduced to young students at an early stage of learning.

A CASE STUDY

In order, to obtain empirical evidence to answer the questions and to explore the issue of what aspects of the Chinese language should be taught to primary school students, a case study was conducted over two terms in 2001, involving four groups of Years 2 and 3 students at one school in metropolitan Adelaide, South Australia. The study hoped to see:

- if young students were able to learn to read and write Chinese characters in the early stages of schooling;
- to what extent learning to read and write characters increased difficulties;
- what views students held on the learning of the Chinese language.

The method followed during the case study was an in-class method. The general approach of the research was to become familiar with the LOTE (Languages Other Than English) Chinese classrooms of a typical school and to assess what further learning outcomes might be able to be achieved without disturbing the general pattern of classroom teaching. The aim was to demonstrate that primary school students could, without loss of time, acquire a more complex learning of the Chinese language, related to the characters. Ordinary classroom assessments were used to check the learning results. The study hoped to provide a practical example using real students in a real classroom setting.

The methods used to obtain data for the case study were observation, interview, oral recording, cognitive tests and an attitude questionnaire. The data was processed using Excel 97 for statistical purposes.

PARTICIPANTS

The case study involved 102 Years 2 and 3 students studying LOTE Chinese. In the school under survey, students are introduced to LOTE Chinese from Year 2. That is, by the time the case study started, the history of the participants' Chinese learning varied from six months to 18 months. When the case study started, the participants had had very little experience in reading and writing characters, as junior primary school students mainly learnt to speak Chinese using pinyin.

Years 2 and 3 students were chosen for the case study for two reasons. The first reason was that the participating students had had very little experience in character learning, therefore the information obtained would have high validity. The second reason came from the consideration that, if junior primary school students could learn to read and write characters, so too could upper primary school students.

PLANNING THE ACTIVITIES FOR THE CASE STUDY

Like most other schools, the school under survey adopted a thematic format for LOTE Chinese. Usually students studied one topic each term. Activities around the topic included students having some reading practice and hands-on activities such as doing title pages, matching pictures with words, filling blanks, making small books like "My Book", and playing Chinese games.

The planning of the activities for the case study strictly followed the pattern of the LOTE Chinese curriculum adopted at the campus. For the third and forth terms in 2000, the topics were: 'My Sports' and 'My School' respectively. After much consideration and discussion between the researcher and the class Chinese teacher, the following agreement was reached.

- The class Chinese teacher would prepare the lesson plan as well as conduct the regular teaching.
- The four participating classes would learn the same Chinese words and do the same activities. Besides normal reading and writing practice in pinyin, students also needed to learn to read and write ten characters related to each topic.
- Randomly chosen, classes P and N (two experimental classes) would learn the ten characters using pictures and the picturing method, while classes S and H (two control classes) would have more experience in learning pinyin and would not use the picturing method. Class P would use the picturing method in the third term, class N would use the picturing method in the fourth term.
- Students would use ten minutes to learn new characters or practise reading and writing the characters at the beginning of each class.
- The researcher would teach the new characters to the two experimental classes, using the picturing method. This would take five to ten minutes at the beginning of a lesson. During the rest of the lesson, both the researcher and the class Chinese teacher would observe and give help to students when necessary.
- Two tests would be given to the participating students during each case study.
- The class Chinese teacher would supervise the tests.

TESTING

Across the two terms, four tests were given to the participants to test what learning had occurred and to see if young children, at the early stage of learning, were able to learn to read and write the Chinese characters. There was also an attempt to observe if different teaching elements produced different learning results.

As was mentioned earlier in this paper, the four classes used different methods for learning the Chinese words during the case study. The two control classes (S and H) learnt the words using flash cards that had a picture and a Chinese word in pinyin on one side and the word as a character on the other side. The side which had pictures was always shown to students first. The students learnt to read and write the word in pinyin before learning it as a Chinese character. The two experimental classes (P and N) used flash cards on which one side had a picture and a Chinese word as a character and on the other side the word in pinyin. That is, characters were introduced before pinyin to the students in classes P and N. Pinyin was used to help the students remember the pronunciation of the characters.

The difference between class P and class N was that, in the third term, class P used the picturing method. The students talked about what each character looked like in order to help them memorise it. Class N used this method in the fourth term. The results of the tests were tabulated and presented in graphic form using Excel 97.

Test 1

Test 1 was an oral recording. It required the students to say out ten sport words learnt in the third term. The main question used by the researcher during the test was: How do you say ... in Chinese? Prompts were given to the students to help them retrieve the words. Students' answers were recorded and calculated to compare the difference in speaking performance between the students. Four groups of about 12 students from each of the four Years 2 and 3 classes did the oral test. The participants were chosen at random. It had been expected that S

and H classes would retrieve more words because they had had more practice in reading and writing pinyin, which adopts alphabetic letters like English.

Table 1 presents the results of Test 1. The results however do not show a difference between the four classes. Instead, the two experimental classes who mainly learnt to read and write characters obtained slightly better results.

Test 2

Test 2 was an open-ended test. It required the students to write out the words related to sports that they could remember in both pinyin and as Chinese characters, and also give their meanings in English. There were 102 students in the Year 2 and 3 class from both the experimental classes and the control classes participated in the test. Students' answers were classified into character and meaning and pinyin and meaning. The results were calculated and tabulated.

Table 1. Results of Test 1

Students	Retr. before prompt	Retr. after prompt	Total	Average
Group P (n=12)	89	7	96	7.8
Group N (n=13)	91	0	91	7
Group S (n=12)	63	0	63	5.3
Group H (n=14)	79	0	79	5.6

Table 2 presents the results of the test. The results indicate that the overall retrieval in classes P and N was higher than that of classes S and H. Classes P and N retrieved more characters than classes S and H, while classes S and H retrieved more pinyin. It could be that the two control classes had more exposure to pinyin and therefore they relied more on pinyin. Classes P and N used cards which had a picture and a Chinese word as a character on one side and the word in pinyin on the other side. The students in these two classes were exposed more to the Chinese characters than to pinyin. The results indicate that they remembered more characters than pinyin.

Table 2. Results of Test 2 and Year 2 and Year 3

Students	Character & Meaning		Pinyin & Meaning		Total	Average
Class P (n=26)	193		10		203	7.8
Class N (n=22)	155		6		161	7.3
Class S (n=25)	80		95		175	7
Class H (n=29)	83		96		179	6.2
Overall	511		207		718	7.04
	Total	Average	Total	Average		
Year 2 (n=61)	311	5.1	108	1.8	419	6.9
Year 3 (n=41)	207	5.1	94	2.3	301	7.3

Class P's results were slightly better than class N. It could be that the picturing method produced better learning results. The results do not show much obvious difference between Year 2 and 3 students.

Test 3

Test 3 tested six words related to the topic 'My School'. Twenty items were required to be answered. The main purpose of the test was to observe if different teaching elements

produced different learning results. In the fourth term, class N used the picturing method, while class P only used pictures. The test was only for classes P and N. It was also aimed to observe if young students were able to learn to read and write Chinese characters.

Table 3 presents the results of Test 3. The results indicate that the students recognised and produced 80 per cent of the six words learnt. Class N did slightly better than class P.

It was noticed that the students' mark for question 3 was lower than that for questions 1 and 2. This issue was discussed between the researcher and the class Chinese teacher. When looking at the students' work, it was noted that some students did use most of the six Chinese words but some words were written in English, and these were not calculated. The class Chinese teacher suggested that further explanation be given before the students started to do this kind of question.

Table 3. Results of Test 3

Questions	**Class P (n=24)**		**Class N (n=21)**	
	Total	Average	Total	Average
1. Write a Chinese character under each picture to express the meaning of it (6 items)	125.5	5.2	116	5.5
2. How do you say these in Chinese? Write the words in pinyin (8 items).	139.5	5.8	128	6
3. Write a short story in which all the 6 words in Question 1 are used. Write the words in character (6 items).	98	4.1	98	4.7
Total responses of the three questions	362.5	15	327.5	16

It was also noticed that the P and N students could use both characters and pinyin. There might be three reasons for the results. First, the students had learnt some pinyin before. Second, during the case study, class P and N students used pinyin to help to remember the reading of new words. Third, pinyin adopts alphabetic letters like English, which is easier for students to remember.

Test 4

Test 4 required the students to write out the words related to school they had learnt in the fourth term (10 in all) and the words related to the previous topic, if they could remember any. All the Year 2 and 3 students did the test. The answers were classified into character and meaning (Ch. and M) and pinyin and meaning (Pinyin and M). Table 4 presents the results of Test 4. The results indicate that the overall retrieval of classes P and N is slightly higher than that of classes S and H. Classes P and N retrieved more characters than classes S and H. Class N did slightly better than class P.

Table 4. Results of Test 4

Students	**Ch & M**	**Aver.**	**Pinyin & M**	**Aver.**	**Total**	**Total aver.**
Class P (n=25)	245	9.8	23	0.9	268	10.7
Class N (n=19)	225	11.8	5	0.3	230	12.1
Class S (n=24)	112	4.7	131	5.5	243	10
Class H (n=21)	108	5.1	90	4.3	198	9.4

A FOLLOW-UP ATTITUDE SURVEY

A follow-up attitude survey was conducted at the end of the case study. It asked the students if they liked to learn Chinese before and now, and if they felt confident about their learning

of Chinese before and now. Owing to the limitation of the paper length, the details of the survey are not reported here. The results indicate that 37 per cent more students liked to learn Chinese than before, and 32 per cent more students felt confident about the learning of Chinese than before.

DISCUSSION

Overall, the mark for each test was high. For the four tests, presented in Figure 1, classes P and N produced more words and more characters than classes S and H. Class P's results for the first two tests were slightly better, while class N's results for the last two tests were slightly better. Several interpretations could be suggested from the test results.

- Young students are well able to learn to read and write Chinese characters.
- Learning characters did not increase the difficulties. Classes P and N mainly learnt characters, while classes S and N had more experiences in learning pinyin. Within the same teaching time, classes P and N produced more words and more characters instead of fewer. It could be concluded that the complexity of the Chinese orthography may not be a major deterrent to young students' learning of Chinese.
- Learning strategies influence student learning outcomes. In the third term, class P used the picturing method. Their results for the first and second tests are slightly better than that of class N. For the same reason, class N's results were a bit better for the last two tests.
- The results do not show much difference between Year 2 and 3 students. Younger students could do as well as older students within the same teaching time. Characters could therefore be introduced to young students from the early stage of learning.
- Teaching elements influence student learning results as well. During the case study, classes P and N used flash cards which had a picture and a Chinese word in character on one side, and pinyin on the other side, while classes S and H used flash cards which had a picture and pinyin on one side, and character on the other side. That is, P and N students were exposed to characters before pinyin, while S and H students were exposed to pinyin before characters. For the three written tests, S and H students produced more pinyin than characters, while P and N students produced more characters than pinyin. Possibly, students' mental presentation was influenced by the visual presentation.
- Students' learning interest and confidence in learning Chinese over the two terms were increased instead of decreased.

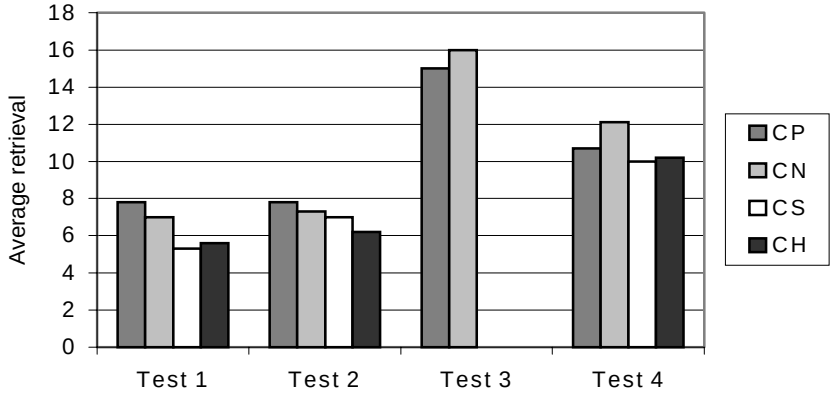

Figure 1. The results of four word tests by four Year 2 and 3 classes

A question regarding the difference in test results between classes P and N and classes S and H might be raised, Besides the different learning strategies used to acquire new words, were there other factors that caused the difference? It was agreed between the researcher and the class Chinese teacher that there might be a teacher factor. New characters were taught to the two experimental classes by a different teacher using a different method, and during the rest of the lesson, both the class Chinese teacher and the researcher helped the students with their work, which might have helped to increase students' interest in learning.

PEDAGOGICAL IMPLICATION

The results of the case study have provided evidence to answer at least two questions: Is there an appropriate time to teach LOTE Chinese to primary school students? Is there an appropriate time to teach Chinese characters to primary school students?

Before further discussing the two questions, it is necessary to review the research into the age factor in second language acquisition. Basically, there are two types of opinions about the optimal time for learning a second language. One is that the earlier children study a language, the better (Hatch, 1988; Gorosch & Axelsson, 1964). The other opinion is that "Every age has its advantages and disadvantages with regard to the learning of foreign languages" (Jakobovits, 1970; Magiste, 1984). The results of the case study seem to give support to the opinion that quite young children can be introduced to many aspects of a difficult second language, which might add weight to the early learning position.

The present study did not investigate the advantages and disadvantages of different age ranges in acquiring Chinese as a second language. It did provide evidence to demonstrate that junior primary school students are well able to learn to read and write Chinese characters. If junior primary school students could learn to read and write characters, so could upper primary school students.

Based on the results of the case study and the related studies, this paper would like to propose the following pedagogical practices.

1. **Introduce Chinese characters to primary school students from the very beginning**. If young learners are well able to learn Chinese characters, and are interested in learning them, as the case study seems to indicate, given that the test results didn't show obvious difference between Years 2 and 3 students, characters could well be introduced to students from the first day of Chinese learning.

2. **Focus on the basics when teaching characters.** The modern Chinese language has more than 40,000 characters in use (Fazzioli, 1987), of which 3,000 to 5,000 are most frequently used in daily life. Even 3,000 would be a fairly large number to learn. However, if it were kept in mind that the Chinese characters were built from a combination of 214 or so basic characters, known as radicals, it would take much pressure off the learner. It would not be very difficult to learn some of the 214 or so basic characters, yet it would pave a very good way for their future learning of the language. For primary school students, characters of fewer strokes and with obvious pictorial features could be introduced first, gradually followed by those of complex pattern.

   The importance of studying radicals has been stressed by many a language teacher and researcher (e.g., Jiao, 2001; Zhang, 2001; Yu, 2001; Xu, 2001, to name a few).

3. **Use the method of picturing to teach Chinese characters where possible**. As was mentioned earlier in this paper, the two experimental classes learned to read and write characters using the picturing method, while the two control classes did not. The test

results show some differences between the two experimental classes and the control classes. It could be concluded that the method of picturing is validated by the learning results.

The essence of the picturing method is 'Looks Like'. When the students talk about what a character looks like, they are linking the new information to their existing knowledge. The truth is that many Chinese characters do look like their referents. Pupils can also make more 'personal' links. It should be a useful tool to use in the LOTE Chinese classroom for young children.

4. **Very importantly, deal with schema conflict.** Human behaviour is determined by knowledge of the environment. Schank and Abelson (1977) point out that many circumstances involve stereotypic sequences of actions. On different occasions, people may follow different sequences of actions. In cognitive psychology, these are called schemas. There are various types of schemas such as event schemas, action schemas, object schemas, learning schemas; so there will also be language learning schemas.

   In order to put it simply, schema means the sequence of actions kept in mind and followed when doing things. People from different environments might follow different sequences of actions. Adults tended to have more fixed patterns of action sequences. On the analogy of event schemas, language learning schemas are how the learner normally gets access to the meaning of words. When children see an English word, they activate its sound and from the sound they gets its meaning. Their mental images of language involve alphabetic letters and sequences of letters. When children start to learn Chinese, the characters look and sound different from the language stored in their memory. Schematically, they are stuck, unless they are taught how to accept the new language.

   Young children are arguably more open to learning another language because their schemas are developing. If a new language is introduced to them from the very beginning, together with useful learning skills, they are more flexible and open to accept it. However, as is widely observed, a lot of LOTE Chinese students only learn pinyin instead of characters to avoid confusion at the beginning. Normally learners don't have much trouble with pinyin at first because pinyin uses letters, very much like English. However, being just a tool to help reading Chinese characters, pinyin doesn't help to prepare students to progress because schematically students are not made ready to accept another writing system.

5. **Adopt separate tracks for oral and written Chinese.** Based on her research in Chinese teaching and learning, Chu (2001) proposes a two-track system, separating the training of listening-speaking skills from those of reading and writing for the beginning Chinese language course, or early part of it. The argument for this proposal is that there is a gap between the oral and written aspects of Chinese language. It is necessary to use different methods and different materials in teaching oral and written Chinese at the beginning stage to allow students to establish a solid foundation in both aspects. The proposal was made mainly for university students. However, it is an idea worth applying to primary school students.

   For instance, primary school students could learn to speak Chinese adopting the thematic format, and at the same time learn to read and write Chinese characters from the most basic ones to those of a more complex pattern, and from characters of fewer strokes to characters with more strokes. Within a few years of such practice, students should be able to accumulate enough knowledge to recognise characters themselves.

Practice in vocabulary is an essential part of Chinese learning. The Chinese language is different from the alphabetic languages in that it does not have gender, tense and number variations. The predominant grammatical concern lies in semantics and syntax, or the meaning and order of words. Therefore, the principal task of learning Chinese is vocabulary building, which relates to character learning and cultural understanding. While primary school students' learning of Chinese may not reach an advanced level, it is important to pave the way adequately for their future learning.

CONCLUSION

This article reports the results of four word tests, and a follow-up attitude survey. The tests were mainly to see if introducing Chinese characters to junior primary school students was appropriate. The tests were also to see if different teaching elements and different learning strategies influenced learning results. The tests have provided evidence that primary school students did very well in learning to read and write the Chinese characters. For the four tests, the two experimental classes obtained the same or better results than the two control classes, and they produced more characters. Such results were obtained using the same length of class time and same overall effort.

Also, for the three written tests, classes P and N retrieved more characters, while classes S and H retrieved more pinyin. It could be that different elements of pictures produced different mental representation, and different teaching elements produced different sequences of action in approaching the learning of a language.

An issue is thus brought into prominence: If young students are well able to learn the Chinese characters at the early stage of learning, and if they are interested in learning characters, as the attitude survey indicates, given that the test results did not show obvious differences between Year 2 and Year 3 students, characters could well be introduced to young students from the first day of Chinese learning. The tasks set for the Chinese language teaching would be to help the learners to learn to use the language, to experience the culture through the language, and to make students schematically ready for future learning.

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